ISSN: 1612-5940

Historisches Forum

16 • 2015

The Status Quo of the Digital Humanities

Edited for H-Soz-Kult by
Torsten Kahlert und Claudia Prinz

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With the process of institutionalization underway or well advanced in numerous European countries, we – the editors of the German information platform for historians H-Soz-Kult – think that a review and evaluation of the evolution of Digital Humanities in Europe is a timely task.

ISBN: 978-3-86004-311-0

http://edoc.hu-berlin.de/e_histfor
Veröffentlichungen von Clio-online, Nr. 2

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[Historisches Forum]
Historisches Forum. - Berlin: Clio-online und Humboldt-Universität zu Berlin
Gesamttitel: Veröffentlichungen von Clio-online, Nr. 2
ISSN: 1612-5940

Bd. 16: **The Status Quo of Digital Humanities** / hrsg. für H-Soz-Kult von Torsten Kahlert und Claudia Prinz / (Historisches Forum: Bd. 16) - Berlin: Clio-online und Humboldt-Universität zu Berlin, 2015
ISBN: 978-3-86004-311-0

Geschäftsführende Herausgeber:
Rüdiger Hohls – Wilfried Nippel
in Verbindung mit Clio-online (Rüdiger Hohls), H-Soz-Kult (Thomas Meyer – Claudia Prinz) und Zeitgeschichte-online (Jürgen Danyel – Jan-Holger Kirsch).

Redaktionsschluss: 23.06.2015

Editorial

The Status Quo of Digital Humanities in Europe

The use of computer technology in the humanities has by now a history that spans several decades. It is closely intertwined not only with technical developments such as the advent of IBM's Personal Computer or the success of the World Wide Web, but also with historiographical trends: The „Cliometrics" of the 1960s and 1970s with their computer-facilitated quantitative analysis of cultural data were related to the dominance of social history at the time, whereas the popularity of Geodata in current research projects may be linked to the Spatial Turn, to give just two examples.[1] The advent of „Digital Humanities" in the past decade was not a linear story, and one that becomes even more complex when we look at the different turns and paths taken in individual humanities disciplines. Communication services such as mailing-lists (or other 'one-to-many' communication services like twitter) and academic platforms, large digital libraries and archival digitization projects, and databases were dominant features of the most recent layer of Digital Humanities.[2] In humanities research, computer-facilitated text analysis and quantitative methods have been supplemented by an enormous range of digital tools for manifold research questions, some of them highly individual and others organized in large digital infrastructures.

Today, Digital Humanities are viewed from different perspectives: as an academic subject or discipline with a distinct agenda; as a bundle of research methods; as a communication, information and publication infrastructure; as a practice that changes our epistemologies; or simply as a label to take part in funding programmes.[3] Debates arise whether

[1] See Gerben Zaagsma, On Digital History, in: BMGN - Low Countries Historical Review 128 (2013), 4, pp. 3–29, here p. 8 < http://www.bmgn-lchr.nl/index.php/bmgn/article/download/9344/9780> (accessed 16.10.2014), with reference to a study of Daniel Greenstein, Bringing Bacon Home: The Divergent Progress of Computer-Aided Historical Research in Europe and the United States, in: Computers and the Humanities 30 (1996), 5, pp. 351-364.

[2] See Berry, David, Understanding Digital Humanities, Palgrave Macmillan 2012.

[3] For one concise perspective, see Jeffrey Schnapp, Todd Presner, Peter Lunenfeld and Commentators, A Digital Humanities Manifesto?„The Digital Humanities Manifesto 2.0." <http://manifesto.humanities.ucla.edu/2009/05/29/the-digital-humanities-manifesto-20/> (16.10.2014).

all forms of digitization of our research and teaching can be considered Digital Humanities (which would mean that we are all digital humanists), or whether only systematic and self-reflexive research approaches using expert software that advance our research methodologies should count as Digital Humanities – and where to draw the dividing line between these two areas. Obviously, there is a wide range of qualified answers to this question, and consensus between different disciplines and countries varies widely.

With the process of institutionalization underway or well advanced in numerous European countries, we – the editors of the German information platform for historians H-Soz-Kult – think that a review and evaluation of the evolution of Digital Humanities in Europe is a timely task. Founded in 1996 before the current „boom" of Digital Humanities, H-Soz-Kult is one of the projects that have shaped the landscape of Digital Humanities in Germany. In our loose series of Discussion Forums on matters pertaining to current research and infrastructure in the humanities, we now start the publication of a series of essays on „The Status Quo of Digital Humanities in Europe". We invited colleagues who are actively involved in the Digital Humanities – as scholars, researchers, university teachers, programme administrators – to contribute to our discussion forum and are glad that a number of prolific colleagues accepted this invitation.

While digital services, databases and many of the scholarly debates and controversies in Digital Humanities are explicitly international (often with a noticeable Anglophone bias), the infrastructural component in Europe is just as often organized along national lines, for nationally or phonetically distinct communities or national infrastructural institutions and discussion networks. At the same time, the European Union funding schemes insert a transnational component. The picture that emerges is one of a field with multi-layered, complex patterns of interaction and institutionalization. While we acknowledge the international character of the scholarly debate, we have chosen to approach the topic from a national and regional, comparative perspective. We hope that such an approach may help bridge the current information gap between

the better-known situation in some countries and the lesser-known situation in other countries, taking up a (wider-ranging) critique about „centres“ and „peripheries“ that has been voiced in Digital Humanities debates for some time.[4]

The diverse situations in different countries and the expanding definition of Digital Humanities required a discussion framework that is rather open, yet at the same time allows for meaningful comparisons and a loose common theme. We therefore did not envision such a thing as completeness in the contributions, but invited the authors to write a general overview of the history of Digital Humanities in their countries, focusing on the last two decades and set their own priorities. But we also asked to pay attention to a few more specific questions. These questions ranged from asking about „pioneers“ of Digital Humanities; catalyzing events which had major influence on the developments of the academic disciplines; and the role historians played in this process, while acknowledging the interdisciplinary nature of Digital Humanities. We were interested in the role specific institutions play today, and who they are: university departments or centres, large libraries, professional associations, national ministries (of science, education), or national research councils. How is the connection to European Union programmes or other international donors? And what is the influence of electronic communication services for the integration of the historical discipline and its subdisciplines? Additionally, we asked our authors about methodologies and curricula in their countries.

With these questions, we invited the contributors to our discussion series to tell the story of Digital Humanities in very different European countries , and we also invited them to offer a characterization of Digital Humanities and contextualize them in the wider fields of humanities and historical disciplines. Controversial discussion about the scope, content and definition has always been intertwined with agenda settings and therefore with funding issues of research and infrastructure. It does not surprise that in this situation definitions of what Digital Humanities is and is not, have a wide ranging spectrum and of course

[4]Susan Schreibman, Digital Humanities: Centres and Peripheries, in: Thaller, Manfred (ed.), Controversies around the Digital Humanities: An Agenda, in: Historical Social Research 37 (2012), 3, pp. 46–58.

a critical group of researchers who point to the ideological and „dark“ sides of the debate, which often refers to false promises of Digital Humanities.[5] We asked our authors to take part in the controversies in Digital Humanities that emanate from the current situation.[6] What is, in their point of view, the dominant feature of Digital Humanities – access to (more) information, or a new set of analytical methods allowing for new research questions and interests? Has the abundance of digital material been met by the development of research methodologies? Are the humanities limiting their analytical power by neglecting the critical development of new research methods and tools? Are we putting the cart before the horse? And how does the majority of historians react to the challenge of Digital Humanities? How do or potentially can Digital Humanities change the way we conduct our research, not just in our daily routines, but in the individual specificity of our methodologies or epistemological interests? Should we consider computing as a new fundamental cultural skill that should have its place in all humanities teaching?

We are thankful that scholars from different countries answered our call with very informative texts. The essays provide a nuanced picture of the developments in Digital Humanities in Europe. While the future development of Digital Humanities is rather open and we did not aim at a complete overview of all European countries (a rather ambitious task), there are at least two results that can be condensed from the essays. One is that national projects often connect to older non-digital research projects and infrastructures for the humanities, but more often than not quickly connect with European Union research infrastructures. A second result is that despite the differences in European countries, a number of parallel developments can be discerned from the different stories assembled in this series.

[5]For example: Wendy Hui Kyong Chun, The Dark Side of the Digital Humanities – Part 1 | Thinking C21, Thinking C21. Center for 21st Century Studies, January 9, 2013. http://www.c21uwm.com/2013/01/09/the-dark-side-of-the-digital-humanities-part-1/ (16.10.2014).

[6]Manfred Thaller, Controversies around the Digital Humanities: An Agenda, in: Historical Social Research 37 (2012), 3, pp. 7–23, here p. 11. Other recent publications around theses debates are: Matthew K. Gold (eds.), Debates in the Digital Humanities, Minneapolis 2012.

Our series begins today with Thomas Nygren's, Anna Foka's and Philip I. Buckland's essay on Digital Humanities in Sweden. Over the course of the next three weeks, it is followed by Daniel Alves's assessment of Portuguese Digital Humanities and Joris van Zundert's and Karina van Dalen-Oskam's essay on the Netherlands. Helen Gardikas-Katsiadakis gives an overview of Digital Humanities in Greece, Irina Garskova writes about the situation in Russia, and Eliane Kurmann together with Enrico Natale presents the Swiss case. Paul Spence and Elena Gonzalez-Blanco contribute an essay on Spanish Digital Humanities, and Jurij Hadalin writes on the case of Slovenia. Espen S. Ore provides an overview of Norwegian Digital Humanities, and Rüdiger Hohls writes about the history of Digital Humanities in Germany.

We hope that you enjoy reading our series. You can also find the published essays on our discussion forums website:

<http://hsozkult.geschichte.hu-berlin.de/index.asp?pn=texte&id=2535>

For the editors of H-Soz-Kult
Torsten Kahlert and Claudia Prinz

Beiträge

The Status Quo of Digital Humanities in Sweden: Past, Present and Future of Digital History

von Thomas Nygren, Anna Foka und Philip Buckland

Introduction

A current Swedish review of digital history claims that research in digital history in Sweden is almost absent.[1] This statement must naturally be considered in the light of how the field is defined, and in this article we choose a broad definition consisting of the aggregate domain of studies in which digital material and tools are used to study the past. Digital history is without a doubt a more active field in English-speaking academic settings, but there are a number of well-established projects and initiatives in Sweden. The case studies presented in this article are cross-disciplinary and might therefore not define themselves as strictly (or solely) digital history. This may, however, be irrelevant in the post-disciplinary context.

The digitization of historical source material has increasingly compelled Swedish historians to navigate in digital environments. This increased accessibility and the capacity for digitally processing historical material hold great potential for empowering research. While on the one hand, considerable growth can be expected in the coming years as technology becomes more accessible, user-friendly and domain science orientated[2], on the other hand, the expansion of digital archives and the development of digital tools are already posing new challenges for historians. Knowledge and understanding of digital media needs to be augmented considerably in order to fully take advantage of contemporary research opportunities and challenges. This essay will discuss how the creation of data and the use of new digital tools might support a variety of types of historical research, primarily by looking at developments in digital humanities (hereon DH) and digital archaeology. The variegated realm of DH practices, with their background in humanities computing and computing linguistics, will be used as a point of departure. Internationally, DH often uses the concept of labs to describe environments designed for the use of data and tools in interdisciplinary research.[3] Centres of DH have primarily been created in the USA and, more recently, in Europe.

While on-going research in multiple fields, using digital data and tools, is contributing important new knowledge and developing infrastructures which are advancing the study of history; there is, of course, considerable room for improvement, both in terms of the efficiency of the tools and the scope of their application. This article will present two Swedish examples of interdisciplinary and collaborative lab spaces which are currently involved in research on the past. The more disciplinary practices of digital archaeology and digital history will also be examined in order to flag out current historically orientated research which may fall under the umbrella of DH. The essay will conclude by discussing some potential future directions.

Interdisciplinary Practices in DH

The use of research orientated databases in Sweden dates back to the 1960's, prior to the creation of the World Wide Web. The Language Bank [Språkbanken], at Gothenburg University, created an electronic text corpus in Swedish building on the work of Sture Alléns[4]. This database of newspaper text, containing over a million words and built for corpus linguistic research and public use, was one of the first of its kind in a language other than English. Centres of linguistics programming and computational linguistics are currently situated in Gothenburg[5] and Stockholm[6]. These environments focus on the use of digital data and tools with respect to a number of archives and projects, including

[1] Kenneth Nyberg, Digital historia: en inringning, in: Jessica Parland-von Essen / Kenneth Nyberg, Historia i en digital värld, 2014, online publication available at: <http://digihist.se/3-forskarvarldens-respons/digital-historia-en-inringning/> (Accessed 18.07.2014).

[2] Thomas Nygren, Digitala material och verktyg. Möjligheter och problem utifrån exemplet spatial history, in: Historisk Tidskrift 133/3 (2013), pp. 474–482.

[3] <http://digitalhumanities.org/centernet/centers/> (18.07.2014).

[4] <http://spraakbanken.gu.se/eng/about-us/about-spr%C3%A5kbanken> (18.07.2014).

[5] <http://spraakbanken.gu.se/> (18.07.2014).

[6] <http://www.ling.su.se/english/section-for-computational-linguistics> (18.07.2014).

the Stockholm-Umeå Corpus[7], which is built upon the *Text Encoding Initiative* (TEI)[8]. The digital research tool *Korp*[9] (below) can be used for text mining and distant reading of this corpus.

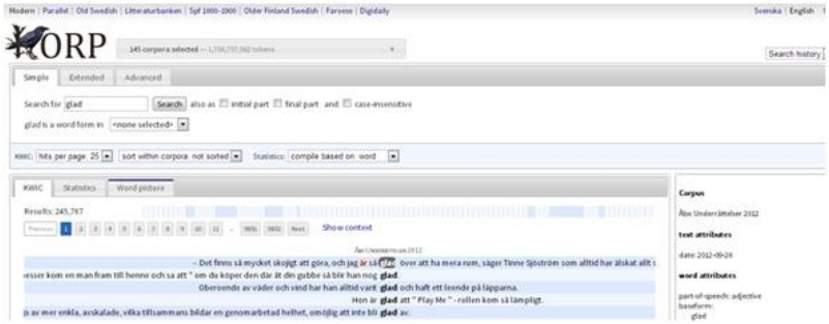

Fig. 1: *http://spraakbanken.gu.se/korp/ (18.07.2014)*

Gothenburg also leads the Swedish component of the international *Common Language Resources and Technology Infrastructure* (CLARIN)[10], essentially as a node in a growing federated database and language services network. Digitized and processed historical literature can also be found in amateur initiatives such as *Project Runeberg*[11], which provides scanned and searchable classic Nordic literature and academic texts. Interestingly, and in contrast to many academic digital archives, amateur initiatives are often made publicly available online rapidly after scanning.[12]

Until 2005, only a small but diverse group of literature orientated scholars used digital corpora and tools in humanities research.

[7] <http://spraakbanken.gu.se/eng/resources/suc> (18.07.2014).

[8] Mats Dahlström / Epsen Ore, Elektronisches Edieren in Skandinavien in: Paula Henrikson / Christian Janss (eds.), Geschichte der Edition in Skandinavien, Berlin 2013, pp. 143–166.

[9] <http://spraakbanken.gu.se/korp/#lang=en&search=word%7Cglad &page=0%20> (18.07.2014).

[10] <http://www.clarin.eu/> (18.07.2014).

[11] <http://runeberg.org/> (18.07.2014).

[12] Mats Dahlström / Epsen Ore, Elektronisches Edieren in Skandinavien in: Paula Henrikson / Christian Janss (eds.), Geschichte der Edition in Skandinavien, Berlin 2013, pp. 143–166.

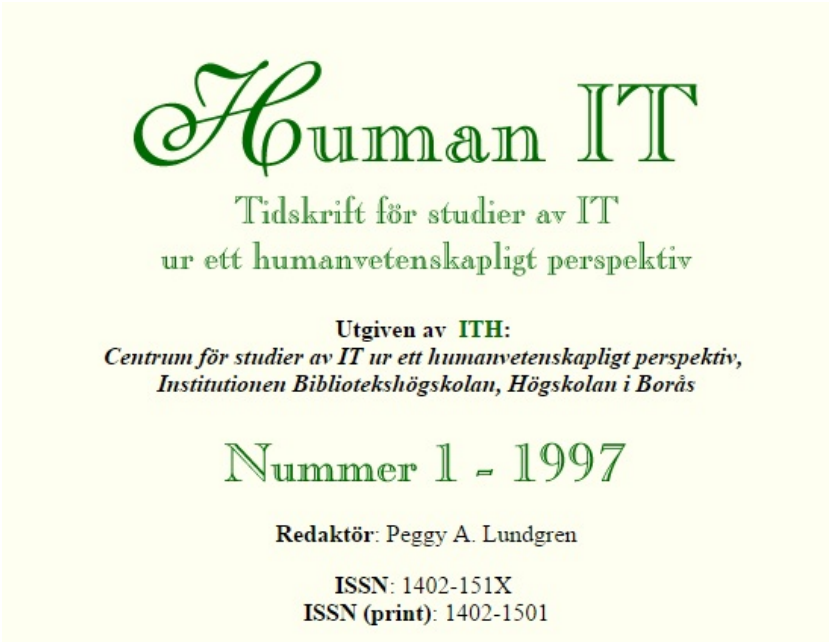

Fig. 2: *http://etjanst.hb.se/bhs/ith/humanit.htm (18.07.2014)*

Parallel developments in other areas evolved more or less independently of this group, with influences from beyond the humanities, as was the case for much of the analogous work undertaken in history and archaeology. The Nordic scholarly journal, Human IT[13], was launched in 1997 with the purpose of reviewing and debating the relationship between the humanities and IT. Subsequently, in 1999, an interdisciplinary lab (*HUMlab*) was formed at Umeå University, initially directed by Torbjörn Johansson, who had „a very strong idea about an intersectional meeting place for the humanities, culture and technology“[14]. At the same time, the project *ITLIT*[15] (1999–2003) was initiated in Uppsala to study the effects of computerization on literature, with a focus on IT,

[13] <http://etjanst.hb.se/bhs/ith/humanit-eng.htm> (18.07.2014).

[14] Patrik Svensson, The Big Digital Humanities, forthcoming.

[15] <http://www.littvet.uu.se/forskning/avdelningen_for_litteratursociologi /forskningsprojekt/itlit/> (18.07.2014).

storytelling and the literary system. A formative conference in 2003 revealed a small but growing field of literature and linguistics scholars problematizing the Digital Dimensions in the humanities.[16] The number of scholars interested in humanities in a digital world has since multiplied, most significantly after Humanities Computing was essentially rebranded as DH circa 2005.[17]

Laboratory Spaces

HUMlab (Umeå)
HUMlab, at Umeå University, is currently the most well established DH lab in Sweden. Directed by Sweden's first professor in Digital Humanities (Patrik Svensson) it is an interdisciplinary meeting place where digital tools are used and analysed in research, education and artistic creation. HUMlab is orientated towards multidisciplinary humanities, and employs historians, linguists, artists, ethnologists, media and computer scientists, technicians and developers. It also works with researchers, developers and creators employed by other departments, administrative authorities and industry. Research at HUMlab is often conducted with a base in traditional humanities and social science disciplines, in many cases the materiality of digital media being considered from different perspectives, not least exploratory, experimentally and historically. The Media Places research programme, for example, includes a study of the impact of screens on society.[18] A number of other projects have focussed on marginalized groups, including the online activities of Sami people[19] and personal self-harm on YouTube[20]. Other activities in the lab contain gender critical studies[21] including a Digital

[16] <http://www.littvet.uu.se/digitalAssets/30/30652_program-digitala-dimensioner-i.pdf> (18.07.2014).
[17] Patrik Svensson, Humanities Computing as Digital Humanities in: Digital Humanities Quarterly 3/3 (2009).
[18] <http://www.humlab.umu.se/en/research-development/media-places/screenscapes/> (18.07.2014).
[19] Coppélie Cocq, Anthropological places, digital spaces, and imaginary scapes. Packaging a digital Sa´miland, in: Folklore 124/1 (2013) pp. 1–14.
[20] Anna Johansson, Kroppar, dislokationer och politiska praktiker på YouTube, in: Kulturella perspektiv – Svensk etnologisk tidskrift 3–4 (2012), pp. 68–76.
[21] Anna Foka / Viktor Arvidsson, Digital Gender. A Manifesto. Report on the Research Workshop Digital Gender, Theory, Methodology, and Practice 2014, available at SSRN: <http://papers.ssrn.com/abstract=2437659> (18.07.2014); Jennie Olofsson, „Did you mean: why are women cranky?". Google – a means of inscription, a means of description?, in: Humanities and the Digital, forthcoming 2015.

Gender Research Network[22], critical making[23] and teaching humanities relevant digital competence to students, university staff and schools. The first Nordic doctoral student course in digital history[24], given by Finn Arne Jørgensen, was also hosted in HUMlab in 2013-14.

Fig. 3: *Screenscapes in HUMlab X: The floor screen and triptych screen create a magic pool (Photograph by Finn Arne Jørgensen)*

HUMlab has a particular inclination towards screen-based research, and the on-going project *Screens as Material* aims in particular to discuss the role screens play in research infrastructure. Related projects *Digital Ekphrasis*[25], *Imitatio Mariae*[26] and *Digital Bread and Circuses*[27] aim to conceptualize and produce narratives across multiple screens (as opposed to narratives for single screen environments) and investigate how arts-based and traditional modes of knowledge production

[22] <http://www.humlab.umu.se/digitalgender> (18.07.2014).
[23] Anna Foka , Sensory Bread and Circuses. Towards a Conceptual Making of Sound in: Betts, E. and Graham, E.J. London, Multisensory Antiquity, forthcoming 2015.
[24] <http://www.digitalhistorian.net/umedh/> (18.07.2014).
[25] <http://digitalekphrasis.wordpress.com/about-digital-ekphrasis> (18.07.2014).
[26] <http://www.umu.se/sok/english/research-database/view-research-projects?code=573&View=base&uid=joca0001> (18.07.2014).
[27] <http://www.humlab.umu.se/en/research-development/multiple-screens-as-material/> (18.07.2014).

influence each other in screen-rich environments and via other sensory and interactional features. In addition to traditional publications, a number of these projects and related initiatives have and will produce exhibitions within HUMlab's premises, as well as online, open access material. The *Bread and Circuses* project aims to go beyond 3D aerial prototypes, and follows instead recent trends in visualization that dictate participatory design, tangible screen technologies, kinaesthetic, and sounds (archaeoacoustics as well as conceptual sound engineering). The aim is to recreate a conceptual experience that is linked to raw data (literary and material primary sources) via critical making.[28] It also aims to address traditional questions as well as novel ones, specifically, the implementation of technology for the study and communication of remote geographical and cultural contexts.

The aforementioned research projects touch upon issues in history relating to the reimagining of the past in digital worlds[29], something which is undertaken more empirically in collaboration with the *Strategic Environmental Archaeology Database* (SEAD)[30] infrastructure[31]. Another focus at HUMlab is on the potentials and pitfalls of using digital data and digital tools in historical research[32], a theme closely related to the analysis of the possibilities and challenges of using digital databases in the teaching of history[33]. The materiality of the digital environment and its impact on historical writing is also being investigated, and by studying sensing and sense-making in digital and traditional archives, the extent to which an individual's writing of history may be stimulated

[28] See Matt Ratto, Critical Making. Conceptual and material studies in technology and social life, in: The Information Society, 27/4 (2011), pp. 252–260.

[29] Anna Foka , Sensory Bread and Circuses. Towards a Conceptual Making of Sound in: Betts, E. and Graham, E.J. London, Multisensory Antiquity, forthcoming 2015; Cecilia Lindhé, A Visual Sense is Born in the Fingertips. Towards a Digital Ekphrasis, in: Digital Humanities Quarterly, 7/1 (2013), pp. 376–82.

[30] <http://www.sead.se/> (18.07.2014).

[31] See below; Philip I. Buckland, Environmental Archaeology, Climate Change and E-Science, in: Skytteanska Samfundets Årsbok, Thule (2010), pp. 55–69.

[32] Thomas Nygren, Digitala material och verktyg. Möjligheter och problem utifrån exemplet spatial history, in: Historisk Tidskrift 133/3 (2013), pp. 474–482.

[33] Thomas Nygren / Lotta Vikström, Treading Old Paths in New Ways. Upper Secondary Students Using a Digital Tool of the Professional Historian, in: Education Sciences, 3/1 (2013), pp. 50–73.

in various ways by space, materials and media[34], may be highlighted.[35]

Digital infrastructure and knowledge construction are important concepts in current collaboration between HUMlab and Stanford University, which contributes to the analysis of challenges regarding digital media places[36], not least when studying the past. A common thread in much of HUMlab's project participation is the development of long term infrastructure for the support and empowerment of research. Much of this work is currently focussed on multi-purpose or adaptable tools for use in archaeological and historical studies e.g. *QVIZ*[37], *SEAD*[38] and *SHiPS*[39]. *Textometrica*[40], a tool created for contemporary sociological analysis of online media activity, can be used in the distant and close reading of big text-based data. It is currently being re-purposed for the analysis of historical texts: quantitatively, qualitatively and visually.

The *QVIZ* system (Query and context based visualization of time-spatial cultural dynamics; Palm 2009) was originally developed as part of an EU project of the same name to help researchers and stakeholders use large digital archives in complex processes and enquiries. The system combines dynamic maps with filters/facets for multiple parameters and allows scholars analyse big data through the visualization and aggregation of data in terms of spatio-temporal and thematic relationships. The *SHiPS* online interface was developed, in collaboration with the *Demographic Database* (DDB, Umeå)[41], using this infrastructure to promote the use of historical population records (from 1749 to 1859) and provide a window for quantitative analyses. The system has similarly

[34] <http://www.humlab.umu.se/en/research-development/media-places/space,-materials-and-media-2013/> (18.07.2014).

[35] Thomas Nygren, Students Writing History Using Traditional and Digital Archives, in: Human IT, forthcoming 2014.

[36] <http://www.humlab.umu.se/en/research-development/media-places/> (18.07.2014).

[37] <http://qviz.eu/> (18.07.2014).

[38] <http://sead.se/> (18.07.2014).

[39] <http://www.humlab.umu.se/en/research-development/qviz/ships/> (18.07.2014).

[40] <http://textometrica.humlab.umu.se> (18.07.2014); Simon Lindgren / Frederik Palm, Textometrica Service Package, 2011; online at <http://textometrica.humlab.umu.se> (18.07.2014).

[41] <http://www.ddb.umu.se/english/> (18.07.2014).

been employed as the main online interface for *SEAD*[42], allowing the aggregation and subsequent extraction of environmental archaeology data in ways which were previously extremely difficult to achieve, due to the large scope and complexity of the data.

Fig. 4: *http://www.byzantinejewry.net/ (18.07.2014)*

In addition, tools for Mapping the Jewish communities of the Byzantine empire[43], also based on *QVIZ*, have been developed in collaboration with Cambridge University. The *CitizMap* project[44] used the *QVIZ* system for providing access to statistics on social, demographic and economic data for the city of Tallinn in Estonia. This experience of data visualization provides an important background for HUMlab's

[42] <http://sead.se/> (18.07.2014).
[43] <http://www.humlab.umu.se/en/research-development/mapping-the-jewish-communities-of-the-byzantine-empire/> (18.07.2014).
[44] <http://www.humlab.umu.se/en/research-development/citizmap/> (18.07.2014).

involvement in the *InfoViz* working group of the EU-financed *NeDiMAH* project[45], which is looking into the use of digital information in the humanities on a broad scale.

Humanities Laboratory (Lund)
The Humanities Laboratory[46] is an interdisciplinary space for research and education in the joint faculties of Humanities and Theology at Lund University. With activities throughout the humanities, it provides training in technology, methodology, archiving expertise, and is involved in a wide range of research projects which complement the activities of the Umeå HUMlab. Research is undertaken on issues of communication, culture, cognition and learning in particular, and the lab is widely regarded as a strong local, national and international environment. Other projects are interdisciplinary and conducted in collaboration with the social sciences, medicine, the natural sciences, engineering, and e-Science. The lab has a strong focus on the use of innovative technologies for crossing disciplinary boundaries, such as eye-tracking analysis, echo-free rooms, use of tongue sensors in linguistics, iCube visualizations of immersive 3D archaeological environments and mobile platform archaeological reconstructions. There is a strong emphasis on combining traditional and novel methods, as exemplified by the application of tongue sensors to linguistics in the project Exotic vowels in Swedish: an articulographic study of palatal vowels [VOKART][47]; an attempt to increase research collaboration between the Humanities and Medicine.[48]

Developments in the analysis orientated visualization of archaeological remains can be seen through the Humanist Laboratory's involvement in the Swedish Pompeii project.

[45] <http://www.humlab.umu.se/en/research-development/nedimah/> (18.07.2014).
[46] <http://www.humlab.lu.se/en/about/> (18.07.2014).
[47] see e.g. Susanne Schötz et al., Functional Data Analysis of Tongue Articulation in Palatal Vowels, in: Gothenburg and Malmöhus Swedish / Proceedings of Interspeech, Lyon 2013.
[48] HuMe; Mikael Roll / Pelle Söderström / Merle Horne, Word-stem tones cue suffixes in the brain, in: Brain research 5 (2013), pp. 116–120.

Fig. 5: *http://www.pompejiprojektet.se/navigate.php (18.07.2014)*

The project was initiated at the Swedish Institute in Rome in 2000 with an aim towards recording and analysing an entire Pompeian city-block, Insula V 1, which can now be navigated online.[49] The project goes beyond traditional archaeological analyses and tests the use of historical analogies in understanding the everyday life of the past. Research is now directed from the Department of Archaeology and Ancient History at Lund University, and includes the use of advanced digital archaeology and 3D scanning and documentation.[50] The first 3D models were made

[49] <http://www.pompejiprojektet.se/navigate.php> (18.07.2014).

[50] Henrik Boman, Let there be light. Light in atrium houses in Roman Pompeii and Herculaneum, in: Vesuviana 3 (2011), pp. 89–102.; Arja Karivieri, The Atrium Mosaic in the Casa di Caecilius Iucundus and the Aesthetics of a Pompeian Huse, in: Olof Brandt / Philippe Pergola (eds.), Marmoribus Vestita, Miscellanea in Onore di F. Guidobaldi, Cittá del Vaticano 2011, pp. 763–773; Anne-Marie Leander Touati, Water, well-being and social complexity in Insula V 1. A Pompeian city block revisited, in: Opuscula 3 (2010), pp. 105–161.

available for open access in January 2013, and work is ongoing using 3D GIS for interpreting the functional use of rooms, power and visibility in a Roman city.

In common with HUMlab in Umeå, the Humanities Laboratory transgresses the boundaries between science and arts, with an emphasis on participatory media and museum installations. In the Petroglyphics – Virtual Rock Arts Experiences exhibition[51] visitors are able to partake in a Bronze Age funerary procession, either following prescribed dance movements or improvising.

Fig. 6: *Virtual Rock Arts Experiences Lund-Launched 31st of December 2013 (Screenshot by Carolina Larsson, Lund University Humanities Lab)*

Disciplinary Inquiries

Digital Archaeology

Archaeology is by its very nature an interdisciplinary science, and as such has been quick to adopt digital technologies (databases, electronic

[51] <http://www4.lu.se/digitalheritage/projects/petroglyfiskt-8211-virtuella-upplevelser-kring-haellr> (18.07.2014).

field surveys and mapping) into research methodologies.[52] The majority of practical archaeologists now routinely include the use of digital methods in their work, and there is perhaps no longer any meaningful delineation between „digital" and traditional archaeology. Digital visualization has become relatively common in the last decade, and tends to take one of two approaches: 1) 3D models of artefacts or structures and 2) scientific visualization of data, relationships, networks and models; with landscape reconstruction forming a bridge between them.

A forerunner in the use of GIS in archaeology in Sweden was the Uppsala GIS-laboratory, established in 1989 at the Department of Archaeology and Ancient History at Uppsala University.[53] Since 2009, this has included the *Rethinking Human Nature* (RHN) research group[54], which aims to integrate digital information into dynamic models of prehistoric and historic landscapes and societies in cross disciplinary research. The group engages in critically scrutinising theoretical and methodological archaeological research agendas. At other Swedish universities, GIS technology is routinely used in archaeological research and teaching, but without the benefit of a specialized research group. The *Environmental Archaeology Lab*[55] in Umeå, for example, routinely uses digital tools and GIS in the analysis of empirical evidence for past interactions between humans and the environment. These are implemented in teaching, research and the development of new analysis methods.

The Swedish National Heritage Board[56] (Riksantikvariet) started digitizing the analogue national sites and monuments record (Fornminnesregistriet) in 1984, a project which continued until 2005 and resulted in *FMIS*[57], the digital sites and monuments record. Records of newly discovered archaeological sites and historical monuments have since then routinely been digitized, although the process, which is currently

[52] See for an overview Thomas L. Evans / Patrick Daly (eds.), Digital archaeology. Bridging method and theory, London / New York 2006.

[53] <http://www.arkeologi.uu.se/> (18.07.2014).

[54] <http://www.arkeologi.uu.se/Seminars/Rethinking_Human_Nature_GIS_and_Landscape/?languageId=1> (18.07.2014).

[55] <http://www.idesam.umu.se/english/mal/?languageId=1> (18.07.2014).

[56] <http://www.raa.se/om-riksantikvarieambetet/in-english/> (18.07.2014).

[57] <http://www.fmis.raa.se/> (18.07.2014).

under revision (see *DAP* below), is cumbersome and includes a number of bottlenecks which hinder the effective flow of information. This has to an extent limited the system's usefulness in research, and as a result a number of regional archaeological databases[58] and tools (e.g. Övik 10000 år)[59] have been created to serve specific project or local authority purposes. Unfortunately, few of these latter systems are currently connected to research activities, and there is a significant continuity problem with respect to digital archives in archaeology in Sweden.

DAP (Digital Archaeological Processes)[60] is a project run by the Swedish National Heritage Board with an aim towards mapping the flow of analogue and digital information in Swedish archaeology. The project models the flow of data and identifies bottlenecks, such as the scanning of analogue maps or digital to analogue to digital workflows, with an aim towards designing optimized systems for digital archaeological processes. A further aim of the project is to identify potential for, and facilitate the linking of, disparate data sources; the intention being to provide a more powerful, open and communal datasphere for cultural heritage research. The *Swedish Open Cultural Heritage initiative* SOCH; K-Samsök[61] represents one aspect of this, and forms a node in the flow of data between authorities, the public and universities. It is hoped that these initiatives and others, in combination with the Swedish National Data Service (SND)[62], will ensure the long term preservation and accessibility of Swedish national heritage data, and thus improve the research prospects for digital archaeology and history in the future.

[58] E.g. ADIN; Per H. Ramqvist, Arkeologiska utgrävningar i Norrland 1950–1995. En databas sammanfattande 1700 undersökningar (Studier i regional arkeologi), Örnsköldsvik 2000.

[59] <http://ornkartan.ornskoldsvik.se/karta/?Forntid> (18.07.2014).

[60] <http://www.raa.se/kulturarvet/arkeologi-fornlamningar-och-fynd/digitala-arkeologiska-processer/> (18.07.2014).

[61] <http://www.ksamsok.se/in-english/> (18.07.2014).

[62] <http://snd.gu.se/en> (18.07.2014).

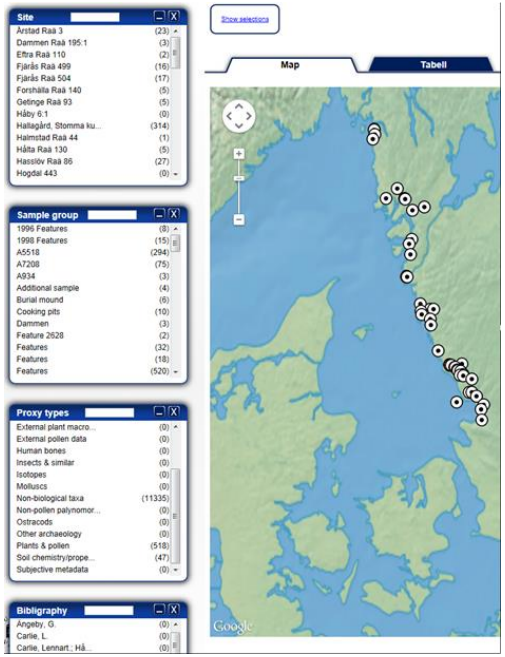

Fig. 7: *http://qsead.sead.se (18.07.2014) An extract from the SEAD online interface showing sites along a road project, with facets indicating the available evidence and publications from these sites.*

The *Strategic Environmental Archaeology Database* (SEAD)[63] is an open access research infrastructure for the archiving, management, analysis, and dissemination of environmental archaeology and related data. It provides an integrated, transparent architecture for the analysis of data relating to past human activities and environmental and climate change.

[63] <http://sead.se/> (18.07.2014); SEAD; Philip I. Buckland / Erik Eriksson / Fredrik Palm, SEAD –The Strategic Environmental Archaeology Database. Progress Report Spring 2014, The Environmental Archaeology Laboratory, Umeå University 2014, online: <http://umu.diva-portal.org/smash/get/diva2:716861/FULLTEXT01.pdf> (18.07.2014); and see for a comprehensive description Philip I. Buckland, SEAD - The Strategic Environmental Archaeology Database. Inter-linking multiproxy environmental data with archaeological investigations and ecology, in: Graerner Earl et al. (eds.), CAA2012, Proceedings of the 40th Annual Conference of Computer Applications and Quantitative Methods in Archaeology (CAA), Southampton 2013.

Fig. 8: *http://sead.se/ (18.07.2014)*

As such, it bridges the boundaries of the humanities and natural sciences by linking data relevant for research questions irrespective of their origin. Furthermore, it provides online access to a wealth of previously unpublished grey literature data, along with a clearing house model for ensuring data quality and a collaborative network of national and international projects and cyber-infrastructures. *SEAD* is being developed and managed at the Environmental Archaeology Lab (MAL)[64], Department of Historical, Philosophical and Religious Studies[65], and HUMlab at Umeå University; in collaboration with The Laboratory for Ceramic Research[66] and National laboratory for wood anatomy and dendrochronology[67] at Lund University. It is also included in the Swedish

[64] <http://www.idesam.umu.se/english/mal/> (18.07.2014).
[65] <http://www.idesam.umu.se/english/?languageId=1> (18.07.2014).
[66] <http://www.geol.lu.se/kfl/> (18.07.2014).
[67] <http://www.geol.lu.se/dendro/en/index.htm> (18.07.2014).

National Heritage Board's information strategy and DAP project. The database includes results from several thousand publications, but as yet, only a few research projects have used the system as an analysis tool.[68] The Swedish Rock Art Research Archive (SHFA, Svenskt HällristningsForskningsArkiv)[69] is essentially an online, tagged image database where depicted objects can be searched through keywords and location metadata. No map interface is publicly available (although objects are linked to *FMIS*) and cross-queries are not feasible in the online system, making it a somewhat limited research tool. There has recently been a campaign by a number of digitally aware Swedish archaeologists to improve the accessibility of archaeological data, not least from past excavations and analyses. A result of this has been that the SND (Swedish National Data Service)[70] now provides access to some archaeological GIS data. Unfortunately these data are not available in a form which easily permits innovative research across multiple sites, and although plans are being formed, Sweden as yet lacks a common infrastructure for facilitating this.

An indication of the volume of digital data and research in archaeology is perhaps provided by the existence of the *ARKDIS* (Archaeological information in the digital society) project[71], which aims to understand the implications of digitalization and the flow of digital information for archaeology and cultural heritage research. These aims are similar to those of *DAP*, although at a more abstracted and less process oriented level. Much of the data potentially available for archaeological research is created by the commercial and state sectors, but is rarely made openly or easily available to the research community. Surveys and excavations undertaken by the Swedish Heritage Board's former consultancy wing (UV, Uppdragsverksamheten)[72] generally use the Intrasys recording

[68] See <http://sead.se/publications/> (18.07.2014).
[69] <http://www.shfa.se/?lang=en-GB> (18.07.2014).
[70] <http://snd.gu.se/en/search-and-order-data/gis-data> (18.07.2014).
[70] <http://www.shfa.se/?lang=en-GB> (18.07.2014).
[70] <http://snd.gu.se/en/search-and-order-data/gis-data> (18.07.2014).
[71] <http://www.abm.uu.se/research/Ongoing+Research+Projects/ARKDIS/?languageId=1> (18.07.2014).
[72] <http://www.raa.se/om-riksantikvarieambetet/in-english/> (18.07.2014).

software[73], which is also commonly used in commercial archaeology but seldom used in academic projects. As a result of this, and other collaborative problems, there is a significant lack of data exchange between the commercial and academic archaeological communities. This is a hindrance to research which projects such as *DAP*, *ARKDIS* and *SEAD* are actively working to improve upon.

Digital History

Digital databases of Sweden's historical data date back to the 1970's with parish registers and governmental records from the 18th century to the present having been the main foci for digitization and research. There are also, however, older Swedish sources digitized and used in research, including Menota, which contains medieval texts from the Nordic countries, and material at the Swedish National Archive (Riksarkivet)[74]. The latter hold digitized religious and governmental medieval material, including, for example, diplomatic correspondence[75]. The Swedish National Archive is also constructing a database of the Corpus Reuelacionum Sancte Birgitte (St Bridget of Sweden).[76]

Demographic Data Bases

The Demographic Database (DDB), hosted at Umeå University, has been computerizing Sweden parish registers since 1973, focussing on making records from the 18th and 19th century available internationally. DDB started as a temporary employment project, under the support of the Swedish National Archives, in 1973 and today the database *POPUM* includes ca. 5 million parish records concerning about 1.2 million individuals.[77] The database[78], searchable through the *Indiko digital tool*[79], is one of the world's most information-dense historical population databases.

[73] <http://www.intrasis.com/engelska/index_eng.htm> (18.07.2014).
[74] <http://riksarkivet.se/digitala-resurser> (18.07.2014).
[75] <http://sok.riksarkivet.se/sdhk> (18.07.2014).
[76] <http://riksarkivet.se/crb> (18.07.2014).
[77] Pär Vikström / Sören Edvinsson / Anders Brändström, Longitudinal Databases. Sources for Analyzing the Life-Course, in: History and Computing 14 (2002), pp. 109–128.
[78] <http://www.ddb.umu.se/english/database/> (18.07.2014).
[79] <http://rystad.ddb.umu.se/indiko/ipopup_en.shtml> (18.07.2014).

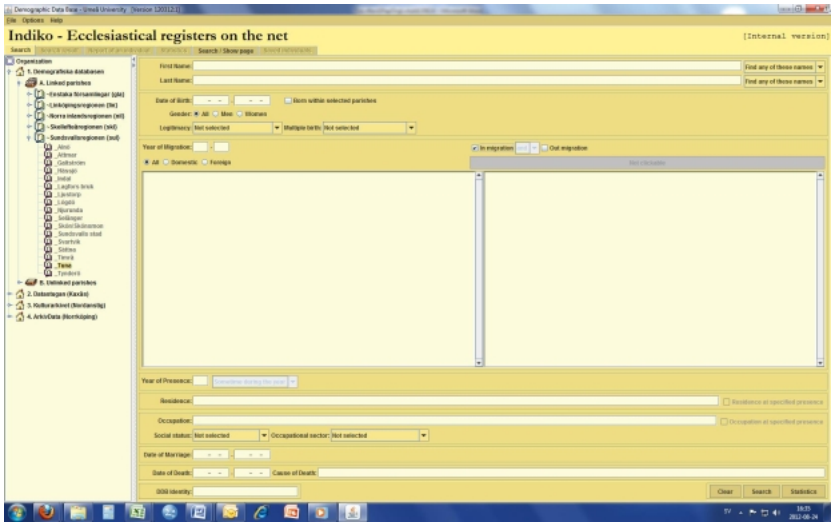

Fig. 9: *http://rystad.ddb.umu.se/indiko/ipopup_en.shtml (18.07.2014) Search interface of Indiko*

It includes linked data from different parish records, including catechetical registers and those for births and baptisms, banns and marriages, migration, and deaths. Today, the DDB is an interdisciplinary centre for Swedish and international researchers and research groups working in areas as broad as history, cultural geography, psychology, medicine and statistics. A common interest in population research unites researchers at the interdisciplinary Centre for Population Studies (CPS), with many of them using the population databases of DDB, to analyse social history. Although the available digital tools are often used to retrieve data and statistics they are quite limited when it comes to data processing functionality. *Indiko*, for example, can be used in different languages and to present data in simple ways, but lacks processing and visualization interfaces.

An attempt has been made to better visualize historical demographical data, specifically annual on parish level data for the years 1749 to 1859, using Geographical Information Systems (GIS) technology in the

search engine *SHiPS*.[80] *SHiPS* provides access to data on population, births, deaths, migration and marriages in the Tabellverket database[81], mostly divided by sex but also including other processed data. The system increases the potential for researchers to undertake the analysis of, among other things, social history with spatial and temporal dimensions, using a combination of digital material and online tools.

A number of publications with an emphasis on quantitative methods and the use of digitized data, in combination with critical perspectives, have recently emerged from the CPS research environment, including those on: ordinary women in job-market conflicts[82], birth control[83], infant mortality among Sami and settlers[84], dysentery[85] and life before and after crime[86].

[80] <http://ships.ddb.umu.se/> (18.07.2014).

[81] <http://www.ddb.umu.se/english/database/the-database-tabverk> (18.07.2014).

[82] Lotta Vikström, Sources in conflict. Women's work in Sundsvall, Sweden, 1860–1993, in: Harvey J. Graff et al. (eds.), Understanding Literacy in Its Historical Contexts. Past Approaches and Work in Progress, Lund 2009, pp. 127–142.

[83] Sören Edvinsson / Sofia Kling, The Practice of Birth Control During the Fertility Transition. Introduction, in: History of the Family 15/2 (2010), pp. 117–124.

[84] Peter Sköld et. al., Infant mortality of Sami and settlers in Northern Sweden. The era of colonization 1750–1900, in: Global Health Action 4 (2011), p. 8441.

[85] Helene Castenbrandt, Rödsoten under kriget 1808–09, in: Christer Ask (ed.), Gränsland i krigens skugga. Västergötlands fornminnesförenings tidskrift, Skara 2012.

[86] Lotta Vikström, Life before and after crime. Life-course analyses of young offenders arrested in 19th century northern Sweden, in: The Journal of Social History 44 (2011), pp. 857–884.

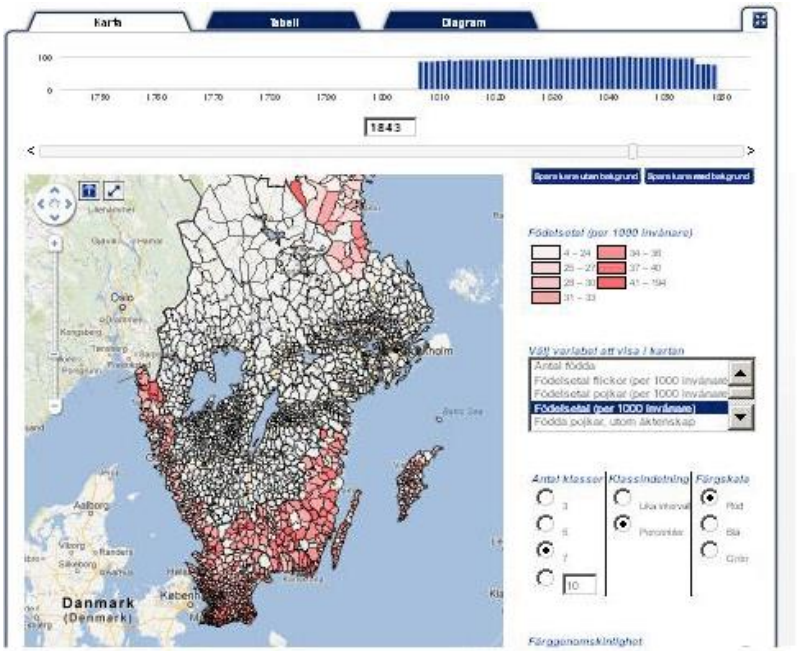

Fig. 10: *http://ships.ddb.umu.se/ (18.07.2014)*

Minorities, health issues and daily life in Sweden from the 18th century to the present are important aspects of ongoing research. History is clearly linked to social science in these studies, and the digital historical data are frequently used in contemporary studies.

The Scania Demographic Database was initiated in 1983 in southern Sweden, and was primarily created and designed for genealogists, local historians and schoolchildren. The database does, however, hold records of births and baptisms, marriages, deaths and burials, and migration. This project has since been superseded by the Demographic Database Southern Sweden[87], and information on parallel databases of ships, mercantile activity and nicknames can be found through their website.

[87] <http://www.ddss.nu/(S(bynlxrm0atdkjafcqf2g2xvu))/english/Default.aspx> (18.07.2014).

Medical History Database

The *LiU* E-Press at Linköping University has published open access since 1996.[88] These databases primarily include historical data from regional archives, including: fines register (ca. 1800–1900)[89]; soldier's register (1682 and 1901)[90]; local hospital records (1838–1895)[91]; mine workers' court records (1788–1851); local police authority (1874–1879)[92] and 19th century prison records including spinning house records[93].

Fig. 11: *http://www.ep.liu.se/databas/medhist.en.asp (18.07.2014)*

The Medical History Database[94] was started as a social initiative in order

[88] <http://www.ep.liu.se/databas/index.en.asp> longitudinal databases for research (18.07.2014).
[89] <http://www.ep.liu.se/databases/boter/default.en.aspx> (18.07.2014).
[90] <http://www.ep.liu.se/databases/soldatregister/default.en.aspx> (18.07.2014).
[91] <http://www.ep.liu.se/databas/sjukhusrulla.en.asp> (18.07.2014).
[92] <http://www.ep.liu.se/databases/poliskammare/default.en.aspx> (18.07.2014).
[93] <http://www.ep.liu.se/databas/fangrulla.en.asp> (18.07.2014).
[94] <http://www.ep.liu.se/databas/medhist.en.asp> (18.07.2014).

to provide opportunities for the long-term unemployed in Dalarna. It involved enhancing people's computer skills, and thus increasing their job market chances, at the same time as providing digital access to an important set of records. The project has been monitored and quality controlled by Umeå, Norrköping and Linköping Universities and contains just over 11,000 documents at the time of writing. The database contains information from a wide variety of medical historical sources from the period 1814–1916, primarily reports from hospital inspections, medical board meetings, and provincial doctor visits. By providing digital access to the material, it becomes searchable, easy to access and damage to fragile documents is reduced. Text and statistics from health reports stored in The Medical History Database have been used to analyse epidemics[95], infant mortality[96] and other public health issues in 19th century Sweden[97]. Genre analysis has also been used on the reports from provincial doctors[98]. Although these data allow researchers to get closer to the everyday life of the past, the perspective is often that of the doctors. Critical perspectives are therefore needed and often used by researchers in the analysis of the digitized material.

Digital Analysis of Verb-phrases

Based in Uppsala, the *Gender and Work* (GaW)[99] project uses digitized data, with verb-phrases as the core information, to analyse work activities in relation to gender. The database, built by the DDB in Umeå, also includes linked and searchable contextual information about the activities, expressed as verb-phrases, and about the individuals performing the activities. GaW is based upon a diverse source material consisting primarily of court and account records from the mid-16th to the late 18th

[95] Carl Henrik Berg, Koleran i Norrland, in: Oknytt 1–2 (2001), pp. 3–22.

[96] Stina Bohman, Omsorg om livet. Spädbarnsdödlighetens förändring i Ådalen under 1800-talet, Uppsala University 2010.

[97] Malin Appelquist / Peter M. Nilsson, Folkhälsan i östra Skåne 1860–1899 – en studie utifrån provinsialläkarrapporter, in: Svensk medicinhistorisk tidskrift 9/1 (2005), pp. 95–114.

[98] Tony Gustafsson, Mellan pliktuppfyllelse och berättarglädje. En genreanalys av provinsialläkarrapporter från 1800-talets första hälft in: Torbjörn Gustafsson Chorell / Maja Bondestam (eds.), In på bara huden, Nora 2010, pp. 27–44.

[99] <http://gaw.hist.uu.se/TheDatabaseGaW/tabid/2841/language/sv-SE/Default.aspx> (18.07.2014).

century, and includes a growing number of some 19,000 verb-phrases (January 2014) and more than 5,000 individuals. Methodological considerations are problematized in research using the digital tool, where activities like selling cloth or healing wounds in large datasets are highlighted and linked to extensive data on the individuals conducting the activities described in the verb-phrases[100].

Fig. 12: *http://gaw.hist.uu.se/ (18.07.2014) Gender and Work, logotype designed by Ulf Carlén*

The „invisible work" of women and children (i.e. work not visible in occupational titles) and their social situations in different parts of Sweden are central to this research. The gendered division of work and the situation for widows of craftsmen in the early modern era are examples of matters that have been studied with this method[101]. This digital tool

[100] Eva Pettersson / Joakim Nivre, Automatic verb extraction from historical Swedish texts, in: Proceedings of the 5th ACL-HLT Workshop on Language Technology for Cultural Heritage, Social Sciences, and Humanities, Portland OR 2011 (Association for Computational Linguistics), pp. 87–95.; Rosemarie Fiebranz et. al., Making Verbs Count. The research project 'Gender and Work' and its methodology, in: Scandinavian Economic History Review 59/3 (2011); Elisabeth Gräslund Berg et al., Praktiker som gör skillnad. Den verb-orienterade metodens roll i forskningsprojektet 'Genus och arbete', in: Historisk Tidskrift 133/2 (2013), pp. 335 –354.

[101] Maria Ågren, Genus och arbete i det tidigmoderna Sverige, in: Historisk Tidskrift 132/1 (2012) pp. 55–64; Dag Lindström, Privilegierade eller kringskurna? Hantverkänkor

makes it possible to study work activities among previously marginalized groups and individuals, using for instance theories formulated by Judith Butler and Amartya Sen. It is planned to be available open access online within the next few years. The so far limited visualisations will be geo-referenced to strengthen the spatial and temporal dimensions.

Contemporary Global Analysis

Gapminder[102] is perhaps the most internationally renowned data visualization/analysis tool of Swedish origin. Its storing, processing and visualizing of historical data has contributed considerably to the public understanding of historical data, both nationally and internationally.

Fig. 13: *http://www.gapminder.org/world (18.07.2014)*

The tool can be used to visually analyse international statistics from contemporary history and the present in order to better understand economic and health developments in nations, regions and on a global

i Linköping och Norrköping 1750–1800, in: Historisk Tidskrift 132/22 (2012), pp. 18–246.

[102] <http://www.gapminder.org/world> (18.07.2014).

scale[103]. Through the use of intuitive visualization methods it has been possible to expose and disseminate important information on the details behind large scale trends, many of which expose weaknesses or fallacies in generally accepted visions of the world today and its recent population history. However, the use of Gapminder in historical research has so far been limited, and the tool has been used primarily in teaching in a large scale attempt to fight ignorance and promote a fact based worldview.

Further Discussion

Digital developments in linguistics and archaeology evolved in parallel in Sweden, as forerunners to what was to follow in the field of history. In contrast to earlier work, digital history projects tend to be interdisciplinary and interactive, encouraging user participation and engagement with sources in multimodal and experimental ways. Much of the work is still, however, orientated towards single text based sources (e.g. corpora) and seldom ventures outside traditional disciplinary boundaries. As such, little advantage is taken of the increased possibilities for interdisciplinary science offered by digital techniques. Many of the publicly available database systems of interest for historical research, whilst containing a vast wealth of important and useful data, lack anything more than a rudimentary search interface. This drastically reduces the systems' direct usability in advanced research, and, at least in the case of the medical and population databases, necessitates the manual extraction, re-compilation and manipulation of the data before it can be applied to complex research questions. This is perhaps an unfortunate reflection of the history of research database development, where projects have tended to focus on either the digitalization of as much data as possible, or clever technical solutions; but not both. This is not unique to the humanities, and in some cases perhaps reflects more the preconceptions

[103] Hans Rosling, Religions and babies TED 2012 <http://www.ted.com/talks/hans_rosling_religions_and_babies#t-216030> (18.07.2014); Hans Rosling, New insights on poverty TED 2007 <http://www.ted.com/talks/hans_rosling_reveals_new_insights_on_poverty> (18.07.2014); Hans Rosling, Visual technology unveils the beauty of statistics and swaps policy from dissemination to access, in: Statistical Journal of the IAOS 24 (2007), pp. 103–104; Marion Field, The Big Picture. A Comparative Review of Several Interactive Web-Based Tools for Problem Analysis in Public Health, in: Journal of Microbiology & Biology Education 12/2 (2011), pp. 208–210.

of funding agencies and a reluctance to undertake sufficient investment, rather than the desires of the infrastructure creators and users. Digitization and web access is in itself not enough to create opportunities for ground-breaking research, and there must be a move towards the integration of innovative, powerful interfaces with and between existing and new databases. This is more expensive than „simply" creating a website or a project orientated database, and the humanities need to actively lobby for increased funding for digital infrastructures on their domain science terms. The larger research foundations in Sweden, in particular the Wallenberg foundations[104], Swedish Research Council[105] and Riksbankens Jubileumsfond[106], have invested in digital infrastructure to enhance research in the humanities. Although most welcome, these investments are still disproportionately small in comparison to funding given to fields such as life sciences and physics.

DH researchers, including those in Swedish digital history, have received criticism for being unscholarly in their choice and application of methods and tools. Critics have stressed, on a global scale, the importance of basing research on qualified research questions and not solely on data and visualizations.[107] If research is led by the accessibility of data, albeit a very large amount and well visualized, it risks being led along the wrong path.[108] Naïve, un-critical use of official maps and data can, for example, contribute to reproducing prevailing cultural power relations.[109] Maps and borders produced in the West can, according to the critics, give an ethnocentric/hegemonic perspective on the past.[110] A particular warning has been issued to the effect that data as a concept

[104] <http://www.wallenberg.com/en/> (18.07.2014).

[105] <http://vr.se/inenglish.4.12fff4451215cbd83e4800015152.html> (18.07.2014).

[106] <http://www.rj.se/en/About-RJ/> (18.07.2014).

[107] Stanley Fish, Mind your p's and b's. The digital humanities and interpretation, New York Times, 23.01.2012; Todd Presner, HyperCities. A Case Study for the Future of Scholarly Publishing, in: Jerome McGann (ed.), The Shape of Things to Come, Houston 2010, pp. 251–71.

[108] Andrew Prescott, The Deceptions of Data, 2013, <http://digitalriffs.blogspot.com> (18.07.2014).

[109] Nadine Schuurman, Trouble in the Heartland. GIS and its critics in the 1990s' Progress, in: Human Geography 24/4 (2000), pp. 569–590.

[110] Eric Sheppard, Knowledge Production through Critical GIS. Genealogy and prospects, in: Cartographica 40/4 (2005), pp. 5–21

and visualizations such as tables, diagrams and maps create an illusion of objectivity.[111] It has further been implied that „GIS is a seductive technology, a magic box capable of wondrous feats, and the images it constructs so effortlessly appeal to us in ways more subtle and powerful than words can".[112] Within archaeology, discussions are still ongoing as to the place of GIS as neutral tools in the objective analysis of data or as an intrinsic part of research methodologies.[113] In DH challenges of bias in technology, funding and academia are also highlighted as a problematic dark side of DH.[114] Once again, these aspects are not unique to the humanities, and the natural sciences must also be continually aware of the limits and implications of their databases.[115]

Although these source critical aspects are important, there are several problems with such binary and rigid criticism of the digitization of history. To begin with, the increasing accessibility of sources is of enormous benefit for current and future historians. Open access to data has a democratizing effect on research, by providing public access and transparency. With open access it is quite simply cheaper to get at some sources, a fact which in itself may have the knock-on effect of making less mainstream, or more difficult to fund, projects and angles more feasible (although as suggested above the full potential for usage is often hampered by inadequate interfaces to the data). This has certainly been the case in some areas, with minorities being given a greater research prominence, and previously unseen aspects of social history being revealed. The previously invisible women and children of history and prehistory are being made visible and some of the Swedish research presented above highlights how critical perspectives can be

[111] Johanna Drucker, Humanities Approaches to Graphical Display, in: Digital Humanities Quarterly, 5/1 (2011), pp. 1–52.

[112] David J. Bodenhamer / John Corrigan/ Trevor M. Harris (eds.), The Spatial Humanities. GIS and the future of humanities scholarship, Bloomington 2010.

[113] James Conolly / Mark Lake, Geographical information systems in archaeology, Cambridge 2006.

[114] <http://www.c21uwm.com/2013/01/09/the-dark-side-of-the-digital-humanities-part-1/> (18.07.2014).

[115] See e.g. on the correlation between the distribution of insects and entomologists Philip I. Buckland. The Bugs Coleopteran Ecology Package (BugsCEP) database. 1000 sites and half a million fossils later, in: Quaternary International 2014, <http://dx.doi.org/10.1016/j.quaint.2014.01.030> (18.07.2014).

used in this research. In these projects, marginalized groups, including illegitimate children, indigenous people, the sick, the elderly and workers, are being highlighted in research based upon primary sources. Early career researchers now have a greater opportunity to access data and break down established „facts“ of history and prehistory. Even school students using historical databases can find new perspectives and falsify the work of earlier historians.[116] There is a danger which is often ignored in discussions on the use of open access systems, however, which applies as much to the press, social networks and online shopping recommendations as it does to research. That is the tendency to confuse quality or relevance with popularity.[117] This trend is not limited to the academic use of digital sources, and could be considered as part of a trend towards a society where popularity, multitasking and hyper-attention challenge reflective critical thinking.[118]

It has been argued that DH makes the humanities too data-driven and oriented towards quantitative methods, losing the values of critical qualitative methods.[119] Much of this critique could equally be applied to non-digital historical science, where the critical appraisal of sources and choice of analysis methods is equally important. In Swedish digital history research, so far at least, the relational proximity to the original sources seems to be quite strong. For example, the combination of quantitative and qualitative methods is common in research and reflections from both the Center for Population Studies and the Gender and Work project. Using digital material and tools does, however, at least in part, produces new demands on critical thinking and opens up new possibilities for transforming the humanities.[120] Nevertheless, there is a tendency for criticism to be heavily focused on the actual *digitization* of

[116] Thomas Nygren / Lotta Vikström, Treading Old Paths in New Ways. Upper Secondary Students Using a Digital Tool of the Professional Historian, in: Education Sciences, 3/1 (2013), pp. 50–73.

[117] Bing Pan et. al., In Google we trust. Users' decisions on rank, position, and relevance, in: Journal of Computer-Mediated Communication 12/3 (2007), pp. 801–823.

[118] Byung-Chul Han, Müdigkeitsgesellschaft, Berlin 2010.

[119] Stanley Fish, Mind your p's and b's. The digital humanities and interpretation, New York Times, 23.01.2012.

[120] Wendy Hui Kyong Chun, The Dark Side of the Digital Humanities – Part 1, 2013, <http://www.c21uwm.com/2013/01/09/the-dark-side-of-the-digital-humanities-part-1/> (18.07.2014).

historical sources, resulting in the importance of modes of representation, underlying logics and the materiality of the interface, as well as the engagement of the researcher being often underplayed. In contrast, within the Swedish examples, historical research has been shown to benefit from more innovative and dynamic interfaces and processes. The construction of knowledge within the humanities needs re-evaluation when new possibilities occur for creating, re-creating and mediating, as shown by the experience of dynamic digital maps.[121] New digital research methods are continually being developed, and synergic effects of collaboration and new technology can augment our understanding of the surrounding world.[122] Clearly quantitative analyses of historical data need to be followed up with more hermeneutically-inspired close readings and interpretations.[123]

A recent trend, seen in Sweden and internationally, towards the use of digital environmental reconstructions and the GIS based analysis of landscapes, and the integration of natural science data with humanities oriented interpretation, may provide a model for the solution of some of the above discussed issues.[124]

[121] Todd Presner, HyperCities. A Case Study for the Future of Scholarly Publishing, in: Jerome McGann (eds.), The Shape of Things to Come, Houston 2010, pp. 251–71.; Philip J. Ethington, Comment and Afterword. Photography and Placing the Past, in: Journal of Visual Culture 9/3 (2010) pp. 444–446.

[122] Karen K. Kemp, Geographic Information Science and Spatial Analysis for the Humanities, in: David J. Bodenhamer / John Corrigan / Trevor M. Harris (eds.), The Spatial Humanities. GIS and the future of humanities scholarship, Bloomington 2010, pp. 31–57.

[123] Frederick W. Gibbs / Trevor J. Owens, The Hermeneutics of Data and Historical Writing, in: Jack Dougherty / Kristen Nawrotzk (eds.), Writing History in the Digital Age. A born-digital, open-review volume 2012, <http://writinghistory.trincoll.edu/data/gibbs-owens-2012-spring/> (18.07.2014).

[124] E.g. Philip I. Buckland, Environmental Archaeology, Climate Change and E-Science, in: Skytteanska Samfundets Årsbok, Thule, 2010, pp. 55–69; Philip I. Buckland et al., Integrating Human Dimensions of Arctic Palaeoenvironmental Science. SEAD – The Strategic Environmental Archaeology Database, Journal of Archaeological Science 38/2 (2010), pp. 345–351.

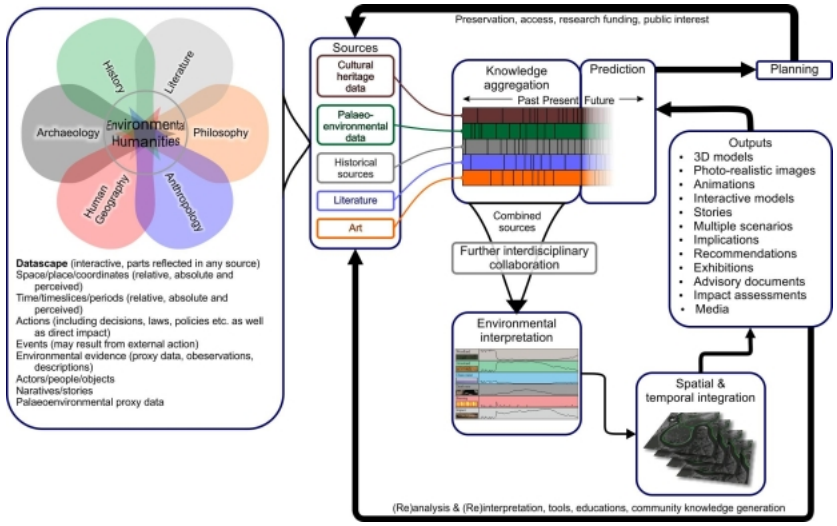

Fig. 14: *Illustration of one possible digital research process approach to the transdisciplinary study of past, present and future environments as the digital environmental humanities. Made by Philip Buckland, presented at the conference 'Sorting the DH Out' December 2013 http://www.humlab.umu.se/sortingdhout/ - HUMlab Umeå*

This theme also serves to illustrate the importance of digital techniques for breaking down disciplinary boundaries and facilitating transdisciplinary science. In a recent example, Buckland[125] demonstrates this by using a palaeobiodiversity database as the data source for a bibliographical study of the late entomologist Russell Coope.

Deep maps and interactive data connected maps, such as the ones being created in Umeå, with many layers of data and information, can give a more in-depth understanding of a place's history.[126] Creating these systems is a considerable challenge, however, both economically and methodologically, not least in terms of data collation and entry.

[125] Philip I. Buckland, The Bugs Coleopteran Ecology Package (BugsCEP) database. 1000 sites and half a million fossils later, in: Quaternary International 2014, <http://dx.doi.org/10.1016/j.quaint.2014.01.030> (18.07.2014).

[126] See <http://ships.ddb.umu.se/ SHiPS> (18.07.2014); <http://sead.se/> (18.07.2014) SEAD; David J. Bodenhamer / John Corrigan / Trevor M. Harris (eds.), The Spatial Humanities. GIS and the future of humanities scholarship, Bloomington 2010.

Besides securing long-term funding for the complete project scope, which is currently problematic in Sweden, the process of effectively defining relationships and models to link different layers of data and maps is complex. In addition to the classic problems of unclear archives and fuzzy borders that have moved, changed and been removed, there are also multifarious problems associated with different ways of storing data and metadata. It takes time and resources to build up and manage these digital materials and systems, and there is often a risk that their actual usage takes a back seat to the infrastructural side of things. In addition to reliable platforms, connectivity, open access to sources and source codes, sustainable digital research requires perseverance and patience amongst researchers, developers and funders.

Conclusion

The status quo of DH in Sweden rests upon a rather long tradition of research based on digital material and tools in linguistics, archaeology and history. The examples in this essay highlight the interdisciplinary and collaborative essence of DH, and how digital material and tools can support research in the study of history. Historians using the demographical database in Umeå, and more recently the verb-phrase database in Uppsala, have published research highlighting marginalized groups from different theoretical perspectives, and it is clear that local and national history can be studied in new and experimental ways. From the Swedish perspective, with strong tradition of illuminating the contributions of minority groups in history, we see great potential in using multimodal material to move beyond the borders of our understanding of human creativity in distant times and places. Building on this baseline is an important challenge for the future, using the potential of open access and international collaboration to make Swedish research global. Even if Gapminder is a truly global digital tool, more research using more obscure and currently less accessible data sources can and should be conducted to help us better understand the past, present and perhaps the future of the global community.

For the future, it is vital to make use of the manifold possibilities offered by digital material and tools. To utilize their potential positively we must develop more cross-disciplinary collaborations; avoid

dichotomies when quantitative and qualitative methods and analyses are separated; become better at illustrating and communicating uncertainties; and last, but not least, formulate solid and important research questions. The latter can perhaps be developed, in part, through creative playing with data, and the importance of explorative data analysis should not be underestimated. The methodological challenges that digitization involves are perhaps primarily related to the relevance and credibility of sources – a challenge that researchers best approach with critical research questions and a critical attitude towards sources. Questions and ideas are influenced by the digital context in a complex relationship. The effects of digital material and processing on historiographical development need to be thoroughly studied in future research in order to better understand contemporary and future knowledge production, its merits and shortcomings. Digitization can contribute to the development of knowledge, but it should not be an end in itself.

From Humanities and Computing to Digital Humanities: Digital Humanities in Portugal with a focus on Historical Research

von Daniel Alves

The Digital Humanities do not (yet) exist in Portugal! As introductory statement for an essay on the state of Digital Humanities in Portugal, the phrase carries two risks. On the one hand, it might give the impression that in the Portuguese academy the Humanities are not connected with digital technologies, since these were not integrated into the methodological and epistemological framework of the Humanities disciplines. This idea, however, is not correct, and I believe that sufficient examples will be presented in this essay to demonstrate that Portuguese researchers do not lag behind in the international evolution of the field of Digital Humanities. Moreover, the statement is made in the context of an essay that looks at the progress made in recent decades from a very particular perspective, through the eyes of an historian. And in this case the risk is high because I will not only privilege a look at Digital History (though not exclusively), as this point of observation can lead to the temptation to draw conclusions about all Humanities through observation about developments of only one of its disciplines.

But the statement retains all its acuity if one focuses on a discourse analysis, on the appropriation of concepts and expressions of Digital Humanities that in other countries or linguistic areas have been circulating for years, or if we give attention to aspects of the institutional and formal integration of this new field. Again, talking about a „new“ thing when one talks about „Digital Humanities“, the term having been coined a decade ago[1], may seem odd. Even more so because I will assume that despite the fact that Digital Humanities as a coherent, comprehensive and institutionalized disciplinary field in terms of its penetration in

[1] Susan Schreibman / Ray Siemens / John Unsworth (eds.), Companion to Digital Humanities. Blackwell Companions to Literature and Culture. Oxford 2004; Melissa Terras, Inaugural Lecture: A Decade in Digital Humanities, in: Melissa Terras' Blog, 27th May 2014. <http://melissaterras.blogspot.pt/2014/05/inaugural-lecture-decade-in-digital.html> (23.07.2014).

academia does not yet exist in Portugal, it is not possible to say that the interaction between the Humanities and the digital technologies is something recent or even negligible in the country. Rather, this interaction has already a decades-long history and is in good health, at least from my point of view.

With these brief remarks I have tried to provide clues to the way in which I will approach the issue of the transformation from „Computing for the Humanities“ to „Digital Humanities“ and the state of this transformation in Portugal, in 2014. In the following text I will develop three major aspects. The first is to draw attention to those who seem to have been the disciplinary fields where, despite everything, the Digital Humanities (in the broad perspective as will be regarded here) have asserted themselves in a more comprehensive manner. I think it is here that I run into greater risks, not only for what I have mentioned above, but certainly because a significant part, perhaps, of the achievements and of the researchers might have escaped the look that I sought to cast upon the past few decades, always influenced by my own experience and the work carried out in the field of History. But this can be considered as a work in progress and it is open to criticism and suggestions. A second point to note is that emphasis will be given to the main lines of development in the relationship between historical research and digital methodologies, resources and tools. Finally, I will try to make a brief analysis of what has been the Digital Humanities discourse appropriation in recent years, with very debatable data and methods for sure, because studies are still scarce and little systematic information is available that would allow to go beyond an introductory reflection.

Digital Humanities in Portugal: disciplines, methods and practitioners

I think it will not be far from the truth to declare that in Portugal, as indeed elsewhere, the interaction between the Humanities and the Digital is currently transdisciplinary. It will be difficult and perhaps once more risky to define a specific discipline where the relevant use of digital technologies has been pioneering, compared to what was happening in the others. Overall, the first examples, individual cases of researchers'

isolated efforts, can be observed since at least the late 1970s. However, at that time in Portugal, as around the world, incorporating the computer or computing in the work of the humanist was not easy, because technological advances still did not allow for a democratization of access to this „huge“ machinery of electronic information processing. Examples from Philology, Linguistics, Archaeology or History, for example, were sporadic, very punctual. And on the whole, perhaps these were the areas where the need for an earlier „democratization“ was more urgent.

Undoubtedly, the 1980s saw the use of the computer expand, both in terms of computational analysis of some corpora, or in the development of databases applied to historical or demographic studies, for example. Precisely one of the most dynamic areas since that time and where the interconnection between digital and research in the humanities has made a marked journey is from Philology and Linguistics[2], although only recently the term „Digital Humanities“ has been associated with it, as evidenced by the 2013 edition of the volume „Património Textual e Humanidades Digitais [Textual Heritage and Digital Humanities]“. In the introduction, the editors of the book provide an analysis of the impact generated by the encounter between Philology and the digital. They say that „if it is true that the discussion about the status of this recent domain and, specifically, the impact of the technology transfer to the scope of Philology still remains open, it is undisputed that the Digital Humanities require multidisciplinary teams“, and that represents more

[2](Rogéria Cruz, A informática linguística e o futuro do português: elementos para a definição de uma política nacional em Portugal, in: Ciência da Informação 15 (1986), pp. 27–32; Stephen R. Parkinson / António Emiliano, Encoding Medieval Abbreviations for Computer Analysis (from Latin–Portuguese and Portuguese Non-Literary Sources), in: Literary and Linguistic Computing 17 (2002), pp. 345–360; Maria Helena Pinto Novais Paiva, Os gramáticos portugueses quinhentistas e a fixação do padrão linguístico: contribuição da Informática para o estudo das relações entre funcionamento, variação e mudança. Doutoramento, Porto 2002; Evelina Verdelho, Filologia, Linguística e Informática: trabalhos em tempo de mudança, in: Maria Helena Paiva / Ana Maria Brito / Olívia Figueiredo / Clara Barros (eds.), Linguística Histórica e História da Língua Portuguesa. Actas do Encontro de Homenagem a, Porto 2004, pp. 397–411; António Emiliano, Tipo medieval para computadores: uma ferramenta informática para filólogos, historiadores da língua e paleógrafos, in: SIGNO: Revista de la Historia de la Cultura Escrita 15 (2005), pp. 139–76; Rita Marquilhas / Iris Hendrickx, Manuscripts and Machines: The Automatic Replacement of Spelling Variants in a Portuguese Historical Corpus, in: International Journal of Humanities and Arts Computing 8 (2014), pp. 65–80.

than a mere „transfer of computer tools to the field of the Humanities“.[3]

Still, according to the same authors, in the case of the study of the Portuguese language „the Digital Humanities made meaningful progress thanks to projects like the *CIPM - Corpus Informatizado do Português Medieval*[4] [Computerized Corpus of Medieval Portuguese] (CLUNL), the *DICIweb – Corpus Lexicográfico do Português*[5] [Portuguese Lexicographical Corpus] (Universidade de Aveiro/CLUL) and the *P.S. Post Scriptum – Arquivo Digital de Escrita Quotidiana em Portugal e Espanha na Época Moderna*[6] [Digital Archive of Everyday Writing in Portugal and Spain in the Early-Modern Era]“[7], but there are active projects from at least 1988, such as the *CRPC - Corpus de Referência do Português Contemporâneo*[8] [Contemporary Portuguese Reference Corpus].

These projects also show what has been a trend inside the academic community that integrates the digital in their research projects, whether in the field of Philology and Linguistics, in Literary Studies or in Art Studies: the production and online availability of digital text archives. In the area of language studies there are several projects dedicated to creating digital archives of texts (ancient documents, correspondence or literary texts). An example, in addition to some of the previously mentioned digital archives, is the project developed at the University of Minho, on *Tomaz de Figueiredo's Digital Archive*[9], coordinated by Idalete Maria da Silva Dias, or the project “*Nenhum Problema Tem Solução: Um Arquivo Digital do Livro do Desassossego* [No Problem Has a Solution: A Digital Archive of the Book of Disquiet]“[10] from the University of Coimbra coordinated by Manuel Portela.

In the confluence between digital technologies and Literary Studies,

[3]Maria Filomena Gonçalves / Ana Paula Banza (eds.), Património Textual e Humanidades Digitais: da antiga à nova Filologia, Évora 2013, pp. 4–5).

[4]<http://cipm.fcsh.unl.pt/>, active since 1993 (23.07.2014).

[5]<http://clp.dlc.ua.pt/Projecto.aspx> (23.07.2014).

[6]<http://ps.clul.ul.pt/index.php> (23.07.2014).

[7]Maria Filomena Gonçalves / Ana Paula Banza (eds.), Património Textual e Humanidades Digitais: da antiga à nova Filologia, Évora 2013, p. 7.

[8]<http://www.clul.ul.pt/pt/recursos/183-crpc#history> (23.07.2014).

[9]<http://www.tomazdefigueiredo.net/Projeto_Tomaz_Figueiredo/Tomaz_Arquivo/> (23.07.2014).

[10]<http://www.uc.pt/fluc/clp/inv/proj/ldod> (23.07.2014).

Portela has been one of the most dynamic researchers in incorporating the Digital Humanities' discourse, with publications and projects dedicated to electronic publishing and the creation of digital texts archives.[11] Also the studies by Pedro Barbosa on text created by computer, developed since the mid-1990s, are evidence of this link between text and digital technology, an activity that is currently developed by a broader team in the *Centro de Estudos em Texto Informático e Cibercultura* [Centre for Studies in Computerized Text and Cyberculture], at University Fernando Pessoa.[12] Helena Barbas, at New University of Lisbon has also developed an effort to integrate digital culture into the Literary Studies and presents a multifaceted research path where, among other studies, one should highlight the work on digital storytelling and cultural heritage.[13]

Fig. 1: *Tomaz de Figueiredo's Digital Archive (01.09.2014)*

[11]See, for instance, <http://www.ci.uc.pt/diglit/DigLitWebRosto.html> (23.07.2014).

[12]<http://cetic.ufp.pt/index_eng.htm> (23.07.2014).

[13]Helena Barbas / Nuno Correia, Documenting InStory–Mobile Storytelling in a Cultural Heritage Environment, in: Luciana Bordoni / Massimo Zancanaro / Antonio Krueger (eds.), First European Workshop on Intelligent Technologies for Cultural Heritage Exploitation, Riva del Garda 2006, pp. 6–12.

In the more specific field of Theatre Studies one can cite the work of the *Centro de Estudos de Teatro* [Centre for Theatre Studies] at the University of Lisbon[14], in existence since 1994 and providing a regular online presence since 2000, with several digital archives and databases on Portuguese theater. Lastly, still under Literary Studies and exploring the connections between literature, landscape and environment, the project "*Atlas das Paisagens Literárias de Portugal Continental* [Atlas of Literary Landscapes of Mainland Portugal]"[15], coordinated by Ana Isabel Queiroz at New University of Lisbon, deserves to be highlighted. It is a relevant project for the interdisciplinary perspective, as well as the innovative combination of text analysis, relational databases and geographic information systems.

Fig. 2: *Atlas of Literary Landscapes of Mainland Portugal (01.09.2014)*

The entanglement of the Humanities with digital technologies in Portugal has not been limited to the digitization, analysis and academic publication of texts. Major steps forward have been taken in the areas of Intangible Heritage, Music and Dance, or Art History in recent years, using diverse technologies, with an emphasis on digital video

[14] <http://www.letras.ulisboa.pt/cet-cet/731-cet> (23.07.2014).
[15] <http://paisagensliterarias.ielt.org/> (23.07.2014).

and sound to preserve popular culture[16], in multimodal analysis about performing arts[17], on 3D reconstruction[18] or on historical modelling in virtual environment[19], of which the most recent and promising example is undoubtedly what is being developed at the University of Évora about the city of Lisbon in the pre-1755 Earthquake.[20] Also in the field of simulation and the creation of so-called „serious games" interesting developments have taken place, as can be seen by the work done, for example, at the University of Coimbra[21] and at New University of Lisbon[22].

Digital Humanities and Historical Research: From early efforts to the Google era

History and Archaeology are no specific or unique cases within the general framework of the evolution of Digital Humanities in Portugal, at least with regard to the chronology of this evolution. The beginnings are also situated in the late 1970s and early 1980s, but it was the following decade that saw one of the major periods of development of the field in the Portuguese academia. There are however some peculiarities that

[16] <http://www.memoriamedia.net/index.php/en> (23.07.2014).
[17] <http://tkb.fcsh.unl.pt/> (23.07.2014); Carla Fernandes / Stephan Jürgens, Video Annotation in the TKB Project: Linguistics Meets Choreography Meets Technology, in: International Journal of Performance Arts and Digital Media 9 (2013),pp. 115–34.
[18] Manuela Martins / Paulo Bernardes, A Multi-Disciplinary Approach for Research and Presentation of Bracara Augusta's Archaeological Heritage, in: Archeologia E Calcolatori XI (2000), pp. 347–57; Paulo Bernardes / Manuela Martins, Computer Graphics and Urban Archaeology: Bracara Augusta's Case Study, in: Advances in Computer Graphics in Portugal 4 (2004), <http://virtual.inesc.pt/aicg04/index.html> (23.07.2014); Lídia Fernandes / Paulo Sales, Teatro Romano de Lisboa: projecto reconstituição virtual, in: Revista Arquitectura e Vida 57 (2005), pp. 28–32.
[19] CHAIA-UE, Um novo objecto de estudo: a Lisboa pré-terramoto em mundo virtual, in: APHA Newsletter 2011.
[20] <http://lisbon-pre-1755-earthquake.org/> (23.07.2014).
[21] Joaquim Carvalho / Filipe Penicheiro, Jogos de computador no ensino da História, in: Ana Veloso / Licínio Roque / Óscar Mealha (eds.), Livro de Actas do VIDEOJOGOS 2009 – Congresso da Sociedade Portuguesa de Ciências dos Videojogos, Aveiro 2009, pp. 401–12.
[22] Helena Barbas / Nuno Correia, Documenting InStory–Mobile Storytelling in a Cultural Heritage Environment, in: Luciana Bordoni / Massimo Zancanaro / Antonio Krueger (eds.), First European Workshop on Intelligent Technologies for Cultural Heritage Exploitation, Riva del Garda 2006, pp. 6–12; Helena Barbas, Narrative Memory in Hyperfiction and Games, in: Aladdin Ayesh (ed.), GameOn' 2010: 11th International Conference on Intelligent Games and Simulation, Leicester 2010, pp. 85–91.

justify an emphasis on these two disciplines, in particular concerning the methods used and tools adopted.

In 1983, the historian António Hespanha published the text „A micro-informática no trabalho do historiador [The micro-informatics in the work of the historian]“.[23] In this essay he intended to make a balance (maybe precociously) about the use of information technology in teaching and research. Talking about major projects focused on technology and centralized resources, and about the use of computers mainly for statistical operations, in his opinion the 1980s promised an „information revolution“ with more accessible computers and the dissemination of ready to use software packages.[24] Still, Hespanha felt the need to explain in his article in great detail the workings of computer language as well as the features and functions of the physical components of the „personal computer“. In 1983, this machine was still unknown to the general public and was only recognized by a minority of researchers in the scientific community.[25] On asking what computers could do for historians or historians could get from a computer, Hespanha started with the obvious, the use of PCs in the statistical calculation. Through calculation and its complexification, enhanced by the PCs' computing power, historians started to have at their disposal a tool for analysis to perform operations previously impossible or too time-consuming and ultimately allow them to advance the „historiographical reasoning“ to interpretative models based on „modeling and extrapolation“. Hespanha admitted „some optimism“ in his remarks, but pointed to a higher accuracy in the collection and systematization of historical data, forced by the dynamics of computing that ultimately would lead to an approach between History and the Social Sciences.[26] In 1985, Joaquim Carvalho sought to register similar conclusions, this time extended to

[23] António Manuel Hespanha, A Micro-Informática no Trabalho do Historiador, in: História e Crítica XI (1983).

[24] António Manuel Hespanha, A Micro-Informática no Trabalho do Historiador, in: História e Crítica XI (1983), pp. 17–18.

[25] António Manuel Hespanha, A Micro-Informática no Trabalho do Historiador, in: História e Crítica XI (1983), pp. 18–24.

[26] António Manuel Hespanha, A Micro-Informática no Trabalho do Historiador, in: História e Crítica XI (1983), pp. 24–25.

the bulk of the Humanities.[27]

Probably resulting from this optimism, the first „Encontro sobre História e Informática [Meeting on History and Computing]“ took place in 1988, organized by the Portuguese History Teachers Association. The second meeting was already organized by the Portuguese Association for History and Computing (APHI), at the University of Minho in April 1989. Enthusiasm for the novelty of the subject in Portugal was certainly responsible for the success of the initiative, which had „about 300“ attendees, and was then classified as „one of the largest events of its kind in Europe.“[28]

The APHI began publishing a newsletter, „O Boletim da Associação Portuguesa de História e Informática [The Bulletin of the Portuguese Association for History and Computing]“ in March 1989, with Joaquim Carvalho of the University of Coimbra as one of the main driving forces. It capitalized on the enthusiasm regarding the intersection between historical research and computing which was then growing internationally, with the publication of the first volume of the journal *History and Computing* in the same year. The APHI was working as a branch of the *Association for History and Computing* in Portugal.[28]

That same year saw the publication of the book „Informática e Ciências Humanas [Computing and Human Sciences]“ by Conceição Monteiro Rodrigues, with the collaboration of Carlos Alberto Trindade, a Computer Science Engineer. The author had been a pioneer in the application of computing to research methods in Archaeology in Portugal, with the publication of „A informática ao serviço da História da Arte e Arqueologia [Computing at the service of Art History and Archaeology]“ in 1979, and by teaching a course on „Introdução à Informática Aplicada à História [Introduction to Computing and History]“ in the New University of Lisbon in the early 1980s.[29] Her book from 1989 gave a portrait of the skepticism raging in the Portuguese academic

[27] Joaquim Carvalho, Informática e Ciências Humanas, in: Revista Vértice 467 (1985).

[28 Associação Portuguesa de História e Informática (ed.), Boletim da Associação Portuguesa de História e Informática, Vol. 2, Coimbra 1989, 2:4–5.

[28] Associação Portuguesa de História e Informática (ed.), Boletim da Associação Portuguesa de História e Informática, Vol. 1, Coimbra 1989, 1:3; 27.

[29] Maria da Conceição Monteiro Rodrigues, Informática e ciências humanas, Lisboa 1989, p. 7.

community regarding the use of computing resources in the Humanities, but also a reflection on the mental changes and the new methods necessary for the integration of information technology in Humanities research. Already at that time she emphasized that in the application of computing to research methods in the Social Sciences and Humanities researchers needed to leave the comfort zone represented by the quantitative approach, and to focus increasingly on the qualitative domain.[30] Again we see a clear line of confluence with international developments, such as the call to a „qualitative and quantitative revolution in the relationship between history and computing."[31]

Another important element of the 1980s was the creation of software specifically designed for the work of the historian/archivist, as was the case with *Herodotus v1.00*, a program for the management of documents and data recovery, thought in the image of Manfred Thaller's *Kleio*;[32] The project *Herodotus* was based at the New University of Lisbon and was coordinated by António Hespanha.[33]

Despite all the initiatives and publications, the truth was that the application of digital technologies, was generally viewed with skepticism. In a 2011 interview António Hespanha recalled his admission to the Institute of Social Sciences in 1983: His team's „empirical research strongly supported by computational means" generated „mistrust" and was regarded as a „bizarreness".[34] Yet he assembled a team that gained research experience in handling large volumes of data, „represented in a homogeneous and regular way, searchable, comparable and reducible to great patterns in a matter of seconds".[35]

[30]Maria da Conceição Monteiro Rodrigues, Informática e ciências humanas, Lisboa 1989, pp. 9–10, 127–128.

[31]R. J. Morris, History and Computing: Expansion and Achievements, in: Social Science Computer Review 9 (1991), pp. 215.

[32]Associação Portuguesa de História e Informática (ed.), Boletim da Associação Portuguesa de História e Informática, Vol. 2, Coimbra 1989, 2:15–20; Onno Boonstra / Leen Breure / Peter Doorn, Past, Present and Future of Historical Information Science. Amsterdam 2004, pp. 26–27.

[33]Associação Portuguesa de História e Informática (ed.), Boletim da Associação Portuguesa de História e Informática, Vol. 1, Coimbra 1989, 1:3.

[34]António Manuel Hespanha, Entrevista a António Manuel Hespanha por Pedro Cardim, in: Análise Social 46/200 (2011), pp. 433.

[35]António Manuel Hespanha, Entrevista a António Manuel Hespanha por Pedro Cardim, in: Análise Social 46/200 (2011), pp. 439.

The use of databases, whether for serial, demographic or prosopographic studies, subsequently became a marked trend, with several teams in universities all over the country using these software tools in their research projects. To quote just a few representative examples one should mention the studies on parishes reconstitution coordinated by Norberta Amorim, at University of Minho[36]; work on disentailment in the nineteenth century carried out by Luís Silveira, at New University of Lisbon[37]; work on the Ancien Régime's society developed by Joaquim Carvalho, at the University of Coimbra[38]; or about the population in the first half of the nineteenth century equally by Luís Silveira.[39]

Norberta Amorim indeed pointed out in the early 1990s that the use of „micro-computer" technique, including databases, had promoted the evolution of her studies on the reconstitution of families as developed in the 1960s into a broader methodology of parishes reconstitution since the mid-1980s[40]. The fact that Amorim used the term „database" in quotes throughout an important article published in 1991 reveals just how new this technology was for the humanities' academic milieu at the time.[41] Even the researchers who did use these new digital tools showed some skepticism, pointing to the „convenience" of continuing

[36]Maria Norberta Amorim, Uma metodologia de reconstituição de paróquias desenvolvida sobre registros portugueses, in: Boletín de la Asociación de Demografía Histórica IX (1991), pp. 7–26.

[37]Luís Espinha da Silveira, Revolução Liberal e Propriedade. A Venda dos Bens Nacionais no Distrito de Évora (1834–1852), Lisboa 1988.

[38]Joaquim Carvalho, Comportamentos Morais e Estruturas Sociais numa paróquia de Antigo Regime (Soure, 1680–1720), Coimbra 1997.

[39]Luís Espinha da Silveira (ed.), Os recenseamentos da população portuguesa de 1801 e 1849, edição crítica, 3 vols., Lisboa 2001.

[40]Maria Norberta Amorim, Uma metodologia de reconstituição de paróquias desenvolvida sobre registros portugueses, in: Boletín de la Asociación de Demografía Histórica IX (1991), p. 7; Maria Norberta Amorim / Maribel Yasmina Santos / Antero Ferreira / Pedro Rangel Henriques / Fátima Rodrigues, Reconstituição de paróquias e formação de uma base de dados central, in: Congresso da Assosiação Portuguesa de Demografia Histórica: actas, Lisboa 2001, p. 60; also check a previous work by the same author where she made a first approach to the link between demography and „micro-informatics", Maria Norberta Amorim / Luís Lima, Demografia histórica e micro-informática: uma experiência sobre uma paróquia açoriana, in: Boletim do Instituto Histórico da Ilha Terceira XLIV (1986), pp. 191–209.

[41]Maria Norberta Amorim, Uma metodologia de reconstituição de paróquias desenvolvida sobre registros portugueses, in: Boletín de la Asociación de Demografía Histórica IX (1991), pp. 8–9.

to hold records in „notebooks (...) that operate as duplicates for the electronic records“.[42] Still, the transition to the computer media were assigned a number of advantages related to the storage capacity and speed of information processing, easy searchability and automation of a set of processes that facilitated the historian's life.[43]

A few years later the quotes tended to disappear from the term „database“ and the advantages of computerizing the research process were presented with greater clarity, in particular the ability to give a „new impetus to the work made with massive historical information“ by „strengthening the scientific basis of the studies“ developed and by „enhancing interdisciplinary research“.[44] Due to the advancement of projects in historical demography, the „SEED, Sistema para o Estudo da Evolução Demográfica [System for the Study of Demographic Evolution]“ became available.[45] In 2004, in an outline summary of what had been the development of the relationship between computer science and historical demography, João Antero Ferreira could declare that the trend of the last twenty years gave an „example of success“.[46]

However, until the mid-1990s and with rare exceptions, the IT tools used in history projects were developed by engineers and computer technicians, often with no direct intervention from the humanists in the critical process of building the computer model data, for instance, which today is considered crucial for the development of databases applied to Humanities projects.[47] One of the most significant exceptions

[42]Maria Norberta Amorim, Uma metodologia de reconstituição de paróquias desenvolvida sobre registros portugueses, in: Boletín de la Asociación de Demografía Histórica IX (1991), pp. 9.

[43]Maria Norberta Amorim, Uma metodologia de reconstituição de paróquias desenvolvida sobre registros portugueses, in: Boletín de la Asociación de Demografía Histórica IX (1991), p. 10.

[44]Maria Norberta Amorim, Informatização normalizada de arquivos: reconstituição de paróquias e historia das populações: um projecto interdisciplinar, in: Boletín de la Asociacón de Demográfia Histórica XIII (1995), pp. 141–143.

[45]And its latest version can be accessed at <http://www3.di.uminho.pt/~gepl/SEED/> (23.07.2014); Rafael Fernandes Félix / Fernanda Faria / Maribel Yasmina Santos / Pedro Rangel Henriques, XML na demografia histórica: anotação de registos paroquiais, in: Conferência da Associação Portuguesa de Sistemas de Informação, Coimbra 2002.

[46]João Antero Gonçalves Ferreira, Sistemas informáticos para análise de dados demográficos: uma abordagem histórica, in: Actas del VII Congreso Internacional de la ADEH, Granada 2004, p. 12.

[47]John Bradley, Silk Purses and Sow's Ears: Can Structured Data Deal with Historical

corresponds to the works developed by Joaquim Carvalho, concerned not only with the use of computer resources to assist in the „effective [management of a] large amount of multivariate data“, but essentially with the need to make these tools and methods „reusable“. He also drew attention to the very process of developing the digital tools that would enable to shed light on the „internal logic of certain historical processes“.[48] This work culminated in the *TimeLink* project, an online open source tool for analyzing prosopographical networks.[49]

The importance and relevance of digital resources available for historical research was widely acknowledged in the mid-1990s, and the potential of the Internet for the discipline was recognized.[50] Nevertheless, in 1997 the „historian with strong IT background“ was still considered „rare“.[51] And in addition to those already mentioned there were few researchers or even research teams that focused their research solely or at least largely on the use of digital tools and methods.

In 2005, „the building of databases“ stood out as „the feature par excellence“ of the „use of information technology for historical research“.[52] Despite technological advances the use of these tools was designed almost exclusively to process „sources that have structured and serial information“.[53] The wider dissemination of databases (also due to the fact that history projects funded by the Portuguese Foundation for Science and Technology currently are usually expected to develop a database), the greater familiarity of researchers with these tools and also their growing versatility have allowed other forms of use, especially for non-structured information, a trend discernible by the projects presented at a recent workshop on „Bases de dados para as Ciências

Sources?, in: International Journal of Humanities and Arts Computing 8 (2014), pp. 13–27.

[48]Joaquim Carvalho, Comportamentos Morais e Estruturas Sociais numa paróquia de Antigo Regime (Soure, 1680–1720), Coimbra 1997.

[49]<http://timelink.fl.uc.pt/> (23.07.2014).

[50]Nuno Camarinhas, A História nos caminhos da Internet, in: Revista História XVIII (1996).

[51]Joaquim Carvalho, Comportamentos Morais e Estruturas Sociais numa paróquia de Antigo Regime (Soure, 1680–1720), Coimbra 1997.

[52]Nuno Camarinhas, Do manuscrito ao teclado: Os usos da informática na investigação histórica, in: História do Teatro e Novas Tecnologias, Lisboa 2005, pp. 3–4.

[53]Nuno Camarinhas, Do manuscrito ao teclado: Os usos da informática na investigação histórica, in: História do Teatro e Novas Tecnologias, Lisboa 2005, p. 4.

Humanas [Databases for Humanities]“[54] and in some published papers seeking to cross textual sources, databases and geographic information systems.[55]

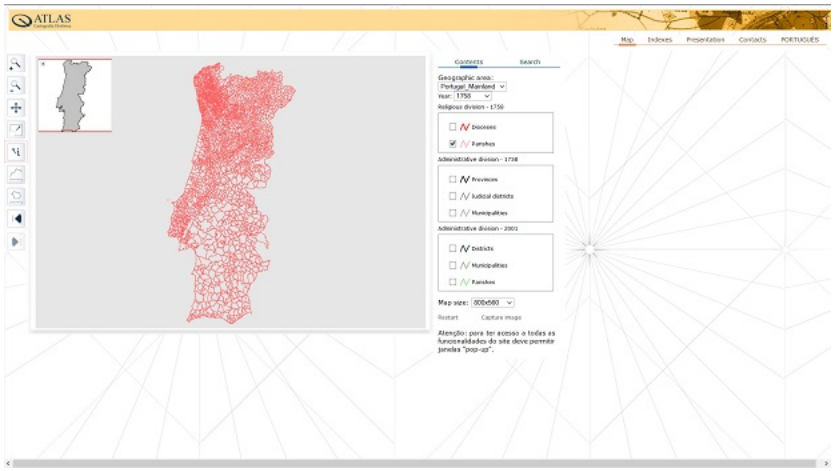

Fig. 3: *Atlas of Historical Cartography (01.09.2014)*

Associated with some of these projects that have privileged the use of relational databases and particularly with those who had a stark territorial component, the use of geographic information systems (GIS) has been developed from the mid-1990s. In this field a research team from the New University of Lisbon, coordinated by Luís Silveira, has carried out pioneering work.[56] As can be observed for other countries, the beginnings of historians' involvement with GIS technologies lay in major projects to reconstruct the historic administrative county boundaries in an effort to create a basis to study the quantitative data collected

[54] <http://www.cham.fcsh.unl.pt/teodosio/files/2013_wbd.pdf> (23.07.2014).

[55] For instance Daniel Alves / Ana Isabel Queiroz, Studying Urban Space and Literary Representations Using GIS: Lisbon, Portugal, 1852–2009, in: Social Science History 37 (2013), pp. 457–81.

[56] Luís Espinha da Silveira / Margarida Lopes / Cristina Joanaz de Melo, Mapping Portuguese Historical Boundaries with a GIS, in: Onno W. A. Boonstra / Geurt Collenteur / and Bart van Elderen (eds.), Structures and Contingencies in Computerized Historical Research, Hilversum 1995, pp. 245–52; Luís Espinha da Silveira, Território e poder. Nas origens do Estado contemporâneo em Portugal. Cascais 1997.

in long temporal series. In Portugal, these efforts culminated in 2001 with the release of the site *Atlas, Cartografia Histórica* [Atlas, Historical Cartography][57], and today are accepted as a well-established area of research, with studies ranging from Urban History to Transnational History.[58]

The use of web-GIS for making historical research available was furthered by the website „Atlas Histórico Digital do Alentejo [Digital Historical Atlas of Alentejo]“, a project today unfortunately only partially available through the Internet Archive.[59] More recently we can point out the work carried out under the *DynCoopNet* project[60] with the Portuguese team being coordinated by Amélia Polónia from University of Oporto.[61]

For the field of Archaeology, GIS is an area of well developed research, with the second half of the 1990s and the creation of the „Endovélico“ system as a milestone. Since then GIS work has been carried out in all Portuguese universities and with very diverse thematic and temporal perspectives of analysis. Running the risk of leaving out relevant works for Digital Archaeology, I present only a few examples, pointing out the works developed by Manuela Martins, Marcos Osório, Jorge Freire or Miguel Nogueira.[62]

[57] <http://atlas.fcsh.unl.pt/> (23.07.2014).

[58] Luís Espinha da Silveira / Daniel Alves / Marco Painho / Ana Cristina Costa / Ana Alcântara, The Evolution of Population Distribution on the Iberian Peninsula: A Transnational Approach (1877–2001), in: Historical Methods: A Journal of Quantitative and Interdisciplinary History 46 (2013), pp. 157–74; Luís Espinha da Silveira, Geographic Information Systems and Historical Research: An Appraisal, in: International Journal of Humanities and Arts Computing 8 (2014), pp. 28–45.

[59] <https://web.archive.org/web/20120101065256>; <http://geowebserver.xdi.uevora.pt/> (23.07.2014).

[60] <http://www.dyncoopnet-pt.org/> (23.07.2014).

[61] Amélia Polónia / Amândio Barros / Miguel Nogueira, 'Now and Then, Here and There … on Business': Mapping Social/Trade Networks on First Global Age, in: Karel Kriz / William Cartwright / Lorenz Hurni (eds.), Mapping Different Geographies, Heidelberg 2010, pp. 105–28; Sara Pinto, Geographic Projections of a 16th Century Trade Network: New Meanings for Historical Research, in: Karel Kriz / William Cartwright / Michaela Kinberger (eds.), Understanding Different Geographies, Heidelberg 2013, pp. 203–14.

[62] Manuela Martins / Paulo Bernardes, A Multi-Disciplinary Approach for Research and Presentation of Bracara Augusta's Archaeological Heritage, in: Archeologia E Calcolatori XI (2000), pp. 347–57 Marcos Osório / Telmo Salgado, Um Sistema de Informação Geográfica aplicado na Arqueologia do Município do Sabugal, in: Praxis Archaeologica 2 (2007),

In History, the creation and online availability of digital archives has also generated much interest in academia, and examples of almost all universities and History research centres in the country can be used to illustrate this interest. To mention a few, there are the „Memórias Paroquiais 1758 [1758 Parishes' Descriptions]" at the University of Évora[63] coordinated by Fernanda Olival, the MOSCA project also at Évora[64], coordinated by João Freire and Paulo Guimarães[65] or the project „Portugal 14-18" at the New University of Lisbon, one of the first examples of using crowdsourcing to collect documents and memories, in this case about the First World War.[66]

Fig. 4: *Portugal 14-18 (01.09.2014)*

pp. 9–22; Migel Nogueira, Percurso metodológico para a implementação de um SIG em arqueologia mineira: breves reflexões, in: Carla Maria Braz Martins (ed.), Mineração e povoamento na Antiguidade no Alto Trás-os-Montes Ocidental, Porto 2010, pp. 179–87; J. Freire / J. Bettencourt / A. Fialho, Sistemas de Informação Geográfica na gestão do Património Cultural Subaquático: a experiência da Carta Arqueológica Subaquática de Cascais, in: 2as Jornadas de Engenharia Hidrográfica, Lisboa 2012, pp. 365–68.

[63] <http://www.portugal1758.uevora.pt/> (23.07.2014).

[64] <http://mosca-servidor.xdi.uevora.pt/projecto/> (23.07.2014).

[65] João Freire / Paulo Guimarães, Do Arquivo Histórico-Social ao Projecto Mosca, in: A Ideia: revista de cultura libertária 71–72 (2013), pp. 243–46.

[66] <http://www.portugal1914.org/> (23.07.2014).

In some recent works, the community of researchers linked to History and Archaeology felt the need to make a balance of the implementation of digital research methodologies in these two disciplines, although the main focus has been given to developments in international terms.[67] The exception to this scenario is the study of Maria Cristina Guardado and Maria Manuel Borges, dedicated exclusively to the Portuguese case[68], although more focused on trying to identify the centers and research projects where the area of Digital History has had more impact. From these studies we get the idea that Digital History and Digital Archaeology in Portugal today, as it occurred in the late 1980s, again appear to be in a new phase of importing paradigms, this time centered on the incorporation of the discourse of the Digital Humanities.

What we talk about when we talk about Digital Humanities in Portugal (version 2.014)

The attempt to claim a new field of research can be made through a more formal and institutional way, with the creation of centers and institutes focusing specifically on the development of new subjects or methodologies. One can rely on the elaboration of a distinct discourse, adapting and reconfiguring trends coming from the past or importing expressions, concepts, methods and problems of other disciplines or other academic communities, especially from abroad. Or, obviously, one can follow both paths parallelly. In the Portuguese case, the current trend seems to be the second strategy. I'm not saying this to argue that some of the aforementioned research centers or even others more focused on a digital/ computational perspective (e.g. the Instituto de Linguística Teórica e Computacional [Institute of Theoretical and Computational Linguistics])[69] cannot be integrated into what we now call Digital Humanities. To a large extent it is precisely in these centers

[67] Danny Rangel / Nelson Almeida, A Arqueologia na Era Digital: Contexto e tendências, in: Revista Internacional de Humanidades 1 (2012), pp. 39–51; Danny Rangel, Do mundo digital às humanidades digitais, in: Techne 1 (2013), pp. 17–23; Daniel Alves, Introduction: Digital Methods and Tools for Historical Research, in: International Journal of Humanities and Arts Computing 8 (2014), pp. 1–12.

[68] Maria Cristina Guardado / Maria Manuel Borges, Digital History in Portugal: A Survey, in: Alexander Tokar et. al. (eds.), Science and the Internet, Düsseldorf 2012, pp. 43–58.

[69] <http://www.iltec.pt/eng/index.html> (23.07.2014).

that have arisen the very practice and discourse that tend to affirm the new field in Portugal. However, the process has been less systematic, more informal, and can only be detected by paying attention to other signs away from the formalism of institutions.

It is difficult to guarantee with absolute certainty who used the phrase „Digital Humanities“ in Portuguese for the first time and when, and that might not be very relevant. However, it is clear that this use is already a first sign of the beginning of the transformation process from „computing for the Humanities“ or „computing applied to Humanities“ to the „Digital Humanities“. Without absolute certainties, it is likely that the year 2010 was the turning point. There are several signs that point in this direction and they are visible either through teaching or research.

Helena Barbas, one of the researchers already mentioned above, has sought to stimulate the field of Digital Humanities at the New University of Lisbon at least since 2004 by offering free courses, several graduate and master courses. In the Literary Studies area she has proven a pioneer in the adoption of either a digital perspective to teaching, or in the incorporation of designations that currently characterize the field. If in 2007 she introduced the master course „Literature and New Media“, in 2010 she changed its name to „Digital Humanities“.[70] From what we can ascertain this may have been the first time that the term „Humanidades Digitais [Digital Humanities]“ came to be use in an official manner, in Portuguese, in the Portuguese academy.

But from what has been determined in an online survey of curriculum guides from several universities, the expression remains virtually absent, with one exception. At the University Fernando Pessoa „Teaching and Management of Education“ department, there is currently a chair in „Ciência, tecnologia e humanidades digitais [Science, technology and digital humanities]“. The course was created in 2009, but it gained the term „digital humanities“ only in 2013. Nevertheless there remain other designations that although not incorporating the trendy expression, so to speak, may also be included in the field of Digital Humanities.

[70] See <http://www.helenabarbas.net/> (23.07.2014).

One example is the course on „Information Technology Applied to History“, which is compulsory in the History degree at the New University of Lisbon, running since 2002; another is the master „Euromachs - European Heritage, Digital Media and the Information Society“, created in 2008, at the University of Coimbra; or yet another the seminar „Digital Culture and Literature Studies“, of the MA in Anglo-American Studies also in Coimbra and running since 2005. Obviously, all these examples and others who might join them, demonstrate that the field of Digital Humanities existed before the expression was assigned to it. Probably the field already existed and continues to exist whether the imported designation is used or not.

In research and academic publications the assertion of the discourse that incorporates the name or concept of „Digital Humanities“ is also new and we cannot say, once again, that its use is very broad. A search done in the „Repositório Científico de Acesso Aberto de Portugal [Portuguese Open Access Scientific Repository]“ (RCAAP)[71], using the terms „digital humanities“, „humanidades digitais“, „digital history“ or „história digital“, shows that these designations only entered the Portuguese academic lexicon as of 2010 and even then in a very hesitant manner. The number of results obtained with a combination of all these keywords in all search fields available, including the full text of publications is very low (17 publications in thousands of references available) and is restricted to an even smaller number of researchers who were extensively involved in research in Humanities using Digital Technologies already before that date.[72] Perhaps even more significant is the fact that the expression „humanidades digitais“ is used only four times in the keywords to classify the publications in the repositories, with the English equivalent appearing only in two other cases. A similar search carried out on PORBASE, the National Bibliographic Database[73] which aggregates the major national libraries highlights the absence of these expressions, whether the search is done in the subject or the title fields, which once again demonstrates that the appropriation of the

[71] <http://www.rcaap.pt/> (23.07.2014).

[72] Cases of Manuel Portela, Helena Barbas, Daniel Alves, Maria Filomena Gonçalves and Ana Paula Banza (these two authors in co-authorship).

[73] <http://porbase.bnportugal.pt/> (23.07.2014).

discourse connected to this field of research in Portuguese academia is still very low.

There are obviously exceptions and the last two years have seen an increased number of references. The terms „computing to...“ or „Informatics applied to...“ still appear, but increasingly, at least within the group of researchers more involved in studies of strong digital component, the designation „Digital Humanities“ tends to appear. See, for example, some works of Idalete Maria da Silva Dias, since 2012, with several communications in congresses on the theme of Digital Humanities: „Was heißt Digital Humanities/digitale Geisteswissenschaften eigentlich?“ („O que são as Humanidades Digitais [What are the Digital Humanities]?“) or „Repensar as Humanidades na Era Digital [Rethinking the Humanities in the Digital Age]“, are two examples. The author had done some communications already in 2008 on the same subject, but then using the expression „Humanidades e Tecnologias [Humanities and Technology]“.[74]

There are also more recent and perhaps more symbolic cases of this appropriation of a new vocabulary to describe a practice already in use for a few decades, probably pursued now in order to give a new breath to the assertion of this field of research and teaching. This is visible in publications where the expression is used frequently, where it appears explicitly in the title[75], or even when it is used to formalize research lines with explicit reference to the field as the „Humanidades Digitais e Investigação Histórica [Digital Humanities and Historical Research]“ thematic research line at the New University of Lisbon or the „Núcleo Património e Humanidades Digitais [Heritage and Digital Humanities Research Group“ at the University of Coimbra.[76]

[74] Idalete Maria da Silva Dias, „As Humanidades e as Tecnologias de mãos dadas,“ in: I Fórum de Línguas e Literaturas Europeias subordinado ao tema A Literatura e o Humor, Universidade do Minho 2008; Idalete Maria da Silva Dias, „Tecnologias de Comunicação nas Humanidades,“ in: Seminário O Processo de Bolonha na Universidade do Minho. Orientações e Práticas, Universidade do Minho 2008.

[75] Maria Filomena Gonçalves / Ana Paula Banza (eds.), Património Textual e Humanidades Digitais: da antiga à nova Filologia, Évora 2013; Manuel Portela, 'Nenhum Problema Tem Solução': Um Arquivo Digital do Livro do Desassossego, in: MATLIT: Materialidades da Literatura 1 (2013), pp. 9–33; Danny Rangel, Do mundo digital às humanidades digitais, in: Techne 1 (2013), pp. 17–23.

[76] <http://www.uc.pt/iii/ceis20/grupos_investigacao/Nucleo> (23.07.2014).

Finally a look at the world of blogging done through a Google search for „Humanidades Digitais“ in the page title does not detect an abundant use of the designation. Apparently the first reference in a blog entry was made in 2010[77], and only a few more references can be found.[78]

In conclusion, we can say that Digital Humanities in Portugal are in a period of transition. Taking into account the generic feature that is usually associated with this field – a strong link between research in the Humanities and the incorporation of methods and tools from Digital Technologies – then the practice and the practitioners of Digital Humanities in Portugal stem from the 1980s. On the one hand the Portuguese academic „mainstream“ has never regarded this field favourably, yet it never failed to make its way – sometimes a rather individualistic way, without too many contacts and collaborations between researchers or research groups. On the other hand, the appropriation of a new, imported discourse has so far not assumed the character of an „overwhelming wave“, much to the contrary. Nevertheless, recent developments show broad acceptance for the need to renew the affirmation of a perspective for research, practice, teaching and outreach that is increasingly interdisciplinary, collaborative and internationalized.

[77] <http://goo.gl/KmIe9Y> (23.07.2014).

[78] <http://goo.gl/vrSWZ5>; <http://goo.gl/tT4MfV>; <http://goo.gl/sNkn3L>; <http://goo.gl/OsJ5BA>; considering that only one includes the expression in the title of the blog and not on the title of one of its entries, as in Dália Guerreiro's blog about „Bibliotecas e humanidades digitais [Libraries and digital humanities]“, <http://bdh.hypotheses.org/> (23.07.2014).

Fig. 5: *Associação das Humanidades Digitais (01.09.2014)*

In order to popularize this trend among the research community in the Humanities, a series of events and initiatives have taken place both in Portuguese and Spanish. Examples are the Portuguese and Spanish edition of the „Day of Digital Humanities" that took place for the first time in June 2013 („Dia das Humanidades Digitais 2013"[79] and for the second time in October 2014). It is also important to highlight the foundation of the „Associação das Humanidades Digitais [Association of Digital Humanities]"[80] in October 2013 that seeks to bring together researchers and research projects in this field in the Brazilian and Portuguese academic milieus.[81] A further indication of the popularity of Digital Humanities in Portugal is the fact that a recent study that sought to map Digital Humanities in Spanish and Portuguese put Portugal in the third place, after Spain and Mexico, in the number of researchers who currently identify as „digital humanists".[82]

[79] <http://dhd2013.filos.unam.mx/> (23.07.2014).
[80] <http://ahdig.org/> (23.07.2014).
[81] A communication on these trends and initiatives, as well as how they can represent the assertion of this new discourse in the field of Portuguese (and Spanish) Language, was presented at the Digital Humanities 2014 Conference at Lausanne.
[82] Elika Ortega / Silvia Eunice Gutiérrez, MapaHD. Una exploración de las Humanidades Digitales en español y portugués, in: Esteban Romero Frías / Maria Sánchez González (eds.), Ciencias Sociales y Humanidades Digitales Técnicas, herramientas y experiencias de e-Research e investigación en colaboración, La Laguna 2014, p. 111.

Finally, the distinction between Digital Humanities and Digital History made in this article was more instrumental than indicative of the actual situation or desired. Digital History is an integral and very active part of the Digital Humanities just as History is part of the Humanities and Social Sciences. From my perspective, using Digital Humanities with its diversity of methods and potential for thematic richness in order to strengthen interdisciplinarity is a way of asserting the place and relevance of Digital Technologies in humanistic studies. Portugal, at the moment, is slowly walking this path and the recent impetus given by the introduction of the Digital Humanities discourse can be seen as a way to achieve that goal.

Digital Humanities in the Netherlands

von Joris van Zundert und Karina van Dalen-Oskam

Early Beginnings — From *alfa-informatica* to Digital Humanities

As the personal computer began to make its way into the Dutch humanities university environment and into scholarly practice during the 1980s, humanities faculties were willing to host computing oriented departments to help humanists cope with the information problems they had. These problems often did not pertain to very fundamental aspects of humanities and computation. Most historians and literary scholars arguably only came in contact with digital humanities departments such as „Computer & Letteren" – as it was called at the Utrecht University at the time – when a floppy disk went bad or when a file got lost. Telltale for the relative immature state of the field these departments went under their various disguises of „Computers & Humanities", „Historical Information Science", and „Alpha Informatics". No common denominator had been established yet. Unable to establish and expound digital humanities in a form that was recognizable as a scientific discipline[1] these centers came under threat with the introduction of easy-to-use

[1] Susan Schreibman / Laura Mandell / Stephen Olsen, Introduction, in: Profession 2011, pp. 123–201.

Windows-based software.[2] Misunderstood as a support and teaching service only, management assumed that humanities computing centers had outlived their purposefulness when basic computer literacy did not present itself as an urgent problem anymore. Consequently, university cutbacks erased the centers representing the first wave of digital humanities in the Netherlands rapidly and almost completely. The story of the all but demise of *alfa-informatica* – the then common denomination for the activities within 'computer and humanities' centers – is illustrative for the relation between computing and the humanities ever since. Because the history of digital humanities in the Netherlands is still also a history of much misconception and misunderstanding on the computational as well as the humanities side, digital humanities is very much an interdisciplinary work in progress.

No history of digital humanities in the Netherlands can be complete without mentioning the Dutch Historical Data Archive. The founding of this archive in Leiden in 1989 was inspired by the increased use and output of digital data and the anticipated problems of their digital sustainability.[3] The vulnerability of digital data was not just an archival problem though, but also a problem of scientific accountability and reproducibility. Closely modeled on the Arts and Humanities Data Service in the UK[4] the historical data archive set itself the task of collecting and archiving digital humanities research data and – more importantly – of raising awareness for the digital aspects of historical research. Instrumental in raising that awareness proved a book co-authored by a group of historians with various methodological backgrounds under the title of „Historische Informatiekunde. Inleiding tot het Gebruik van de Computer bij Historische Studies".[5] Although now sold out, the publisher still lists this book[6], somewhat ironically with the warning that it was printed in 1992 and given the volatility of the field can only be used for historical purposes. This is certainly true for almost any technological description in the book. One of the chapters titled „Anatomy of the Computer", outdated as it may be, indicates the level of education and explanation that was needed at the time to familiarize most humanities researchers with the new technology. The principles put forward in other chapters however – like the one by Hans Voorbij on the computational handling and analysis of text – seem far less outdated, even hinting for instance at xml tagging several years avant-la-lettre.

[2] Onno Boonstra / Leen Breure / Peter Doorn, Past, present and future of historical information science, 2nd edition, The Hague 2006.

[3] Doorn, Peter / N.S. van Hall, Nederlands historisch data archief. Eindverslag van een verkennend onderzoek, Amsterdam 1989.

[4] <http://www.ahds.ac.uk/about/index.htm> (accessed 22.10.2014).

[5] The title translates as „Historical Information Science. An Introduction on the Use of the Computer in Historical Studies". O. Boonstra / Leen Breure / Peter Doorn, Historische Informatiekunde. Inleiding tot het Gebruik van de Computer bij Historische Studies, Hilversum 1990.

[6] <http://www.verloren.nl/boeken/2086/268/580/handleidingen/historische-informatiekunde> (22.10.2014).

Avant-garde: Computational Linguistics, Stylometry, Stemmatology

Digital humanities in the Netherlands is indebted to computational linguistics. Linguistics took a head start as to the formalizations, quantification, and the application of probabilistic models that are a close fit to calculation and computing.[7] Many humanities fields like history, textual scholarship, art history, but also adjoining fields such as sociology have maintained to a large degree an interpretative and decidedly narrative approach to observation and reasoning. Linguistics may have taken to quantified approaches earlier because of its intrinsic interest in the structure of language where other humanities fields tended to focus on interpretation of semantics. Sharing much of the same 'base layer' of data (i.e. text) it seemed more than appropriate to fit the tools of linguistics to problems of other humanities fields. Currently this dynamic is probably most prominently visible in stylometry. Distinct traces of these linguistics approaches merging with historic approaches are clearly visible in the work for instance of Margit Rem, currently assistant professor of historical linguistics at Radboud University in Nijmegen.[8] Together with mathematician and now professor emeritus Evert Wattel from the Free University in Amsterdam she developed a statistics based computational approach to the problem of localiza-

[7] Frans Hinskens / Karina van Dalen-Oskam, Kwantitatieve benaderingen in het taal- en letterkundig onderzoek. Een ruwe schets, in: Tijdschrift voor Nederlandse Taal- en Letterkunde 123 (2007), pp. 1–21.

[8] <http://www.ru.nl/nederlands/wie_wat_waar/medewerkers/margit_rem/> (22.10.2014).

tion of 14th century dialectic variants in Middle Dutch charters.[9] The interaction between philology or the historical study of text and linguistic and statistical approaches reaches back to earlier days though. Eep Talstra, who recently retired as professor at the Free University, applied computational linguistic approaches to the problems of tradition and interpretation of the Old Testament as early as the 1980s. The intimate relationship between linguistics and digital humanities is also put forward by Groningen University professor John Nerbonne in a 2005 publication in „Literary and Linguistic Computing“: „Humanities Computing is focused on computational linguistics, which is a well-established interdisciplinary field with a strong tradition of serious computational work on language“.[10] Nerbonne offers a concise overview of the considerable contribution this approach at Groningen University has brought to humanities, which includes *inter alia* historic sea trade analysis and the georeferencing of historic city maps. John Nerbonne opposes the view of digital humanities as a field in its own right and talks instead predominantly of the service role that linguistic and other types of computing provide to humanities. A similar stance can be inferred from the work that professor Antal van den Bosch has done, who started his scientific career at Tilburg University, moved to Radboud University, and is meanwhile also active as a eScience Integrator at the eScience center that fosters multi-disciplinary data-intensive research and „breaks down the barriers between traditional disciplines and ICT technologies“.[11] Less linguistically informed but rather adhering to methodologies from both philology and bio-informatics is the domain of stemmatology. Stemmatology – or philogenetics – concerns itself with the problem of the genealogy of variant versions of manuscripts and print books. Ultimately the method derives from the insights of

[9] Margit Rem, De taal van de klerken uit de Hollandse grafelijke kanselarij (1300–1340). Naar een lokaliseringsprocedure voor het veertiende-eeuws Middelnederlands, Amsterdam 2003.

[10] John Nerbonne, Computational Contributions to the Humanities, in: Literary and Linguistic Computing 20 (2005), pp. 25–40.

[11] <http://esciencecenter.nl/about-the-center/mission/>
(The site has changed since the day of writing, it is archived at <https://web.archive.org/web/20140719003503/http://esciencecenter.nl/about-the-center/mission/> (22.10.2014)).

Karl Lachman on the information that differences between text witnesses offer as to their lineage. An early attempt to apply computation to the problem of establishing the genealogy of a text tradition in the Netherlands was undertaken by Maaike Mulder together with romanist Anthonij Dees and computer linguist Marcel Dekker.[12] The publication led to agitation in the field because the computational approach was portrayed as being superior to the conventional ways of drawing up a stemma. Her results opposing that of her PhD supervisor Anton van Duinhoven, Mulder was even accused of 'patricide'.[13] Notwithstanding this slight turmoil, stemmatology – apart from and next to linguistics – has since been the field within Dutch digital humanities most closely related to computational approaches and analysis. Arguably the work of for instance Ben Salemans, Pieter van Reenen, Margot van Mulken, and – again – Evert Wattel has contributed significantly to the status of this field as one of advanced humanities computing even in international perspective.[14] Rens Bod in a recent history of the humanities classifies stemmatic philology as „possibly the most successful humanistic discipline“; stemmatology „provides a precise method with which texts from *all* periods and regions can be reconstructed. Stemmatic philology is to the humanities what classical mechanics is to natural science [...] a showpiece for the field as a whole.“ Yet, Bod concludes, stemmatology is not widely held in high regards in the Dutch research arena, and leads a rather rudimentary existence.[15]

Changing Institutional Landscapes

Though not conceived under a lucky star, the establishing of the Netherlands Institute for Scientific Information Services (NIWI)[16] in 1997 under

[12] Maaike Hogenhout-Mulder / A. Dees / Marcel Dekker, Een voorbeeld van stamboomreconstructie: Karel ende Elegast, in: Spektator 18 (1987), pp. 96–118.

[13] Willem Kuiper, De Middeleeuwen in „Spektator“, in: Spektator 24 (1995), pp. 253–255.

[14] Benedictus Salemans, Building Stemmas with the Computer in a Cladistic, Neo-Lachmannian, Way. The Case of Fourteen Text Versions of Lanseloet van Denemerken, PhD., Nijmegen 2000; Pieter van Reenen / August den Hollander / Margot van Mulken (eds.), Studies in Stemmatology II, Amsterdam 2004; Pieter van Reenen / Margot van Mulken / Janet Dyk (eds.), Studies in Stemmatology, Amsterdam 1996.

[15] Rens Bod, De vergeten wetenschappen: een geschiedenis van de humaniora, Amsterdam 2011.

[16] <http://nl.wikipedia.org/wiki/Nederlands_Instituut_voor_Wetenschappelijke_Informatiediensten> (22.10.2014).

the aegis of the Royal Netherlands Academy of Arts and Sciences signified another considerable momentum developing for digital humanities in the Netherlands. The institute was conceived as a merger between several small institutes and departments that individually were related to computer supported research work. In hindsight the rationale for the merger seems weak. All departments provided some service on scientific information indeed, but the departments were rather heterogeneous as to individual scope, domain, and organization. As a consequence the merger was short lived and the various departments were eventually housed in different institutes again. Yet, in that short space of time some interesting developments took place. The Dutch Historical Data Archive had been part of the merger and its expertise in digitization, software development, and computational analysis spread as a very beneficial digital impulse to several of the other departments. Thus the merger did create part of the groundwork of a Dutch digital humanities impetus that was to spread with the remnants of the NIWI. Next to that the NIWI was home to a small but very active research group called NERDI (Networked Research and Digital Information) focusing on knowledge production in new digital networks. NERDI was the forerunner of what was to become the Virtual Knowledge Studio, which for several years would be a major player in Dutch eHumanities research.[17]

After the dismantling of the NIWI most of what had previously been the Dutch Historical Data Archive was expanded into the now national digital research data service DANS (Data Archiving and Networked Services)[18], which continues NIWI's mission. DANS aims to be a general digital research data archiving service rather than a humanities only digital archive, but it maintains strong ties to its humanities legacy. DANS played a major role for instance in the creation of the European digital humanities initiative DARIAH.[19] DANS also makes major contributions to the development of digital humanities research infrastructure in the Netherlands by providing essential services such as the EDNA Dutch archeological e-depot and others.[20] Likewise, DANS is a project

[17] <http://virtualknowledgestudio.nl/aboutvks/> (22.10.2014).
[18] <http://dans.knaw.nl/> (22.10.2014).
[19] <http://www.dariah.eu/> (22.10.2014).
[20] <http://snurl.com/28qdi5n> (22.10.2014).

partner in several important humanities research projects such as the „War in Parliament" project on political references to World War II in Dutch politics.[21]

The „War in Parliament" project in itself links to the impulse that CLARIN added to digital humanities in the Netherlands.[22] Originally conceived as a project aimed at establishing a common digital research infrastructure for linguistic research and resources, CLARIN extended its aim to explicitly include funding not primarily linguistics oriented humanities research projects that apply tools to language data. Through this CLARIN has been pivotal in subsidizing a number of important digital humanities research projects.[23] The Netherlands has known several of these funding instruments that have been beneficial to furthering digital humanities infrastructure, resources, digitization, and research. Most notably, the program known as Continuous Access To Cultural Heritage (CATCH)[24] of the Netherlands Organisation for Scientific Research (NWO) has resulted in many initiatives to digitally disclose cultural heritage collections. But also the Collaborative Organisation for ICT in Dutch Higher Education and Research (SURF) has had its share in this. Paramount as well in this respect is the effort of national institutions such as the Royal Library.[25] Such effort resulted in the large scale digitization and publication of major cultural resources such as the „Memory of the Netherlands"[26] and recently Delpher[27], offering access to over 90.000 books and 1 million newspapers in full text. Important from a humanities research point of view is that the National Library decided to adopt guardianship over the digital collection that is being created since 1999 by the Digital Library for Dutch Literature (DBNL – Digitale Bibliotheek voor de Nederlandse Letteren).[28] Likewise an institution such as the National Archive is putting effort in making its

[21] <http://www.clarin.nl/node/410> (22.10.2014).
[22] Hunke Piersma / Kees Ribbens, Digital Historical Research: Context, Concepts and the Need for Reflection, in: Low Countries Historical Review 128 (2013), pp. 78–102.
[23] <http://www.clarin.nl/> (22.10.2014).
[24] <http://snurl.com/28qdmw1> (22.10.2014).
[25] <http://www.kb.nl> (22.10.2014).
[26] <http://www.geheugenvannederland.nl/?/en/homepage> (22.10.2014).
[27] <http://www.delpher.nl/nl/pages/over+delpher> (22.10.2014).
[28] <http://dbnl.org/index.php> (22.10.2014).

collections digitally available for research.[29] This effort in itself links again to digital humanities and artificial intelligence research: because many of the written documents in the archive cannot be rendered machine readable by conventional OCR methods, there is much interest in innovative means of recognizing the text of such documents. The Monk project by professor Lambert Schomaker and others[30] aims to offer such innovative methods to disclose primary humanities research sources.[31] To continue the digitization and infrastructural momentum that resulted from all such institutional impulses currently a proposal is under consideration that integrates the Dutch CLARIN and DARIAH initiatives under the name of CLARIAH.

The Role of the *Huygens Institute for the History of the Netherlands*

At the moment of writing it is still unclear whether or not this proposal will be successful. If so, project management will reside with the Huygens Institute for the History of the Netherlands, an institute that has become more visible in Dutch digital humanities in the last decade. Around 2005 the Constantijn Huygens Institute[32] – as its name was at the time – developed plans towards integrating a digital workflow into its publishing next to its conventional activities. The focus of the institute until then was on printed scholarly editions and other high-end scholarly resources for humanities research, mainly in the domains of intellectual history and literature. The institute, however, lacked sufficient IT skills and digital humanities research experience to effectively create a digital variant of its workflow. Given the approaching termination of the NIWI it seemed opportune to add the literary research department of that institute to the Constantijn Huygens Institute. This resulted in the Bibliography for Dutch Literature and Linguistics being carried over to the Huygens Institute, as well as the staff and scientific personnel of the NIWI department of Dutch Literary Research that had acquired digital humanities research and development skills during its time at NIWI. This meant that we, the authors of this text Karina van Dalen-Oskam and Joris van Zundert, also joined the institute. At

[29] <http://en.nationaalarchief.nl/> (22.10.2014).
[30] <http://www.ai.rug.nl/~lambert/> (22.10.2014).
[31] <http://www.ai.rug.nl/~lambert/Monk-collections-english.html> (22.10.2014).
[32] <http://www.huygens.knaw.nl> (22.10.2014).

the NIWI we had been developing a virtual research environment for the creation of humanities and social science digital data, called eLaborate.[33] The tool offered *inter alia* a transcription environment for non OCR-able manuscripts. In essence this meant an out of the box, rough around the corners but getting the job done type of digital workflow for digital editions. eLaborate has been part of the digital infrastructure of the Huygens Institute ever since and has seen several life cycles of development. The aim is that at some point eLaborate will be part of the digital backbone for publishing digital scholarly editions at the institute.

Two decisions have been paramount to the relative success we had in developing further digital humanities initiatives at the Huygens Institute. The first was the liberty and ample support we were given to pull together a skilled IT research and development team to foster digital products. The other was that Karina was given similar freedom in developing a digital humanities research program. In the process we were able to attract one of the highest skilled developers we had worked with during the NIWI days. Together we proposed that the development strategy for the growing R&D group would be based on *Agile* principles.[34] The rationale for *Agile* is sensible in a research organization: it is well adapted to quickly changing and unclear functional requirements, which is exactly the type of requirements one tends to find in learning organizations like research institutes.[35] The clear downside of *Agile* is that it eschews the project documentation that plans, controls, and reports in standard protocol project management. This is particular unsettling to management that tends to feel left without control and inkling of progress. Over time a methodological mixture was developed of *Agile* methodology and standard project management reporting that now caters to the needs of both worlds. We dwell a little on this point here because in our view it is pivotal that researchers are drawn in on all relevant matters and decisions of developing the digital tools and their functions. *Agile* methods ensure that developers and researchers work

[33] <https://www.elaborate.huygens.knaw.nl/> (22.10.2014).
[34] <http://martinfowler.com/articles/newMethodology.html> (22.10.2014).
[35] Cf. e.g. Gwanhoo Lee / Weidong Xia, Toward agile: an integrated analysis of quantitative and qualitative field data on software development agility, in: MIS Quarterly 34 (2010), pp. 87–114.

very closely together, almost on a daily basis. And although this has caused some serious tensions over time, it did allow both ends of the equation to get to know each other's style, skills, and quirks. The result is that within the current institute there is a sincere methodological dialogue between software development and computer science on the one hand and humanities research on the other hand. This is not a 'happy blue sky world', admittedly, but we seem to have escaped at least the client vs. contractor pattern between humanist and computer scientist and benefit from – in the best cases – an intrinsic two-way research collaboration.

On the research side our first efforts were aimed at the application of authorship attribution techniques involving Burrows' Delta.[36] We applied this now common procedure to a case of double authorship in a medieval Arthurian novel. We had to adapt the standard corpus based technique to work with a single text. The resulting approach seems to have appealed to the international stylometry community and was deemed pioneering certainly in the Dutch humanities research realm.[37]

These developments gave the Huygens Institute a first toehold of digital humanities in the domain of historic literary research and textual scholarship in the Netherlands. Since that time the Huygens Institute was able to integrate various researchers and projects focused on valuable humanities content and using advanced computational or digital methodology. Peter Boot for instance led the development of the digital edition of Vincent van Gogh's correspondence[38], not neglecting to tend to his own contribution to international digital humanities theory.[39] Ronald Dekker together with international kindred spirits in the realm of the Interedition project[40] developed *CollateX* which provides a high-

[36] Karina van Dalen-Oskam / Joris van Zundert, Delta for Middle Dutch: Author and copyist distinction in „Walewein", in: Literary and Linguistic Computing 22 (2007), pp. 345–362.

[37] Mike Kestemont, What Can Stylometry Learn From Its Application to Middle Dutch Literature?, in: Journal of Dutch Literature 2 (2011).

[38] <http://vangoghletters.org/> (22.10.2014).

[39] Cf. Peter Boot, Mesotext: Digitised Emblems, Modelled Annotations and Humanities Scholarship, Amsterdam 2009; Peter Boot / Joris van Zundert, The Digital Edition 2.0 and The Digital Library: Services, not Resources, in: Bibliothek unde Wissenschaft 44 (2011), pp. 141–152.

[40] <http://www.interedition.eu> (22.10.2014).

quality text collation engine used in several projects internationally.[41] Similarly strong in computational approach is the network analysis underlying the project „Circulation of Knowledge and Learned Practices in the 17th century Dutch Republic"[42] that resulted in several tools for visualizing correspondences.[43] The momentum thus created in the Huygens Institute is now also visible in its rising number of professorships at Dutch universities. In particular the chairs of Charles van den Heuvel (professor of digital methodology and history)[44] and Karina van Dalen-Oskam (professor of computational literary studies)[45] focus on digital humanities and computational methods in the humanities.

Current Situation

These recently established chairs – just as the chair in digital and computational humanities that Rens Bod accepted in 2013 – show the current interest in the Netherlands to make digital humanities part of the curriculum at university level. The involvement of digital humanities in the curriculum is still modest however. There are no formal master level programs for digital humanities, but a minor at Utrecht University[46] started in 2013 and there is a new minor being developed as a cooperation between the Free University Amsterdam and the University of Amsterdam.[47] Professors like Van Dalen-Oskam, Bod, and Van den Bosch try to connect to and integrate with existing university master and

[41] Ronald Haentjens Dekker et al., Computer supported collation of modern manuscripts: CollateX and the Beckett Digital Manuscript Project, in: Literary and Linguistic Computing 2014. Available at: <http://llc.oxfordjournals.org/content/early/2014/03/19/llc.fqu007.full> (22.10.2014).

[42] <http://ckcc.huygens.knaw.nl/> (22.10.2014).

[43] <http://ckcc.huygens.knaw.nl/epistolarium/> (22.10.2014); Peter Wittek / Walter Ravenek, Supporting the Exploration of a Corpus of 17th-Century Scholarly Correspondences by Topic Modeling, in Bente Maegaard (ed.), Supporting Digital Humanities 2011: Answering the unaskable. SDH 2011 Supporting Digital Humanities: Answering the unaskable. Copenhagen 2011. Available at: <http://www.clarin.nl/sites/default/files/sdh2011-wittek-ravenek.pdf> (22.10.2014).

[44] <http://www.uva.nl/contact/medewerkers/item/c.m.j.m.van-den-heuvel.html?f=heuvel> (22.10.2014).

[45] <http://www.uva.nl/contact/medewerkers/item/k.h.van-dalen-oskam.html?f=dalen> (22.10.2014).

[46] <http://www.uu.nl/university/minors/nl/Digital-Humanities/Paginas/default.aspx> (22.10.2014).

[47] <http://www.let.vu.nl/nl/opleidingen/minoren/digital-humanities/index.asp> (22.10.2014).

PhD training in for instance linguistics, literary studies, and media studies. Such work is also continued at the Groningen (Alfa-informatica)[48] and Utrecht (Digital Humanities Lab)[49] universities. It seems therefore justifiable to say that currently digital humanities in the Netherlands engages mostly at the research level but is slowly making its way into some of the main curricula.

At the research level we found that the Huygens Institute is now a significant player, but obviously it is not the only place where digital humanities work is happening. Certainly also the Meertens Institute should be mentioned.[50] The research at the Meertens Institute veers slightly more to the linguistics side of the spectrum, but many of the projects at the institute contain digital elements or are based on digital methodology. It is home for instance to the large scale NederLab project which develops a digital infrastructure which aims to offer digital access to all Dutch texts between 800AD and the present.[51] A more reflective stance on digital humanities has been taken by the eHumanities Group of the Royal Academy[52], a follow-up to the Virtual Knowledge Studio program that was terminated in 2010. The eHumanities Group investigates the relation between digital technology and humanities and the social sciences.[53]

Digital humanities in The Netherlands has not been formally delineated. That, combined with its intrinsic interdisciplinary nature, makes it hard to tell where one should draw the line for counting certain work into the digital humanities category. For instance much of the work of Piek Vossen – as a Spinoza laureate granted the highest Dutch scientific award – at the Free University relates narrowly to digital humanities.[54] But he would categorize himself probably more in the realms of computational lexicography and computational cognition or

[48] <http://www.rug.nl/let/organization/bestuur-afdelingen-en-medewerkers/afdelingen/afdeling_alfa_informatica/> (22.10.2014).

[49] <http://digitalhumanities.wp.hum.uu.nl/> (22.10.2014).

[50] <http://www.meertens.knaw.nl/cms/en/> (22.10.2014).

[51] <http://www.nederlab.nl/home> (22.10.2014).

[52] <http://www.ehumanities.nl/> (22.10.2014).

[53] Much more insight about their work can be gauged from the recently published book Paul Wouters (eds.), Virtual Knowledge: Experimenting in the Humanities and the Social Sciences, Cambridge, MA 2013.

[54] <http://vossen.info/> (22.10.2014).

artificial intelligence. Yet projects such as Mapping Notes and Nodes clearly classify as digital humanities.[55]

The work of Piek Vossen relates to another important initiative in The Netherlands, the Centre for Digital Humanities.[56] This is a collaboration between the University of Amsterdam, the Free University of Amsterdam, the Royal Academy of Arts and Sciences, and the eScience Center to foster digital humanities research. This center facilitates so-called embedded research projects, in which research questions from the humanities are approached by using techniques and concepts from the field of digital humanities. For the Royal Academy itself it is one activity in a series over the past decade to create an additional impulse for digital humanities and computational approaches in the humanities. The Academy has in the past strategically subsidized a number of humanities research projects containing some form of digital or computational component, most notably Alfalab[57], a prelude to the far larger ambition of the Academy to create a humanities center in Amsterdam comprising a number of its humanities institutes and intended to focus on digital and computational methods next to its ongoing conventional humanities research.[58] Through its current Computational Humanities program, which is monitored by the eHumanities Group, the Academy is funding four large projects on literary quality, elite networks, motive analysis in text and music, and networked census data.

What, if anything at all, can be derived from the above as to general trends and conclusions? First of all we feel the need to stress how much we have left out to be able to construct a somewhat concise and coherent story. We have completely skipped over such fields as musicology and art history for instance. For all colleagues in the field we named we would be able to name three we did not mention and whose work is invaluable to the overall endeavor.[59] In a way this points to a characteristic

[55] Together with the Huygens Institute, <http://snurl.com/28qfvr2> (22.10.2014).

[56] <http://www.centrefordigitalhumanities.nl/> (22.10.2014).

[57] <http://alfalablog.huygens.knaw.nl/> (22.10.2014).

[58] KNAW, Contouren van een vernieuwings- en stimuleringsprogramma voor de geesteswetenschappelijke instituten van de KNAW, Amsterdam 2012. Available at: <http://snurl.com/28qgbk5> (22.10.2014).

[59] For another overview see e.g. Karina van Dalen-Oskam, Digital resources and computational methods, in: Zeitschirft für deutsche Philologie, 130 (2011), pp. 375–390

of digital humanities in the Netherlands – and probably in many other countries. Digital humanities is a highly inter- and multidisciplinary field. Many contributors to the field might not even count themselves as being in the field of digital humanities proper, but only related to it. Similar also to the situation in other countries, digital humanities practices are found on many levels in many institutions. The digitization effort in institutions like the National Library and in other places to remediate humanities resources in a digital environment are of great importance to the field. However, these activities normally are not seen as research proper, but as a research support service at best. Yet obviously, much knowledge on digital humanities practices is created in those contexts. Neither is the work of building infrastructure generally regarded as being on a research level – as Geoffrey Rockwell stated: „Research infrastructure is not research just as roads are not economic activity".[60] Even though there is much fundamental knowledge that must be gained about the properties of humanities information and knowledge through virtual infrastructure endeavors, researchers should be highly aware of the inherent pitfalls and distracting dangers involved with building and maintaining infrastructures.[61] Only recently the Royal Academy has proposed that tool building and the development of algorithms as well as the creation of datasets that are clearly underpinning research may serve as indicators of scientific output. Given that digital humanities is multi-disciplinary and very much grounded also in digital practices, this is an encouraging and important signal. As practitioners we often felt that we had to fight a battle on two fronts at least. Not only did we need to attend to the time-consuming work of developing tools to bootstrap our research – but since we could not count that in any way as scientific activity we had to produce twice the number of articles to make up for that investment. It seems that in this respect slowly but surely we are benefiting from the general trend of remediation of

[60]Geoffrey Rockell, As Transparent as Infrastructure: On the research of cyberinfrastructure in the humanities, in: Jerome McGann (ed.), Online Humanities Scholarship: The Shape of Things to Come. Houston 2010. Available at: <http://cnx.org/content/col11199/1.1/> (22.10.2014).

[61]Item; Joris van Zundert, If you build it, will we come? Large scale digital infrastructures as a dead end for digital humanities, in: Historical Social Research – Historische Sozialforschung 37 (2012), pp. 165–186.

research in the digital realm, which creates a situation where it is more normal and scientifically accountable to be engaged in digital activities also in the humanities.

In any case, this overview shows that digital humanities in the Netherlands indeed has gained mass and momentum over the last decade. A number of special issues of renowned Dutch humanities journals[62] can also be taken as an indicator of that momentum. It is still early to judge, but it seems reasonable to assume that digital methodology in the humanities is around to stay. That, however, is not to state that digital humanities as a discipline proper is here to stay. This is one of the main unresolved issues surrounding digital humanities: is it a field in its own right or does it signify a change or expansion of the methodological paradigm? For the moment we lean toward the latter position. Sure enough there will be a generation, maybe even two, of researchers that will deem digital humanities as their native field. But the digital is not something that stands next to what we know and who we are. Rather the digital permeates all aspects of humanistic culture and behavior. This calls for a very deep reorientation on what humanities as a field is, or what its role is in a ubiquitously digital society.[63] As such, eventually the digital will also find its seamless integration in the methodology of humanities proper.

What form this integration takes is currently very much a topic of debate, most certainly so in the Netherlands. In his inaugural address Rens Bod has proposed – in accordance with the theme of his 2013 monograph – that digital humanities is effectively a remarrying of humanities methodology with scientific method to form a successor to 'Humanities 1.0'.[64] Bod proposes an empirics of pattern searching in big data that should underpin any inference in humanities research. His views certainly have not met with universal acclaim.[65] We also for

[62]E.g. <http://www.tntl.nl/index.php/tntl/issue/view/31> (22.10.2014) and <http://www.bmgn-lchr.nl/index.php/bmgn/issue/view/515> (22.10.2014).

[63]Cf. eg. Rafael Capurro, Digital Hermeneutics: an Outline, in: AI & Society 35 (2010), pp. 35–42.

[64]Rens Bod, Het Einde van de Geesteswetenschappen 1.0., 2013. Available at: <http://www.oratiereeks.nl/upload/pdf/PDF-1433Weboratie_Rens_Bod__def.pdf> (22.10.2014).

[65]Cf. the forum in the recent special issue of the Low Countries Historical Review:

the moment are not convinced that such a 'naive empiricism'[66] would be appropriate for a field that has a strong hermeneutic tenet reaching back several centuries. Indeed we expect humanities methodology to experience dramatic changes towards the digital in the next decade. However, these changes shall in all likelihood be negotiated in a deep dialogue between humanities and computer science[67] and not by a simple overriding of humanities methodology by the quantitative empirics of the so-called hard sciences. Rather we expect that we will see a remediation of hermeneutic methods through 'next gen' computer logic and languages as a new generation of humanities researchers will embrace coding as a native form of expression for their research. The days when contact between humanities researchers and digital humanists was limited to cases of floppy discs gone bad are long over. Indeed, we expect the distinction between the two to become increasingly blurred and, eventually, meaningless.

The Status Quo of Digital Humanities in Greece

von Helen Gardikas-Katsiadakis

From Humanities scholarship to Digital Humanities[1]

Greece has a long tradition in Humanities scholarship. In fact, the emergence of the discipline was a component of the Greek Enlightenment, a late 18th century cultural movement that was one of the main factors that led to the rise of Greek nationalism, the outbreak of the Greek War of Independence and the foundation of the Greek State in the 1830s. Since then, Humanities, with a particular emphasis on the Classical

<http://www.bmgn-lchr.nl/index.php/bmgn/issue/view/515> (22.10.2014) and e.g. Marieke Winkler, Interpretatie en/of patroon? Over „Het einde van de geesteswetenschappen 1.0" en het onderscheid tussen kritiek en wetenschap, in: Vooys 30 (2013), pp. 31–41.

[66] Johanna Drucker, Graphesis: Visual Knowledge Production and Representation, in: Poetess Archive Journal 2 (2010). Available at: <http://journals.tdl.org/paj/index.php/paj/article/view/4> (22.10.2014).

[67] David M. Berry, The Computational Turn: Thinking About The Digital Humanities, in: Culture Machine 12 (2011). Available at: <http://culturemachine.net/index.php/cm/article/viewDownloadInterstitial/440/470> (22.10.2014).

[1] I wish to thank Anna-Maria Sichani for her invaluable help in preparing this paper.

Greek and Byzantine heritage, have been cultivated with the initial aim of exploring, defining and interpreting Greece's cultural tradition, social history and national identity. As such, it formed the backbone of Greek public education. Humanities research and teaching are practiced mainly but not exclusively at public universities and research institutions. The collections of the General State Archives, other public and private archival collections, both in original and in print form, provide the documentation for a considerable amount of research output.

With the advent of the digital age and the gradual shift from print to pixel, the massive wave of digitisation and the explosion of digital libraries during the first decade of the 21st century, scholars have increasingly moved toward the use of digitised resources and computational tools in their scholarship. Libraries, archives, museums and other cultural heritage institutions have already digitised a substantial amount of their collections, benefiting from generous European Union funding. ICT professionals have offered their expertise in the process, while gradually responding and on several occasions even anticipating the needs of historians, archaeologists, linguists, literary scholars, and other researchers for high quality digital resources and tools. Thus, Digital Humanities, as an independent discipline, are currently emerging in Greece[2]and are undertaking groundbreaking research in the Arts and Humanities. Several research institutes are actively involved in Digital Humanities projects, mainly as partners in major European collaborative projects. In addition to that, the recent initiative for the creation of a national research infrastructure for the Humanities is expected to increase the impetus in favour of the development of Digital Humanities by pooling together domestic centres of technological expertise and by fostering interdisciplinary and cross-disciplinary research between higher education and research institutions in the Humanities and Computer Science disciplines.

A historical overview of Digital Technologies in Greece: Digitisation and Cultural Informatics

Until quite recently, the main research and development interests of departments and laboratories in Greek institutions focused either on

[2] In Greek the English language term is used untranslated to describe the discipline for lack – until now – of an accurate rendition.

Cultural Informatics or on developing digitisation methods and techniques, enabling access, further processing and preservation of cultural heritage assets. In Greece, as elsewhere, the use of Computer Science and technology in Arts and Humanities research projects began with the introduction of software as an auxiliary research tool in assisting scholars in accessing and interpreting their data. During this first phase in the 1980s and 1990s, a number of projects were launched within archives departments of the banking sector, where scholars used computer technology for a quantitative analysis and interpretation of large numerical datasets. Demographic, Economic and Social History as well as Social Sciences were among the disciplines that benefited first from this technological and methodological innovation.

During this first period, a number of private organisations but most importantly many state agencies, such as the Ministry of Culture and the General State Archives, digitised a substantial amount of their collections. Public research institutions, such as the Academy of Athens[3]and the National Hellenic Research Foundation (NHRF)[4]also digitised some of their holdings. Recently the latter also launched its scholarly-scientific journals in digital format and open access, signaling its entry into the era of digital scholarship. Many of the digitisation projects undertaken in recent years have the support of the National Documentation Centre (EKT)[5] , which operates within the framework of the National Hellenic Research Foundation, and acts as the main national infrastructure agent for scientific documentation, online information and support services for science, research and technology.

In the early years of the 21st century, earlier methodological and technological advances in the fields of Cultural Preservation, Museum Studies, Archiving and Cultural Informatics and the availability of generous European Union funding for cultural purposes enabled the launching of large-scale projects for the digitisation of cultural heritage assets and of resources of interest to Humanities scholars, a necessary prerequisite for research with Digital Humanities tools.

[3] <http://www.academyofathens.gr/echome.asp?lang=2> (29.07.2014).
[4] <http://www.eie.gr/index-en.html> (29.07.2014).
[5] <http://www.ekt.gr/en/> (29.07.2014).

The emphasis on cultural heritage digital services for use in education and tourism that dominates the funding of most earlier and current digitisation projects means that the scholars that benefit most from the methodologies and technology of the digital age are the communities of archaeologists, art historians and cultural anthropologists. The digitisation of large corpora of textual and visual data has enabled them to access a variety of dispersed and often thitherto unavailable resources. It also introduced among both resource custodians and scholars the new principles that Digital Humanities brought to digital scholarship, those of collaboration, cross-disciplinarity and open access, with the use of Creative Commons licenses gradually becoming the rule.

Next to the digitisation of corpora, Cultural Informatics is the second influential aspect of Digital Humanities in Greece. An important milestone in its history was the founding of the Centre for Cultural Informatics (CCI), one of the facilities of the Information Systems Laboratory of the Foundation for Research and Technology-Hellas (FORTH)[6], in 1992 by Panos Constantopoulos, at the time Professor at the Department of Computer Science of the University of Crete. Constantopoulos also ran an interdepartmental postgraduate Cultural Informatics programme for a number of years, involving the Departments of Computer Science and of History and Archaeology, the only such interdisciplinary programme to have existed in Greek higher education so far. The mission of the Centre for Cultural Informatics is to pursue a comprehensive, cross-disciplinary approach toward supporting the entire lifecycle of cultural information and documentation procedures for the benefit of the study, preservation and promotion of cultural heritage. It specialises in semantic interoperability, information management and integrated access. As one influential project, the CCI developed National Standards for Cultural Documentation and Interoperability.

At the infrastructure level, the Greek Research & Technology Network (GRNET S.A.)[7], a state owned company, provides high-quality Infrastructure and services to the research and educational community of Greece. The GRNET backbone interconnects more than 100 institutions, including all universities and many technical and research

[6] <http://www.ics.forth.gr/isl/index_main.php?l=e&c=252> (29.07.2014).
[7] <https://www.grnet.gr/> (29.07.2014).

institutes, as well as the public Greek School Network and offers pioneering computing services to its members, academic institutes and researchers.

With the emergence of Digital Humanities as a discipline in its own right internationally, the establishment of an institution dedicated to research in the field in Greece became necessary. Thus, in 2007 Panos Constantopoulos established the Digital Curation Unit (DCU)[8] as a unit within the Athena Research Centre (ARC). The DCU is the only institution in the country explicitly dedicated to research and development in the Digital Humanities and acts as an interdisciplinary research hub in the fields of digital curation of cultural and scientific heritage, evidence-based information behaviour and requirements analysis research, cultural ontologies, semantic metadata integration, and curation-oriented metadata repositories.

Among the most prominent institutes in the field are the Image, Video and Multimedia Systems Lab (IVML)[9], of the Institute of Communications and Computer Systems (ICCS) of the National Technical University of Athens, which is the leader in the national framework IS-Helleana[10]; the Computational Intelligence Laboratory (CIL)[11] and the Software and Knowledge Engineering Laboratory (SKEL)[12] of the National Centre for Scientific Research Demokritos; the Information Technologies Institute (ITI)[13] of the Centre of Research and Technology Hellas (CERTH); the Management of Data, Information, and Knowledge Group[14] of the Department of Informatics and Telecommunications of the University of Athens; the Laboratory on Digital Libraries and Electronic Publishing[15] of the Department of Archives and Library Science of the Ionian University, established in 1993; and the Institute for Language and Speech Processing (ILSP / „Athena“ R.C.).[16] Moreover, a

[8] <http://www.dcu.gr/index.php?p=home§ion=&id=&lang=en> (29.07.2014).
[9] <http://www.image.ntua.gr/> (29.07.2014).
[10] <http://www.helleana.gr/> (29.07.2014).
[11] <https://www.iit.demokritos.gr/cil> (29.07.2014).
[12] <https://www.iit.demokritos.gr/skel> (29.07.2014).
[13] <http://www.iti.gr/iti/index.html> (29.07.2014).
[14] <http://www.madgik.di.uoa.gr/> (29.07.2014).
[15] <http://dlib.ionio.gr/portal/index.php> (29.07.2014).
[16] <http://www.ilsp.gr/> (29.07.2014).

number of laboratories at other higher education institutions, such as the Universities of Patras and of the Aegean, as well as research centers have also been involved in Humanities related digital technologies projects over the last years.

While these institutes and laboratories have been and are being engaged in a number of national initiatives, the main focus of these institutions lies in collaborating with the major European FP7 transnational projects[17] and in contributing to the Digital Humanities research agenda. The Digital Curation Unit, for example, participated in CARARE together with the Greek Ministry of Culture; it was a partner in EHRI; and it is currently engaged in ARIADNE as is also the Centre for Cultural Informatics; the Image, Video and Multimedia Systems Lab (IVML) of the ICCS, the Centre for Cultural Informatics and the Digital Curation Unit are also involved in Europeana and a number of Europeana related projects, such as DCA, Linked Heritage, Europeana Cloud, and LoCloud.

The catalyzing initiative at the infrastructure level was the identification of DARIAH as one of the ESFRI roadmap projects of Pan-European interest. In 2008 the European Commission provided funding for the preparatory phase of the project, „Preparing DARIAH“. Two Greek institutions, the Academy of Athens and DCU/ RC Athena, participated in „Preparing DARIAH“. At the national level the ESFRI initiative prompted the Greek Government to fund the preparatory phases of several national infrastructure projects. Thus, the DYAS project, a network consisting of eight higher education and research institutions and coordinated by the Academy of Athens, came into being. In 2010 and 2011, DYAS prepared a feasibility study for the development of a national infrastructure for the Humanities to work in tandem with DARIAH-EU.

Digital History in Greece: Challenges and perspectives

Over the last ten years, libraries, archives, museums and cultural heritage institutions have taken advantage of the new digital tools and methods in order to make their material available on the Internet for research and educational use. The following are a selection of digital projects that deserve mentioning, as examples that stand out for their

[17] <http://cordis.europa.eu/fp7/home_en.html> (29.07.2014).

innovative approach, comprehensiveness and popularity among the community of historians: The *Digital Crete project*[18] developed by the Institute for Mediterranean Studies uses the technical expertise of its Laboratory of Geophysical - Satellite Remote Sensing and Archaeo-environment. The National Research Foundation Eleftherios K. Venizelos undertook a virtual reconstruction of Venizelos's private papers. The Centre for the Greek Language has constructed and provides a high-quality Greek language portal[19] for textual resources. *Archeiomnimon*[20] is both a collections portal and a research tool that was developed at the General State Archives. *Pandektis*[21] is a rich aggregation of primary sources from the collections of the National Research Foundation. The project *Greek Revolution and the Foundation of the Greek State*[22] is a subject-specific collection of resources held by the Academy of Athens.

In addition to these infrastructural projects, a number of institutions have published historical research projects online. Among the most influential are the Survey results in Boubon (Cibyratis, northern Lycia)[23] , realised by the Institute for Historical Research of the National Research Foundation; and *The Greek Rural Economy during the Inter-war years*[24], carried out by the Institute for Mediterranean Studies.

Digital scholarship is complemented by digital journals, such as *Historein*[25] , *Mnimon*[26] of the Society for the Study of Modern Hellenism, and the three journals of the Institute of Historical Research of the National Research Foundation.[27] These are but a few examples of digital scholarly publications, and many more could be given.

Thus, the community of Greek historians have made ample use of the digital tools and digitised sources made available to them. Historians also use digital platforms as well as social network services to commu-

[18] <http://digitalcrete.ims.forth.gr/> (29.07.2014).
[19] <http://www.greek-language.gr/greekLang/index.html> (29.07.2014).
[20] <http://arxeiomnimon.gak.gr/> (29.07.2014).
[21] <http://pandektis.ekt.gr/pandektis/> (29.07.2014).
[22] <http://psifiakaarxeia.academyofathens.gr/en/index.html> (29.07.2014).
[23] <http://www.eie.gr/nhrf/institutes/igra/projects/boubon/introduction.asp> (29.07.2014).
[24] <http://www.ims.forth.gr/project.php?c=45&l=e&s=&pid=26&d=6> (29.07.2014).
[25] <http://historeinonline.org/index.php/historein> (29.07.2014).
[26] <http://mnimon.gr/index.php/mnimon> (29.07.2014).
[27] <http://www.eie.gr/nhrf/institutes/ihr/index-en_IHR.html> (29.07.2014).

nicate with their peers nationwide and beyond national boundaries, to exchange information, data and views.[28] But what the community of Greek historians are in need of is not only large corpora of high quality textual resources held in public and private archives and libraries; they are also in need of data of improved quality. Historians additionally require advanced digital tools for further data processing and analysis, to enable them to renew research practices, pose new questions and derive new answers from older questions. Preparations for one major project that takes advantage of newly available tools, such as georeference and visualisation, to advance research across the Humanities domains are currently under way at the Academy of Athens. Once completed, the project will render available on the Internet many of the Academy's research projects completed in earlier years and will offer a highly developed platform as well as advanced research tools for use in ongoing and future research.

When Digital Humanities gradually emerged as an independent discipline in Greece as worldwide, the main Cultural Informatics institutions existing at the time expanded their interests toward new research areas and practices. Responding to the new methodological trend, not only the Digital Curation Unit of RC Athena, but also other ICT research institutes and laboratories have collaborated with their European counterparts in developing state-of-the-art methodology, standards, guidelines and tools for the benefit of Humanities researchers.

However, enabling Humanities scholars to benefit from the current technological trends in order to renew their research methods, to engage in collaborative projects and to apply an interdisciplinary approach in their research has so far met with limited success. With the exception of linguistics departments, Humanities higher education and research institutions have proven slow to adopt the new opportunities offered by the cross-disciplinary approach of Digital Humanities and cases of successful partnership between Humanities research institutions and

[28] Mostly, Greek historians use personal webpages, for instance that of Professor Antonis Liakos, lists such as the Group for the Study of History and Society OMIK, forums like the Social History Forum, academic community platforms like Academia.edu, blogs, such as arthrografein and the more specialised History of Health Net and history specific Facebook and Twitter accounts.

centres of expertise in computer science are few. A number of individual or small teams of researchers have indeed used digital methods and tools in Humanities Computing research projects, some of them funded by the private John S. Latsis Public Benefit Foundation.[29] On the other hand, limited national funding opportunities and structural barriers have impeded major institutions from launching the kind of large-scale Digital Humanities collaborative interdisciplinary projects that are necessary for transforming the Humanities research landscape.

The problem, as the research community, both Humanities scholars and ICT researchers acknowledge, is both structural and educational. Indeed, one of the most serious challenges facing the evolution of Digital Humanities in Greece is the fact that digital content is widely distributed among diverse institutions, including government agencies and departments, public and private museums, archives and special libraries, as well as academic and research units and associations, and that the degree and quality of digitisation varies substantially. Besides, Digital Humanities as an independent academic discipline is still absent from Greek higher education curricula and have not succeeded in effectively engaging the student community.

Digital Humanities Infrastructure: the case of DYAS

The opportunity to address the above-mentioned issues appeared in 2009. Following a call launched by the Greek General Secretariat for Research and Technology, the main public funding agency for research and for the creation of Research Infrastructures, in cooperation with the European Roadmap for Research Infrastructures by ESFRI, a network of eight institutions coordinated by the Academy of Athens received funding for a project entitled „Creating a Research Infrastructure Network for the Humanities DYAS".[30]The aim of the project, which was completed in February 2011, was to prepare a feasibility study for the establishment of a national research infrastructure for Arts and Humanities and a proposal for a strategy to link the Greek Humanities research community with DARIAH[31] , the cross-European research infrastructure.

[29] <http://www.latsis-foundation.org/> (29.07.2014).
[30] <http://www.dyas-net.gr/> (29.07.2014).
[31] <http://www.dariah.eu/> (29.07.2014).

The result was the creation of DYAS. The network aimed at bringing together higher education institutions, Humanities and ICT research institutions, and the main government cultural heritage agency, the Ministry of Culture. It involved a variety of stakeholders – members of the research community, digital cultural heritage managers and ICT professionals specializing in the Humanities. Its objective was to address the needs of two types of stakeholders related to Humanities research: firstly, the service providers (research and academic institutions, cultural heritage institutions and technological institutions). The project enabled them to participate in the planning of the envisioned infrastructure. Secondly, the research communities who form the critical mass of users of digital services, were promised access to the services of the European and national research infrastructures upon completion. The DYAS network assembled many of the major Digital Humanities institutions in Greece: the Academy of Athens as coordinator, the Digital Curation Unit/ Research Centre Athena, the National and Kapodistrian University of Athens, the National Research Foundation, the Foundation for Research and Technology Hellas, the Directorate of the National Archive of Monuments/ Hellenic Ministry of Culture and Tourism, the Athens School of Fine Arts, and the Image, Video and Intelligent Multimedia Systems Lab/ National Technical University of Athens.

The main outcome of the preparatory project was a feasibility study concerning the creation of a national research infrastructure, whose main objectives are to support digitally enabled Humanities research in Greece and to provide linkages with the European Research Infrastructure, DARIAH. The feasibility study was completed in February 2011 and combined a survey of the current state of affairs in Greece in the field of Humanities in general and Digital Humanities in particular, and a proposal for the enhancement of Digital Humanities research in Greece. The survey consisted of an assessment of the current state of Humanities research, information resources, institutions and infrastructures, of the technological expertise of the ICT institutions and of national policies directly or indirectly involved in the support of research in the Humanities. The proposal consisted of a detailed recommendation for engaging the Greek research community in the European research infrastructure DARIAH and for expanding the role of the network DYAS by creating

a national infrastructure to enhance digital research in the Humanities. Meanwhile, in November 2010, the Greek General Secretariat for Research and Technology had signed a Memorandum of Understanding formally supporting the participation of Greece in DARIAH-EU and Greece became a founding member of DARIAH ERIC. As DARIAH-EU moved from the preparatory phase toward the construction of the infrastructure, the DYAS network, too, moved from the completion of the infrastructure feasibility study to the construction of the Greek national infrastructure.

In May 2013, following a call launched in July 2012 and a successful evaluation of its proposal, the DYAS network received funding to construct a Greek national research infrastructure for the Humanities, DARIAH-GR. The current project, scheduled to end in September 2015, will deliver the following sets of tasks/deliverables grouped into five services:

1. *Data sharing*: comprehensive registries of digital resources (institutions, individuals, data, metadata, ontologies, vocabularies and software services);
2. *Supporting the development of digital resources*: tools and best practice guidelines for the development of digital resources (data collection development, metadata development, ensuring metadata quality, vocabulary development, standards and best practices, intellectual property management, human resources development, content management/repositories);
3. *Networking, education, and capacity building*: information and advocacy, networking activities (physical and virtual, including events), competence access services, researcher residency scheme, summer courses, educational and training materials and curricula, industry internships and matching activities.
4. *DARIAH services*: coordination with DARIAH-EU ERIC activities, access management to all DARIAH-EU services; and
5. *Digital Humanities Observatory*: evidence-based research on digitally driven Humanities in Greece and on Greek studies, monitoring, outreach and dissemination activities, physical as well as virtual.

As work on the project progresses, its partners are already collaborating with DARIAH-EU in a number of humanities research related

activities, while the project's portal has been redesigned to meet the needs of the infrastructure under construction.

A realistic vision for Digital Humanities in Greece

The DARIAH-GR Research Infrastructure, developed by the DYAS network, builds on the achievements and best practice approaches developed by DARIAH-EU, the leading Europe-wide digital infrastructure in the Arts and Humanities, with which it is affiliated, leveraging the experience of other DARIAH-related national digital infrastructure projects, and adapting it to the on-the-ground situation in Greece.

The main concept of DARIAH-GR is that of a hybrid-virtual distributed infrastructure, bringing together the strengths and capacities of leading research, academic, and collection custodian institutions through a carefully defined, lightweight layer of services, tools and activities complementing, rather than attempting to displace or replicate prior investments and capabilities. A key premise adopted by the DYAS network, fully substantiated by the DYAS feasibility study, is that Greek Arts and Humanities data and content resources are as a rule thematically organized, widely distributed, under the custodianship and curation of diverse institutions, including government agencies and departments, public and private museums, archives and special libraries, as well as academic and research units, associations, research projects, and other actors, and displaying a diverse degree of digitisation. Given the constitution of such information and Humanities research practices, established legal and institutional constraints, and curation and long-term sustainability considerations, primary data and content is to remain, in digital form, with holding institutions. The mission of the DARIAH-GR research infrastructure is therefore seen as follows:

"[T]o provide the Greek Arts and Humanities, and Greek studies, research communities worldwide with effective, comprehensive and sustainable capability to discover, access, integrate, analyse, process, curate and disseminate Greek Arts and Humanities data and information resources, through a concerted plan of virtual services and tools, and hybrid (combined virtual and physical) activities, integrating and running on top of existing primary information systems, collections and infrastructures, and leveraging two-way integration and synergies with the European Digital Research Infrastructure for the Arts and Humanities."

DARIAH-GR services will take advantage of the domain-neutral computational and data management cloud infrastructure being developed by GRNET and Athena RC in order to optimise cost, concentrating exclusively on catering for domain-specific requirements.

The vision DYAS aspires to is, on the one hand, to empower the Greek Arts and Humanities research community to develop and adopt best practices in the use of digital technologies for research purposes, and thus participate fully and equally in the European research area. On the other hand, it is to assure long-term sustainability, long-term preservation, and access to the valuable assets of Arts and Humanities research data and content held by diverse institutions and actors in Greece for the advancement of scholarly-scientific knowledge, learning, and public enlightenment.

The DYAS network is committed to advocating for improving the accessibility and quality of information, for increasing digital literacy among Humanities scholars and for embedding it within Humanities curricula in higher education. In the short term, historians and other Humanities scholars will profit from workshops and other similar activities organized by the DYAS network and aiming to familiarize them with digital methods and tools and to encourage them to follow best practices and standards in their projects. The overall aim remains to revolutionise the landscape of Humanities research by integrating national and transnational experience in Digital Humanities into current research practice.

The Past and Present of Digital Humanities: A View from Russia

von Irina Garskova

This essay looks at the latest trends in the information support of humanities research. One such trend is the emergence of a new multidisciplinary area of research that has come to be known as *Digital Humanities*. It is a very new up-and-coming area that is still going through its formation stages with the term still often being used as an umbrella for any humanities research that uses computer and information technologies, new media and methods with both *Humanities* and *Digital* understood in their broadest sense.

In Russia and the Commonwealth of Independent States (CIS)[1] Digital Humanities (just like *Digital History*) has not yet caught on to the same extent as in the west (we will talk about reasons for that later on) even though the Russian History and Computing Association has already been discussing applications of digital technologies in humanities studies[2] for quite some time. Since the Russian association is comprised primarily of historians, in this essay we look not just at humanities in general but also at history, the way it is linked with other disciplines such as Information Science, Arts and Humanities as well as social sciences. Because the field of Digital History has been known under different names at different times and in different languages I would like to point out that in Russia and the CIS it is mostly known as Historical Information Science, while Digital History is viewed as the part of Historical Information Science that deals with the application of modern digital technologies to create historical resources, digital copies of materials stored in museums, archives and libraries.[3]

Across numerous publications the history of what today is known as Digital Humanities can be traced back to the early 1960s (or even 1940s).[4] In fact, Digital Humanities can be said to be a link in a progression that starts with Computers and the Humanities, goes on to Humanities Computing, then to Humanities' Information Science, and finally ends with Digital Humanities. This progression was set off in 1966 when the first issue of the Computers and Humanities journal was published and the Association for Computers and the Humanities was set up in 1973,

[1] The outlook on Digital Humanities presented here stems to a large extent from the history of computer-aided historical research in the USSR and in Russia.

[2] Leonid Borodkin, New priorities of historical informatics: e-Science Technology, in: Leonid Borodkin / Irina Garskova (eds.), Circle of ideas: interdisciplinary approaches in historical information science, Moscow 2008; pp. 5–15 (in Russian); Leonid Borodkin / Irina Garskova, Historical information science: reboot?, in: Perm University Herald, series „History" 2/16 (2011), pp. 5–12 (in Russian); Irina Garskova, Information technology and information approach in historical research, in: Bulletin of Peoples' Friendship University of Russia, series „Russian History" 4 (2011), pp. 110–124 (in Russian).

[3] Leonid Borodkin, Digital History. Application of Digital Media in Preservation of Historical-Cultural Heritage?, in: Historical Informatics 1/1 (2012), pp. 14–21 (in Russian).

[4] For example: Willard McCarty, Humanities Computing, in: Encyclopedia of Library and Information Science, New York 2003; pp. 1224–1235.

followed by the Association of Literary and Linguistic Computing in 1978.

The situation has developed in a slightly different way in historical research. Here we went from History and Computing to Historical Computing, then to Historical Information Science, and finally to Digital History. However, this chain of events started only in 1984 when the Association for History and Computing was set up in the UK. Up until that point history had been bundled together with the other humanities. Why? Probably, because from the very start Digital Humanities have been closely linked with computational linguistics and thus they have been dominated by computational linguistics as well as literary and linguistic scholars with only limited attention being paid to other humanities and specifically to history. It is also possible that one of the reasons may have been the broad variety of historical disciplines. Some of them, such as economic and socio-economic history, historical demographics and others tend to gravitate towards social sciences while others, such as historical anthropology, history of arts, history of culture generally tend to be classed with the arts and humanities.

Naturally, historians had been using digital technologies and quantitative methods before the mid-1980s and not just as part of Humanities and Computing. It should be remembered that the period between the 1960s and the early 1980s saw the emergence of Quantitative History, which represents a different approach to using computers in humanities research. This approach stems from the ideas of quantification and the use of mathematical models in historical research that were pioneered and then expanded upon primarily by the so-called quantitative historians in the US. Historians started turning to new methods of processing and analysing sources, and first of all mass media sources as they began employing the theories, methods and approaches found in social sciences, relying on systems analysis and mathematical modelling. It was this period that saw the emergence of such areas of research as 'new economic history, 'new social history, 'new political history' and others. These years also saw the formation of leading national schools of Quantitative History. Thus, from the very start Historical Computing has existed not just as part of Humanities Computing, but rather as part of Quantitative History.

When in the 1980s, following the digital revolution (the widespread availability of microcomputers), new concepts for computer-assisted historical research began to appear, followed by professional associations and scientific journals, and Historical Computing[5] emerged as a new multidisciplinary area of research focused on the development of methods, approaches and tools that paid close attention to the nature of the information found in historical sources. Closer attention to historical sources and specific problems of computer assisted historical research ushered in the so-called history oriented stage in the development of Digital Humanities in the 1980s and 1990s. In this period, researchers turned from methods to sources (and later on to resources in the broadest sense of the word), which precipitated a sharp increase in the interest in the creation of databases based on materials found in historical sources. Eventually this resulted in the role of the 'analytical component' in computer assisted historical research being downplayed while the role of the 'resource component' became more prominent.

In this period, in the countries that already had their own schools of Quantitative History they continued to evolve within the framework of existing theoretical and methodological concepts, preserving their scientific and information infrastructure, represented, for example, by such professional journals as Historical Methods (since 1967) (Historical Methods Newsletter since 1978) or Historische Sozialforschung/Historical Social Research (since 1976).

Historical Computing is now developing outside Quantitative History while at the same time continuing to rely on the traditions of quantification and use of the explanation-based methodology of social sciences, especially in such areas of historical research as economic history, social history, and historical demographics that have close ties to social sciences. This duality led to a number of international discussions within IAHC in the 1990s about the relation between Historical Computing and Quantitative History.

[5]It should be noted that it has been suggested time and time again that the name of this multidisciplinary field should be changed, see, for example: Lawrence J. McCrank, Historical Information Science. An Emerging Discipline, in: Information Today, Medford NJ 2002; Manfred Thaller, Historical Information Science. Is There such a Thing? New Comments on an old Idea, in: Tito Orlandi (eds.), Seminario Discipline Umanistiche e Informatica. Il Problema dell' Integrazione, Roma 1993, pp. 51–86.

The emphasis on the words computer and computing that was made in the English speaking countries from the very start was not a particularly good choice. Ever since computers began to be used as a research tool, computing has been viewed as a method of processing information using computers (digital equipment). The limitations of this term are obvious as it clearly downplays the information component of research, reducing everything to 'computing.' In many European languages the same multidisciplinary areas of research have been referred to using such terms as informatics and information. Thus it could be argued that such English terms as humanities information science and historical information science better correspond to the names these fields are known as in Russian, French, Dutch and many other languages.

Consequently, it was only natural when in the early 2000s the word computing was phased out in favour of 'information science'. In addition to technological reasons, the names were changed as the information component in humanities research began to be regarded as being closely related to the information component in archiving and library management (we can clearly see the link between such terms as humanities/historical information science, library science and archival science).

But why is it that the term Humanities Information Science so quickly gave way to Digital Humanities? Part of the reason, probably, is that in the west funds are increasingly being allocated primarily to major projects aimed at providing information support to humanities research and education whose participants include not only research and education institutions but also organisations concerned with the preservation of historical heritage (archives, museums, libraries).[6] Thus the term Digital Humanities emerged to refer to such projects. On the one hand, it is similar to the notion of digital libraries, a term that is often used not just about libraries but about any type of digital resources in the broadest sense. On the other hand, the main goal of Digital Humanities projects is to provide information support to science and education,

[6]In a private conversation I asked a famous Digital Humanities specialist about which name he preferred: Humanities' Information Science or Digital Humanities. His reply was, I like Humanities Information Science but financial support goes to Digital Humanities.

something that has always been the domain of the traditional digital libraries.

The introduction of the word 'digital' coincided with a regrouping of sorts that took place in international professional associations where some disciplines were differentiated from one another while other areas of research merged. Thus the mid-2000s saw the IAHC begin a process of national schools getting more independent from each other, as a result of which IAHC stopped holding international conferences in 2005. Digital History is now a part of Digital Humanities just as it was prior to 1984, back when the field was known as Computers and Humanities. The History and Computing professional journal that was published between 1989 and 2002 resumed publications after a five-year hiatus under the name 'International Journal of Humanities and Arts Computing'. The word history was dropped from its name, even as the word computing was kept. The journal primarily publishes materials that demonstrate the role of information and computer technologies in gaining new knowledge in humanities. It now covers a much broader range of topics from a wider selection of disciplines.[7]

At the same time in 2006 the regular European conference on social history (<https://esshc.socialhistory.org/>) opened a section titled History and Computing Network that continues to discuss Historical Computing issues but in the broader context of social history, thereby carrying on with the tradition of interaction with social sciences. The bulk of attention in the presentations made in this section is devoted to geographic information system (GIS) in historical research, technologies for creating and accessing collections of digitised sources, historical databases and other digital resources as well as historical research methods. And yet the geographical emphasis has clearly been dominant: In 2008 and 2010 the History and Computing Network was reorganised as History and Computing and GIS and then eventually it merged with

[7]It is interesting to note that the journal of the Computers and the Humanities international association (published from 1966 until 2005) ditched its multidisciplinary nature in 2005 and changed the name to Language Resources and Evaluation. On the other hand when ALLC and ACH merged in 2005 it was the beginning of the ADHO alliance, which in 2006 held Digital Humanities conferences and has been publishing the Digital Humanities Quarterly e-zine (DHQ) since 2007.

the Geography network to form Spatial and Digital History.[8]

In the early 21st century an important feature of the development of information support for humanities research has been a trend towards a more multidisciplinary approach. It should be noted that interdisciplinarity is now understood not only as the interaction between humanities and information science – there are common approaches in information support of various humanities disciplines. The new multidisciplinary approach also includes cooperation with experts in historical and cultural heritage studies because archives, libraries and museums hold vast amounts of text, visual and other types of historical content.

One manifestation of such an integration is the cooperation between various humanities disciplines at the level of methods and technologies in such areas as the creation and statistical analysis of data arrays and information systems; the creation of full-text databases and text research; the digital publication of sources; the development of digital resources devoted to specific topics, mathematical modelling; the spatial analysis using geographic information systems; and the virtual reconstruction of historical-cultural heritage sites.

Various national schools can develop different models of information support of historical research, however, regardless of the differences between them the increase in available professional digital resources is a global trend. Its most important feature from the point of view of future developments is that fairly large projects can give their users access not just to off-the-shelf resources but also to research methods and technologies, providing support, for example, to software solutions that can be used remotely to process user data or give users access to huge arrays of source data.[9] Information support of humanities research in the digital age cannot be limited to just providing an IT infrastructure: It has to offer methodological, technological, software, computational and educational components that users can interact with online.[10] This

[8] A month ago the mailing list H-AHC of the International Association „History and Computing“ in H-NET network was renamed as H-Digital History, its goals and objectives are focused mainly on communication between users of information resources.

[9] For example you can look at IPUMS (<https://international.ipums.org/international/> (13.10.2014)) or TAPOR (<http://www.tapor.ca/> (13.10.2014)).

[10] For an overview of the modern international experience in providing information

concept of a new information environment with distributed resources available to users via a network can be called *e-Humanities* the way that the use of such distributed networked resources and solutions in scientific research has come to be known as *e-Science*.

It should be noted that as the number of projects offering digitised materials for humanities researchers increases, there is still some disparity between the available infrastructure or the information component and the methodologies available in Digital Humanities, i.e. development of research methodologies is lagging behind the vast amounts of digitised materials that are being made available at an ever faster rate.[11]

So what is the main feature of Digital Humanities? Is it access to large amounts of information or a system of analytical tools allowing researchers to set and achieve new research goals? Is the methodological research in humanities keeping up with the vast amounts of digitised material? Aren't humanities limiting their analytical capabilities by choosing not to pay enough attention to the development of new methods and research tools? These questions posed by Manfred Thaller are most relevant and a light can be glimpsed at the end of the tunnel as more and more attention is being paid to methodology in Digital Humanities (whatever we might start calling this field tomorrow) and the new multidisciplinary approach is being adopted more and more, including through closer links with social sciences.

Historical Information Science in Russia and the CIS

The first publications by Russian (then Soviet) historians about the use of computers in historical research saw the light in the early 1960s as

support to historical research see: Patricia Alkhoven / Peter Doorn, New Research Perspectives for the Humanities, in: International Journal of Humanities and Arts Computing 1/1 (2007), pp. 35–47; Leonid Borodkin / Irina Garskova, Historical information science: reboot?, in: Perm University Herald, series „History“ 2/16 (2011), pp. 5–12 (in Russian).

[11] Thus at the conference 'The Cologne Dialogue on Digital Humanities' Manfred Thaller contended that, 'Looking at the reality of digital infrastructures for the Humanities … I can in no way recognize, that the abundance of digital material made available during the last decade has been augmented by a similar increase in the ambitiousness or power of the analytical tools applied to them. … I have observed with considerable unease, that current considerations of digital infrastructures for the Humanities … in some of the current discussions can be so devoid of analytical considerations, that it becomes almost indistinguishable from a Digital Library (and not even a very sophisticated one, at that)' (<http://www.cceh.uni-koeln.de/files/ThallerIntroWahn.pdf> (13.10.2014)).

part of Quantitative History studies. The new field of research was pioneered by scientists from a number of universities (Moscow State, Tartu University) and academic institutions (in Novosibirsk and Tallin). The development of Quantitative History was coordinated by a commission set up at the academy of sciences of the USSR (under the supervision of Ivan Kovalchenko). In the 1970s the Institute of History of the Academy of Sciences and the history department of Moscow State University opened laboratories specialising in the use of mathematical methods and computers in historical research. It was also around that time that the history department at Moscow State University introduced a new course in the fundamentals of mathematical statistics. Later on in the 1980s Moscow State started offering a course in information technology in historical research. The 1980s also saw research groups and laboratories being set up in many other universities and academic institutions including in Baku, Minsk, Dnepropetrovsk and other major urban centres. A community of scientists began to emerge that were specialising in this area. In 1979 the history department at Moscow State began organising a national seminar on Quantitative History, holding seminars for young scientists and conferences on mathematical methods in historical research.

As was noted by Konrad Jarausch, the Soviet national school of Quantitative History boasted high research standards and made extensive use of highly sophisticated mathematical methods (such as multidimensional classification, recognition of images) which was ensured by close cooperation between historians and mathematicians.[12] This sort of cooperation was necessary because of the shortage of computer equipment in the USSR and lack of access to such software applications as SPSS. Key research priorities at that time included the creation and management of machine-readable data archives; the analysis of statistical mass sources on historical demography, agrarian history, labour history, social cohesion history; family reconstruction (record linkage); the attribution of medieval texts; the reconstruction of the history of

[12]Konrad H. Jarausch, The International Dimension of Quantitative History. Some Introductory Reflections, in: Social Science History 8/2 (1984), pp. 123–132; Konrad H. Jarausch, (Inter)national Styles of Quantitative History, in: Historical Methods 18/1 (1985), pp. 13–19.

copies of old manuscripts; and the mathematical simulation of historical processes.[13] The theoretical achievements of the Soviet school of Quantitative History centred around Ivan Kovalchenko and also included the development of the information aspects of source research, concepts and methods for the analysis of mass sources.

The Russian Association for History and Computing (Assotsiatsiya 'Istoria I Komp'uter' – AIK)[14] was set up in 1992. Unlike many other European countries the new association that brought together researchers from the CIS was based around an informal community of quantitative historians that had emerged in the CIS over the previous 20 years. It was for this reason that features of the Russian experience in this area include close ties between Historical Computing and Quantitative History, continuity and cooperation in the development of these two multidisciplinary research areas, including at the level of personal contacts between researchers. In addition, as Russia does not have specialised publications like HSR, Russian quantitative historians have traditionally used AIK's publications for publishing their papers.

In just a few years AIK became the third-largest national branch of IAHC and the first in terms of the number of annual publications. In Russia and other CIS countries over a dozen research centres were set up that are now actively using mathematical methods and information technology for historical research as well as for teaching history students. AIK was further popularised through the international autumn schools 'History and Computing: European Model' organised by the history department of Moscow State University with active support of IAHC for graduate students and young researchers from Russia and the CIS in 1992-1996. Classes were taught by famous experts from west European universities. Over 200 young researchers got certificates of completion from the autumn schools.

Since its creation AIK has held 13 conferences (between 1993 and 1998 they were held on an annual basis, now they are held once every two years). An important event in AIK's international activities was

[13]Development of such programs involves the use of fairly sophisticated mathematics such as game theory, differential equations, Markov chains.

[14]<http://www.aik-sng.ru/> (13.10.2014).

the holding of the XI IAHC conference[15] in Moscow in August 1996. In addition, as part of IAHC AIK held the international seminars 'Statistics for Historians: Standard Packages and Specific Historical Software' (1994 in Barnaul) and 'Archives in Cyberspace' (1996, Moscow).

In the time that it has existed AIK has published 11 volumes of research papers and conference materials and 41 issues of the Information Bulletin. In 2012 AIK started publishing the Historical Informatics journal. In addition, AIK has been behind the publication of over 30 collections of articles, studies and textbooks in Moscow and in Russian provinces. Russian and Belorussian universities have been offering the Historical Information Science bachelor and PhD programmes since 1996.

Several dozen projects were completed with funding from both Russian and foreign research funds. The association ended the 20th century going from strength to strength in its efforts to introduce information technology as a tool of historical research and education.

Regional centers and schools have emerged in Russia and in CIS countries. For instance, in Novosibirsk, in the Institute of Archeology and Ethnography of the Siberian Department of the Russian Academy of Sciences the researchers successfully develop mathematical methods of data processing and data analysis and create resources on the history of Siberia.[16] Researchers from the Siberian Federal University in Krasnoyarsk are especially interested in creating three-dimensional reconstructions of the historical monuments and other objects of cultural heritage, and in using information technologies in museums.[17]

Information technologies in education are being developed in the Institute of Distant Education, Tomsk State University, in particular within the framework of the 'Informatics for the Humanities' Master

[15] The first IAHC to be held in Eastern Europe and brought together about 150 participants from around 22 countries from Europe, America and Asia.

[16] See Web portal Archaeology and Ethnography of Northern Asia (<http://www.sati.archaeology.nsc.ru/sibirica/>).

[17] Mikhail V. Rumyantsev et. al., Virtual reconstruction of historical and cultural heritage in the town of Yeniseysk, in: Leonid I. Borodkin / Mikhail V. Rumyantsev / Ruslan A. Baryshev (eds.), The Virtual Reconstruction of the Objects of Historical and Cultural Heritage in the Format of the Scientific Research and Educational Process, Krasnoyarsk 2012, pp. 109–134 (in Russian).

Program.[18] The technologies of E-learning are also very much present in the programs of the History Faculty of Belarusian State University at Minsk.[19]

A research school that emerged on the basis of the Mordovian University in Saransk[20] specializes in applying mathematical methods and information technologies to the historical demography and the economic history of Russia in the 18th-19th centuries.

In the Urals, databases and information systems on Soviet political history (the history of political repression) are being actively created. The Historical Informatics Laboratory of the Nizhny Tagil State Social-Pedagogical Academy took part in the making of an electronic data bank of the victims of political repression in USSR (within the scope of the Restored Names international project[21]), and, together with the International Historical-Enlightment, Human Rights and Humanitarian Society Memorial, develops electronic memorial books of ethnic Germans who were Soviet citizens and victims of political repression.[22]

[18] <http://ido.tsu.ru/en/education/edu2/Humane_problems_of_contemporaneity/Information_technologies_in_humane_researches.php> (13.10.2014).

[19] <http://www.hist.bsu.by/en/> (13.10.2014).

[20] <http://www.mrsu.ru/en/i_faculty/detail.php?ID=3490> (13.10.2014).

[21] <http://visz.nlr.ru/project/> (13.10.2014).

[22] <http://www.rusdeutsch.ru/?tagil=1> (13.10.2014).

Fig. 1: *Electronic memorial books of ethnic Germans who were Soviet citizens and victims of political repression*

The Ural State University in Ekaterinburg develops methods and technologies of space analysis based on Geographic Information Systems (GIS)[23], the Kama Institute of Humanities and Engineering Technologies in Izhevsk works on mathematical modeling in History Studies.[24] Another Urals research school, linked with the Linguistics Department of the Izhevsk State Technical University, is known for its work in the field of electronic publishing of the ancient Russian manuscripts as full-text databases, with the help of the Slavonic Written Heritage information retrieval system developed in collaboration with the Federal archives and libraries.[25]

[23]See, for example: Ludmila N. Mazur / Svetlana I. Tsemenkova, GIS 'Settlements of Sverdlovsk region': problems and solutions, in: Information Bulletin of the Association 'Istoriya I Komp'uter' 35 (2008), pp. 11–12 (in Russian).

[24]Nicholas V. Mitukov, Simulation modeling in military history, URSS: Moscow 2011 (in Russian).

[25]<http://mns.udsu.ru/index_en.html> (13.10.2014).

Researchers from the Petrozavodsk University develop methods and algorithms of work with medieval documents and other historical sources on the base of XML technologies representation of the tenor of historical records in semantic publications.[26] A group of scholars from the University is working on the problems of automatic handwriting recognition and creation of search systems for working with images.[27]

The Historical and Political Information Science Laboratory of the Perm State University studies the history of the Russian parliamentary bodies in the 19th and the beginning of the 20th century[28], develops Internet resources dedicated to this subject[29], creates and analyses full-text information systems on such mass historical sources as newspapers, stenographic records of the meetings of the State Duma, minutes of zemstva assemblies etc.[30]

Three most important research schools in the field of Historical Information Science exist in Moscow, at Tambov and at Altay Universities. Each of them is efficient in developing several sectors of the Historical Information Science, partly due to the collaboration of these schools on the level of common research projects, publications and conferences. The History Faculty of Altay State University in Barnaul became the

[26]See, for example: Alex G. Varfolomeev / Alexander S. Ivanov, Principles of electronic publication of aggregate historical documents using paleographical, textological, and diplomatic analysis. <http://textualheritage.org/content/view/57/68/lang,ru/> (13.10.2014).

[27]See: Aleksandr A. Rogov, et. al., The Search Systems in Electronic Collection of Karelian Petroglyphs Images, in: Digital Libraries: Advanced Methods and Technologies, Digital Collections. The Tenth Anniversary of All-Russian Research Conference. Dubna, 7-11 October 2008. <http://rcdl2008.jinr.ru/pdf/246_251_paper29.pdf> (13.10.2014).

[28]Igor K. Kiryanov, Information System 'The State Duma Stenographic Reports, 1906–1917': Experience of Designing and Realization, in: Documentation and Analysis of the Historical and Cultural Heritage by Historical Information Science Methods. Proceedings of the Joint Seminar (held at Graz, April, 15–17, 2009), in: Series of the Institute of History (University of Graz) 18 (2009), pp. 135–145; Sergey I. Kornienko, Information System 'Russian Parliamentarians in the Beginning of the 20th Century' as a Basis for Prosopographical Research,Ibid., pp. 145–155.

[29]<http://helios.psu.ru/pls/parlament/first_page.html> (13.10.2014).

[30]Dinara A. Gagarina, Newspaper 'Perm provincial sheets' 1838–1844's. Problems of Source-Study Research and Historical and Cultural Heritage Preservation, in: Documentation and Analysis of the Historical and Cultural Heritage by Historical Information Science Methods, pp. 90–99; Nadezhda G. Povroznik, Information System 'Reports of Zemstvo's Assemblies' as Source for Investigation of Provincial Selfgovernment in Russia (the second half of the 19th – the beginning of the 20th centuries), Ibid., pp. 100–111.

base of a research school oriented on the quantitative methods and GIS technologies in historical demography (studying the process of populating the territory of the region, the migration from the European Russia to Siberia).[31] Another field of interest of the research school is the history of society and economics, including the study of employment and professional mobility, within the framework of the *HISCO* International Project.[32]

The Social History Laboratory of the Institute of Humanities and Social Education of Tambov State University develops methods and technologies of historical demography and social history, works out databases and information resources such as „The First General Census of the Russian Empire"[33] , creates GIS applications[34] and three-dimensional reconstructions of historical monuments and urban areas[35], and implements information technologies in local museums. Tambov researchers created a fractal modeling software, which is efficiently used in humanities applications.[36]

The Moscow School of the Historical Information Science, centered on the Department of Historical Information Science of the Moscow Lomonosov State University, is the heart of the professional community in Russia and the CIS countries. It holds conferences and workshops of the Association 'Istoria i komp'uter' (AIK). It specializes in such fields

[31] Vladimir N. Vladimirov, Historical Geoinformatics. Geographical Information Systems in Historical Research, Barnaul 2005 (in Russian).

[32] See, for example, Vladimir N. Vladimirov / Dmitry E. Sarafanov / Maksim E. Chibisov, On the possibility of Parish Population Registration Data Use for Studying Employment, in: Historical Occupation Studies. Sources, Methods, Analysis, Technologies, Barnaul 2008; pp. 28–50 (in Russian).

[33] <http://www.census1897.com> (13.10.2014).

[34] Elena V. Baranova / Valery V. Kanishchev / Roman B. Konchakov, Problem of the Relationship of Historical Sources and GIS Technologies (based on noble tenure Tambov and Tula provinces late XVIII – early XX centuries), in: Historical Information Science 2 (2013), pp. 42–49.

[35] Roman B. Konchakov / Elena I. Miloserdova / Konstantin S. Kunavin, Multidimensional Reality. Trends and Technologies of Representation of Three-Dimensional reconstructions, in: The Virtual Reconstruction of the Objects of Historical and Cultural Heritage, pp. 68–81 (in Russian).

[36] Dmitry S. Zhukov / Sergey Lyamin, Computer Fractal Modeling and Politological Analysis of the Destruction of Traditional Informal Institutions, in: Modern Research of Social Problems 7/27 (2013). <http://journal-s.org/index.php/sisp/article/view/7201312/pdf_316> (13.10.2014).

as the use of mathematical methods and information technologies for the study of social history, economic history and historical demography.

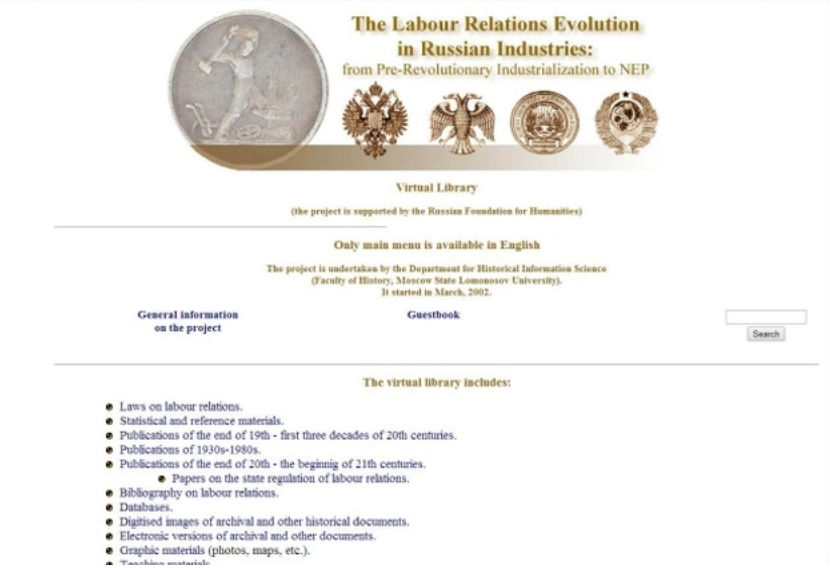

Fig. 2: *Project 'The Labour Relations Evolution in Russian Industries: from Pre-Revolutionary Industrialization to NEP'*

The Department develops professional Internet resources dedicated to such problems: *The Labour Relations Evolution in Russian Industries: from Pre-Revolutionary Industrialization to NEP*[37], *Dynamics of Economic and Social Development of Russia in the XIX – early XX centuries*[38], it creates virtual reconstructions of the objects of historical and cultural heritage, for example, the project *Virtual Reconstruction of Moscow Monastery 'All Sorrow Joy': Analysis of Spatial Infrastructure Evolution on the Basis of 3D Modelling Methods*.[39] Besides, the Department is an acknowledged leader in mathematical modeling of historical processes.[40]

[37] <http://www.hist.msu.ru/Labour/english.htm> (13.10.2014).

[38] <http://www.hist.msu.ru/Dynamics> (13.10.2014).

[39] <http://www.hist.msu.ru/3D/monastery-auth-1.htm> (13.10.2014).

[40] Leonid Borodkin / Andrey Andreev / Mikhail Levandovski, Applying Chaos Theory

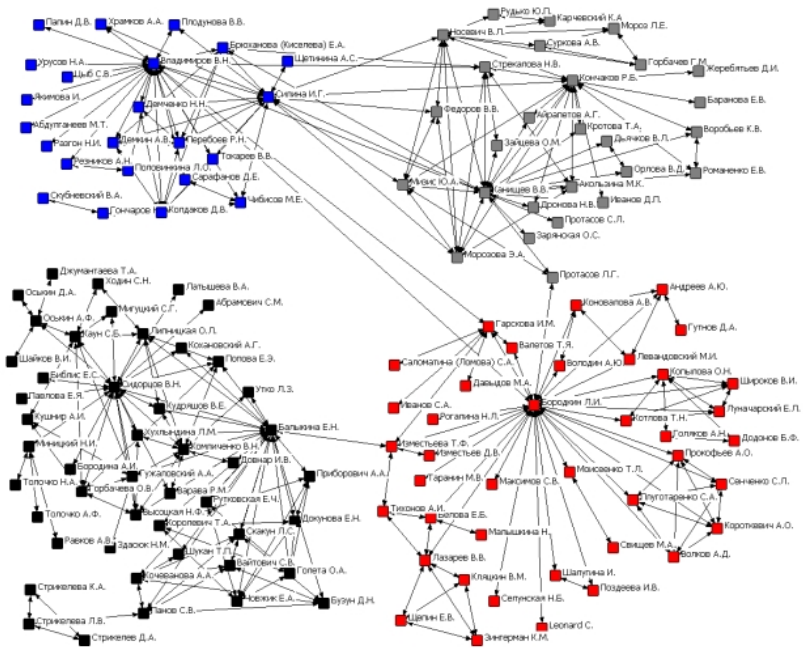

Fig. 3: *AIK network structure*

The Fig. 3 depicts the nucleus of the AIK network structure, including several major centers and research schools (the ones of Barnaul, Moscow, Minsk and Tambov). One can see strong interregional links between the researchers from Altay and Tambov Universities, caused by the similarity of their scientific interests (historical demography and social history) and the existence of common research projects. The Moscow school is linked with the Barnaul and Tambov schools. The Minsk school is weekly linked with the Moscow school and not at all related with two others; it is because its research is almost exclusively concentrated on the E-learning technologies while other schools have more diverse interests.

in the Analysis of Social and Economic Processes in Tsarist Russia, in: Data Modelling, Modelling History. Proceedings of the XI International Conference of the Association for History and Computing, Moscow 2000.

The analysis of the Russian experience in Historical Information Science shows that different research centers continue to maintain and develop the traditional analytical component of computerized research already established in the 1960s–1980s: mathematical methods in social and economic history, in political history, in historical demography, in the study of historical texts; mathematical modeling of historical phenomena and processes. At the same time, as the technical progress goes on, the technological component is being quickly developed. It includes technologies that became widely popular at the beginning of the 21st century such as GIS, 3D modeling, or Web technologies. But nowadays researchers' attention is focused on the informational (resource) component, which is characteristic of the phenomenon of Digital History and Digital Humanities.

If we compare the Russian situation with the European and world tendencies, we can see that in Russia the information support of the humanities and the creation of a new digital infrastructure of research have so far not reached the level achieved in the countries of Western Europe and North America[41], but the trends are similar.

For the time being, our resources are created in the framework of different humanities disciplines, but the first Russian interdisciplinary resources start to appear, as, for instance, a joint project of historians and philologists, the *Textual Heritage site*[42], developed by the interdisciplinary research community with the goal of description, preservation and publication of manuscripts and early printed books.

[41] The reasons for the slower pace of development include lack of financing in science and education as well as the fact that computer and information technologies had a slow start in Russia.

[42] <http://textualheritage.org/index.php?lang=english> (13.10.2014).

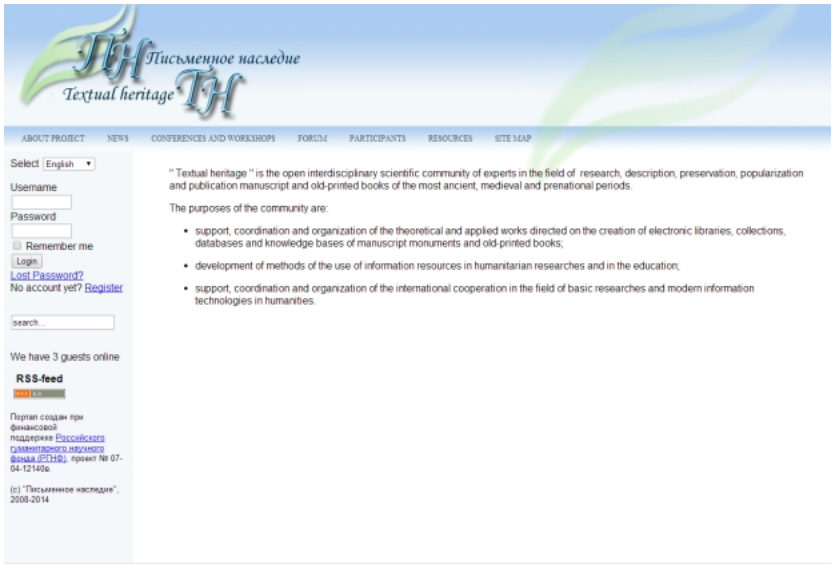

Fig 4: *Textual Heritage site*

It is also evident that Russian subject-oriented resources are in most cases based on the local research projects of separate university laboratories or departments, although there are already more ambitious interuniversity subject-oriented resources, as well as projects of university digital libraries. The *„University Information System RUSSIA"*[43] can be given as an example: it was created at Moscow State University as an electronic library and framework for research and education in the field of economics, management, sociology, linguistics, philosophy, philology, international relations and other humanities.

[43] <http://uisrussia.msu.ru> (13.10.2014).

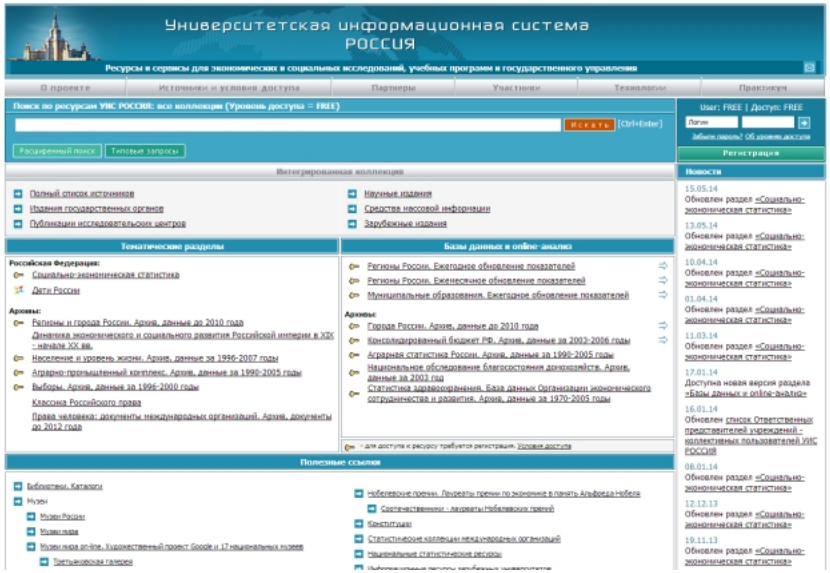

Fig. 5: *The 'University Information System RUSSIA' – an example of the interdisciplinary electronic library*

Archives, museums and libraries start participating in the establishment of research and educational resources. Their goals include preserving the historical and cultural heritage and providing online access. An example of an archive project containing collections of digitized documents is *Overcoming Troubles (end of XVI – early XVII century) and strengthening Russian statehood*, a joint project of the Federal Archival Agency, a number of federal and regional archives and museums, and other organizations.[44] Another example is *The Documents of the Soviet Era*, a project of Rosarkhiv (the Federal Archival Agency of Russia).[45] An example of a library project containing scientific descriptions of early printed books is *Cyrillic books printed in 16th-20th centuries from the collection of the State Public Historical Library*.[46]

[44] <http://www.rusarchives.ru/smuta/> (13.10.2014).
[45] <http://sovdoc.rusarchives.ru> (13.10.2014).
[46] <http://rarebook.shpl.ru/index.htm> (13.10.2014).

An international collaboration is gradually developing, for instance, between Petrozavodsk State University and Daugavpils University (Latvia)[47], between Perm State University and Graz University (Austria)[48], between Moscow State University and the University of Helsinki[49], or a long-term collaboration between several Russian universities (Altay, Moscow, St. Petersburg, Tambov, Yaroslavl') and several Western ones (in the Netherlands, in Sweden, in the USA) in the field of historical demography[50] and in the framework of *HISCO*[51], etc.

These tendencies permit us to see the perspectives of development of the information support of Russian humanities and Russian education. First of all it means broadening the integration and the interdisciplinary approach, including collaboration with specialists in archives, libraries, museums, as well as collaboration with specialists in social sciences and in information technologies, to create a large-scale information resources. It would help to reach the level of information support already achieved in many European countries.

However, as we already said in the first part of the essay, the scale of a resource cannot be measured just by the volume of digital data. The volume should correspond to the level of methods and technologies available to users along with the data. In this respect, we and our colleagues from other countries have to solve the same problems: We should develop the resources which offer the users methodical, software and technological online support, e.g. the means of visualization, of

[47] Aleksandrs Ivanovs / Aleksey Varfolomeyev, Editing and Exploratory Analysis of Medieval Documents by Means of XML Technologies, in: Humanities, Computers and Cultural Heritage. Proceedings of the XVI International Conference of the Association for History and Computing (14–17 September 2005), Amsterdam 2005, pp. 155–160.

[48] Sergey I. Kornienko / Ingo H. Kropac, The new co-operation: background and implications, in: Documentation and Analysis of the Historical and Cultural Heritage by Historical Information Science Methods. Proceedings of the Joint Seminar (held at Graz, April, 15–17, 2009), in: Series of the Institute of History (University of Graz) 18 (2009), pp. 9–18. <http://www.history.psu.ru/publ/perm-graz.pdf> (13.10.2014).

[49] See, for example: <http://www.helsinki.fi/aleksanteri/ceres/workshop_enhancing_access_to_resources_for_Russian_and_East_European_Studies.html> (13.10.2014).

[50] Steven Hoch /Sergey Kashchenko / Yury Mizis, Project in Russian population history, 1700–1917. Preliminary results, in: Data Modelling, Modelling History. Abstracts of XI International Conference of the Association for History and Computing, Moscow 1996, pp. 89–91.

[51] See: Marco H. D. van Leeuwen/ Vladimir Vladimirov (eds.), Historical Classification of Occupations: profession, career, social mobility, Barnaul, 2012 (in Russian).

content analysis, of virtual reconstruction, and of spatial analysis. To achieve this goal, important additional expenditures will be needed (of money, intellect and time) but it will permit to strengthen the analytical component, which is still under-represented in the existing structure of Digital Humanities, if we consider the Digital Humanities (Digital History) as applied area of Humanities (Historical) Information Science, and not as a kind of Digital Libraries.

Vernetzter Geist? Stand und Tendenzen der Digital Humanities in der Schweiz

von Eliane Kurmann und Enrico Natale

Digital Humanities – der Begriff ist in aller Munde: Er ziert Buch- und Zeitschriftentitel, kennzeichnet neu entstandene Kompetenzzentren und Studiengänge, ist ein Label für neue Forschungsprojekte und Gegenstand von Veranstaltungen. Keine Frage, das Digitale hat auch die Geisteswissenschaften erreicht. Was aber genau unter dem Begriff zu verstehen ist, bleibt undefiniert. In diesem Artikel gehen wir von einem weit gefassten Verständnis aus und fassen unter Digital Humanities ein breites Spektrum von technologischen Möglichkeiten, Arbeitsfeldern und Praktiken zusammen: die Retrodigitalisierung historischer Bestände, computergestützte Forschungsmethoden und Lehre, digitale Werkzeuge für den wissenschaftlichen Alltag, Möglichkeiten der Visualisierung und der Präsentation von Forschungsergebnissen, neue Publikationsformen und -foren, Infrastrukturprojekte zur Verwaltung elektronischer Daten und – nicht zuletzt – die Reflexionen darüber, ob die digitalen Technologien die Geisteswissenschaften grundlegend verändern. Digital Humanities ist ein neues, sich rasch veränderndes Feld, dessen Konturen sich erst schärfen werden. Es wird sich zeigen, welche der genannten Bereiche die Geisteswissenschaften besonders bereichern und ob der digital turn tatsächlich ein solcher ist.

Dieser Bericht thematisiert den aktuellen Stand und die Tendenzen der Digital Humanities in der Schweiz. Nach einem kurzen Überblick über den Einzug der Computertechnologien in die Geisteswissenschaf-

ten seit den 1970er-Jahren werden die aktuellen Entwicklungen der Digital Humanities entlang der drei wichtigsten Schauplätze beschrieben; jene in den Archiven und Bibliotheken, den Universitäten und der Forschung sowie der Wissenschaftspolitik. Abschliessend folgt ein kurzer Einblick in die derzeit stattfindende Diskussion, ob die Digital Humanities lediglich ein neuer Werkzeugkasten der Geisteswissenschaften sind oder auch neue Forschungsmethoden und Erkenntnisse hervorbringen.

Der Bericht informiert über die aktuellen Angebote und die laufenden Forschungsprojekte mit einem Fokus auf den Geschichtswissenschaften, bietet aber keine umfassende Aufzählung, sondern nur eine Auswahl, die den aktuellen Stand in der Schweiz verdeutlicht. Ein Überblick über die Digital Humanities kann nur eine Momentaufnahme eines Feldes sein, das sich sehr schnell entwickelt.

Vorgeschichten: Von Computern, Katalogen und Pionieren

Die Geschichte des Computers[1] beginnt in der Schweiz Ende der 1940er-Jahre an der Eidgenössischen Technischen Hochschule Zürich (ETH Zürich) mit der Gründung des Instituts für Angewandte Mathematik. Das Institut war damit beauftragt, an der ETH Zürich programmierbare Rechenleistung anwendbar zu machen. Der erste Computer, der 1950 installiert wurde, war der von Konrad Zuse entwickelte Z4-Computer – der einzige nach dem Zweiten Weltkrieg verfügbare Rechner, der in Europa entwickelt worden war.

[1] In den vergangenen fünf Jahren sind mehrere Publikationen zur Informatikgeschichte der Schweiz erschienen: Peter Haber (Hrsg.), Computergeschichte Schweiz. Eine Bestandaufnahme, Zürich 2009; Herbert Bruderer, Konrad Zuse und die Schweiz. Wer hat den Computer erfunden?, München 2012; Josef Egger, Ein Wunderwerk der Technik, Zürich 2014. Insgesamt bleibt dieses Forschungsfeld jedoch von den Historikerinnen und Historikern vernachlässigt.

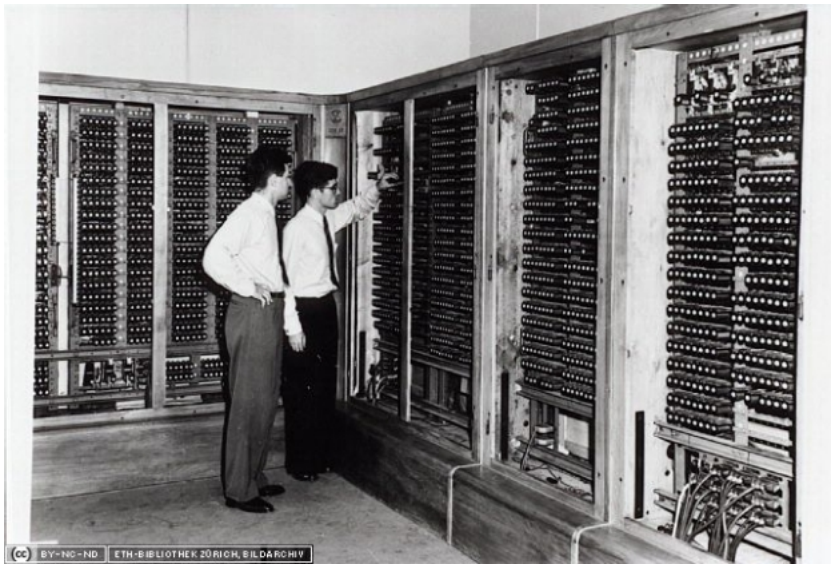

Fig. 1: *Relaisschränke des Z4-Computers, der 1950 an der ETH Zürich installiert wurde. Bild: ETH Zürich, Hauptgebäude (HG), Institut für angewandte Mathematik, Z4, Relaisschränke, Zürich 1950, Record Name: Ans_03681 © ETH Bibliothek Zürich, Bildarchiv. Online: ETHBIB.Bildarchiv (19.05.2014).*

Sieben Jahre später nahm die ETH Zürich ihren ersten selbst entwickelten und gebauten Computer, die Elektronische Rechenmaschine an der ETH (ERMETH), in Betrieb.[2] Forschenden der École polytechnique fédérale de Lausanne (EPFL) gelang in den 1970er-Jahren die Entwicklung und Produktion von Computern und Computermäusen, die auf dem Modell des Informatikpioniers Douglas Engelbert basierten.[3] Der Computer stiess nicht nur in der Privatwirtschaft und in der

[2] Thomas Nef / Tobias Wildi, Informatik an der ETH Zürich 1948-1981, in: Peter Haber (Hrsg.), Computergeschichte Schweiz. Eine Bestandaufnahme, Zürich 2009, S. 9–58; Monika Burri / Andrea Westermann / David Gugerli u.a. (Hrsg.), ETHistory 1855–2005. Sightseeing durch 150 Jahre ETH Zürich, Baden 2005; Schweizerischer Schulrat, Informatik im ETH-Bereich: vom Relaisrechner zum Grosscomputer, Zürich 1994.

[3] Jean-Daniel Nicoud, Développements d'ordinateurs et de périphériques à l'EPFL, 1965–2000, smaky.ch – Une histoire de l'ordinateur en Suisse, o.D., <http://www.smaky.ch/theme.php?id=lami> (19.06.2014).

Armee auf grosses Interesse, sondern entwickelte sich auch innerhalb der Wissenschaften zu einem wichtigen Werkzeug.

Seit Ende der 1970er-Jahre verwendeten auch die Geisteswissenschaften technologische Mittel, anfänglich insbesondere zur Verwaltung wissenschaftlicher Informationen: Die Bibliotheken der Université de Lausanne und der ETH Zürich arbeiteten seit Beginn der 1970er-Jahre an informatisierten Bibliothekssystemen[4], und die Bibliothek der EPFL führte 1979 die erste Recherchedatenbank ein.[5] Zur selben Zeit konzipierten Forschende des Instituts für Automation und Operations Research der Universität Fribourg Modelle für digitale Editionen und elektronische Bücher.[6] Das Interesse an den neuen, computergestützten Möglichkeiten schlug sich in der Gründung von Fachzeitschriften nieder, die sich mit der digitalen Informationsverwaltung auseinandersetzen.[7]

[4]Pierre Gavin, SIBIL: Système intégré pour les bibliothèques universitaires de Lausanne, Lausanne 1980; Innovation. Von der Automatisierung zum OPAC, ETHistory 1855–2005, 20.04.2005, <http://www.ethistory.ethz.ch/rueckblicke/verwaltung/biblio/innovationen/> (19.06.2014).

[5]Histoire, Bibliothèque de l'EPFL, 3.12.2012, <http://library.epfl.ch/bib/?pg=hist> (19.06.2014).

[6]Jacques Pasquier, The electronic book (EBOOK3): general user's guide, Fribourg 1987; Jürg Kohlas, Das integrierte Buch: (eine Projektidee), Fribourg 1984.

[7]Interface: Zeitschrift des Schweizerischen Vereins für Informatik in der Ausbildung (SVIA) (1977–); Arbido (1986–).

Fig. 2: *Die Bibliotheksrecherche vor dem digitalen Zeitalter. Bild: Zürich, ETH Zürich, Hauptgebäude (HG), Hauptbibliothek, Literaturnachweis, Zettelkatalog, Zürich 1950, Record Name: Ans_00353 © ETH Bibliothek Zürich, Bildarchiv. Online: ETHBIB.Bildarchiv (19.05.2014).*

Ende der 1980er-Jahre tauchte der Computer vereinzelt in den Büros von Historikerinnen und Historikern und an den Arbeitsplätzen wissenschaftlicher Einrichtungen auf. Zu den Pionieren gehörte die Redaktion des *Historischen Lexikons der Schweiz*, die ihre Arbeiten seit der Gründung im Jahr 1988 mithilfe des Computers erledigt.[8] Das aufkommende Interesse am Computer zeigte sich auch in der Gründung des Vereins *Geschichte und Informatik* im Jahr 1989. Der Verein gibt eine gleichnamige Zeitschrift heraus, die anfänglich die Verwendung von Datenbanken in den Geschichtswissenschaften, die historische Statistik, Bibliographien, die historische Kartographie und die Edition digitalisierter Quellen thematisierte und heute insbesondere die Entwicklungen im Bereich der

[8]Marco Jorio, Persönliches Gespräch, geführt von Enrico Natale, Bern 24.05.2011.

Digital Humanities mitverfolgt.[9]

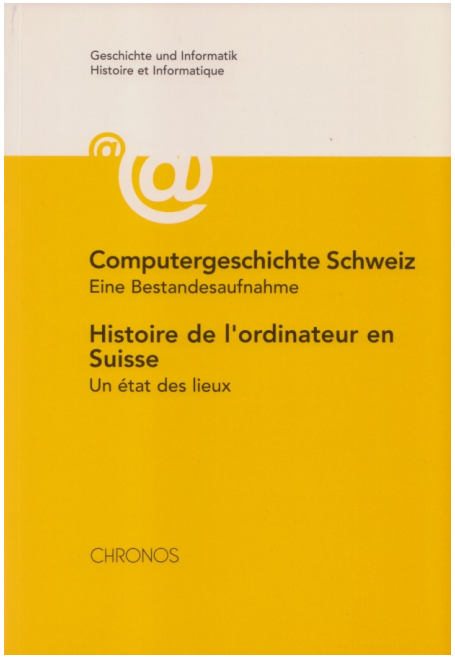

Fig. 3: *Cover des 17. Bandes der Zeitschrift Geschichte und Informatik: Peter Haber (Hrsg.): Computergeschichte Schweiz – eine Bestandesaufnahme, Zürich 2009.*

An den geisteswissenschaftlichen Fakultäten der Universitäten führte die Auseinandersetzung mit den technologischen Entwicklungen in den 1990er-Jahren zur Einrichtung neuer Institutionen.[10] In der Erforschung und Erprobung neuer Instrumente und Methoden taten sich anfänglich die Sprachwissenschaften besonders hervor. Zur selben Zeit begann sich mit dem World Wide Web die wissenschaftliche Arbeitsweise an den

[9] Geschichte und Informatik, Histoire et Informatique (1990-). Die Zeitschrift ist in retrodigitalisierter Form online verfügbar: <http://retro.seals.ch/digbib/vollist?UID=gui-001> (13.08.2014).

[10] Université de Lausanne: Section informatique et méthodes mathématiques appliquée aux Sciences Humaines (1992); Universität Zürich: Institut für Computer Linguistik (1994); Université de Genève: Informatique pour les sciences humaines (1999).

Universitäten grundlegend zu verändern.[11] Die Forschenden und Studierenden profitierten insbesondere von den digitalen Kommunikations- und Recherchemöglichkeiten, denn neben den Bibliothekskatalogen gingen auch die ersten Datenbanken, die historische Quellen verzeichneten und verfügbar machten, online – so beispielsweise 1997 die Datenbank der Diplomatischen Dokumente der Schweiz *Dodis*.[12]

Im Vergleich zum benachbarten Ausland fanden die Computertechnologien auf nationaler Ebene etwas verspätet Beachtung: Erst anlässlich der Reorganisation der Schweizerischen Nationalbibliothek (SNB) 1992 entschied der Schweizerische Bundesrat, die SNB mit einer Informatikstruktur auszustatten.[13] In einem weiteren Schritt verabschiedete er 1998 eine Strategie zur Schaffung einer Informationsgesellschaft in der Schweiz. Bezüglich der Kulturvermittlung hatte diese Strategie zum Ziel, die neuen multimedialen und interaktiven Möglichkeiten zu fördern und die Bestände der Archive, Bibliotheken und Museen digital zu erschliessen und online zugänglich zu machen.[14] Mit dem *Swiss Virtual Campus*[15] wurde im Jahr 2000 ein nationales Projekt lanciert, mit dem das E-Learning an den Schweizer Hochschulen gefördert werden sollte. Infolge ungenügender Resultate und mangelndem Interesse von Seiten der Akademikerinnen und Akademiker wurde das Projekt einige Jahre später allerdings aufgegeben.[16]

[11] Julien Sansonnens, Une brève histoire de l'Internet en Suisse, in: Schweizerische Zeitschrift für Geschichte 61 (3), 2011, S. 341–355.

[12] Frédéric Koller, Les documents diplomatiques suisses sur Internet, in: Journal de Genève, 29.05.1997. Online: Diplomatische Dokumente der Schweiz, Les documents diplomatiques suisses sur Internet, o.D., <http://www.dodis.ch/de/les-documents-diplomatiques-suisses-sur-internet> (19.06.2014).

[13] Botschaft über die Reorganisation der Schweizerischen Landesbibliothek vom 19. Februar 1992, BBl 1992 II, S. 1441–1481. Online: Schweizerisches Bundesarchiv, Amtsdruckschriften, o.D., <http://www.amtsdruckschriften.bar.admin.ch/viewOrigDoc.do?id=10106956> (23.02.2014).

[14] Strategie des Bundesrates für eine Informationsgesellschaft in der Schweiz vom 18. Februar 1998, BBl 1998, S. 2387–2391. Online: Schweizerisches Bundesarchiv, Amtsdruckschriften, o.D. <http://www.amtsdruckschriften.bar.admin.ch/viewOrigDoc.do?id=10109423> (06.03.2014).

[15] Swiss Virtual Campus – 2000–2007/08, <http://www.virtualcampus.ch/> (19.06.2014).

[16] Marianne Gertsch / Juan F. Perellon / Karl Weber, Campus virtuel suisse (SVC). Programme fédéral d'impulsion 2000–2003. Rapport final de l'évaluation, Conférence universitaire suisse; Conférence des Recteurs des Universités Suisses, Berne 2004.

Auch in der geschichtswissenschaftlichen Lehre hielten der Computer und das Internet Einzug: 1999 organisierten die beiden Historiker Peter Haber und Jan Hodel an der Universität Basel erstmals ein Seminar zum Thema „Neue Medien in den Geschichtswissenschaften", aus dem eine Datenbank mit geschichtswissenschaftlich relevanten Internetressourcen hervorging. Die Weiterentwicklung dieser „History Toolbox" führte zum Aufbau von *hist.net*[17], einer digitalen Plattform für die Geschichtswissenschaften.[18] Zur gleichen Zeit richtete die Schweizerische Gesellschaft für Geschichte (SGG) die Abteilung „Internet" ein und konzipierte ein Projekt, das sich mit den Möglichkeiten des Internets für die Geschichtswissenschaften befassen sollte. Peter Haber und Bertrand Müller schlugen die Schaffung eines Portals mit dem Namen „Swiss History Portal" vor, das aufgrund fehlender finanzieller Mittel aber nicht realisiert werden konnte. Inspiriert von den Initiativen in Deutschland – der *History Guide*[19], *Clio-Online*[20] und *H-Soz-u-Kult*[21] hatten sich inzwischen etabliert[22] – unternahm die SGG in Zusammenarbeit mit der Schweizerischen Akademie für Geistes- und Sozialwissenschaften (SAGW) 2005 einen zweiten Anlauf zur Lancierung eines Fachportals für die Geschichtswissenschaften: Es ging 2009 unter dem Namen und der URL *infoclio.ch*[23] online.

[17] hist.net, <http://hist.net/> (19.06.2014).
[18] Peter Haber, persönliches Gespräch, geführt von Enrico Natale, Basel 13.06.2011.
[19] History Guide, Uni Göttingen, <http://aac.sub.uni-goettingen.de/geschichte/guide/> (19.06.2014).
[20] Clio-online, Fachportal für die Geschichtswissenschaften, <http://www.clio-online.de/> (19.06.2014).
[21] H-Soz-u-Kult, Kommunikation und Fachinformation für die Geschichtswissenschaften, <http://hsozkult.geschichte.hu-berlin.de/> (19.06.2014).
[22] Klaus Gantert, Elektronische Informationsressourcen für Historiker, Göttingen 2011, S. 199.
[23] infoclio.ch. Das Fachportal für die Geschichtswissenschaften der Schweiz, <http://www.infoclio.ch/de/home> (19.06.2014).

Fig. 4: *Screenshot: http://infoclio.ch, 19.5.2014*

Neben einer Plattform zur Publikation von Tagungsberichten, Rezensionen und Neuigkeiten zur geschichtswissenschaftlichen Forschung in der Schweiz bietet infoclio.ch verschiedene Recherchedatenbanken und weitere Dienstleistungsangebote für Historikerinnen und Historiker. infoclio.ch hat den Auftrag, den Zugang zu elektronischen Ressourcen für die Forschenden zu vereinfachen, die historische Forschung im Internet sichtbarer zu machen und das Potential und die Problematiken digitaler Medien für die Geschichtswissenschaften zu reflektieren.

Alles digital? Schauplätze und Akteure

Inzwischen hat sich das Digitale auf verschiedenen Ebenen in den Geisteswissenschaften etabliert: Bibliotheken und Archive erschliessen ihre Bestände digital und machen historische Quellen online verfügbar, an den Hochschulen werden neue Institutionen eingerichtet, die computergestützte Forschungsprojekte fördern und entsprechende Kompetenzen

vermitteln, und die wissenschaftspolitischen Akteure der Geisteswissenschaften diskutieren über neue Forschungsinfrastrukturen und Finanzierungsmodelle.

Archive und Bibliotheken – einfach zugänglich

Die Bibliotheken und Archive sind damit beauftragt, Quellen und Publikationen zu sammeln, aufzubewahren und zu vermitteln. Sie machen ihre Bestände für die Hochschulen und Forschungsinstitutionen zugänglich – zunehmend auch über digitale Wege.

Alle Hochschulbibliotheken und grösseren Archive der Schweiz haben ihre Bestände mittlerweile digital erschlossen und in Datenbanken und Katalogen durchsuchbar gemacht. Für die Recherche besonders hilfreich sind die Metasuchinstrumente, mit denen die Bestände mehrerer Institutionen gleichzeitig durchsucht werden können: Der Metakatalog *Swissbib*[24] bietet die Möglichkeit, die Bestände der Schweizerischen Nationalbibliothek (SNB) und der Hochschulbibliotheken zentral abzufragen. Über *Archives Online*[25] können die Datenbanken der SNB und mehrerer Archive gleichzeitig durchsucht werden. Memoriav, der Verein zur Erhaltung des audiovisuellen Kulturguts der Schweiz, verzeichnet in der *Memobase* die Bestände aus verschiedenen Gedächtnisinstitutionen. Die Weiterentwicklung dieser Datenbank soll einen direkten Zugang zu den audiovisuellen Dokumenten erlauben.[26] Darüber hinaus bestehen Metaverzeichnisse zu thematischen Bereichen: So bietet etwa *arCHeco*[27] ein Verzeichnis der in der Schweiz und in Liechtenstein aufbewahrten Wirtschaftsakten von Unternehmen, Verbänden, staatlichen Stellen und privaten Nachlässen. Virtuell zusammengeführt sind auch die *Kirchlichen Bestände in schweizerischen Archiven*[28] oder die Archivbestände zur schweizerischen Arbeiterbewegung im Webportal

[24] Swissbib, Metakatalog der Schweizer Hochschulbibliotheken und der Schweizerischen Nationalbibliothek, <https://www.swissbib.ch/Search/Home> (19.06.2014).

[25] Archivesonline, <http://www.archivesonline.org/search.aspx> (19.06.2014).

[26] Eine Beta-Version der erweiterten Memobase (<http://www.memobase.ch/>, 19.06.2014) ist bereits online.

[27] arCHeco. Verzeichnis der Wirtschaftsbestände in Archiven der Schweiz und Liechtensteins, <http://www.archeco.info/de/ueber-archeco/> (19.06.2014).

[28] Kirchliche Bestände in schweizerischen Archiven, <http://www.kirchen.ch/archive/projekt?la=d> (19.06.2014).

arbeiterbewegung.ch.[29]

Bezüglich der Digitalisierung historischer Bestände war die Mehrheit der Bibliotheken und Archive bis vor einigen Jahren zurückhaltend. Die föderalistischen Strukturen der Schweiz erschwerten den Aufbau einer koordinierten Digitalisierungspolitik zusätzlich, sodass die ersten grösseren Retrodigitalisierungsprojekte erst im Jahr 2006 in Angriff genommen wurden.[30] Das prominenteste und umfassendste Projekt wurde an der Bibliotheque Cantonale et Universitaire (BCU) in Lausanne durchgeführt, die als erste französischsprachige Hochschulbibliothek mit Google Books eine Kooperation einging und rund 100.000 Bücher online verfügbar machte.[31] Erwähnenswert ist auch die Digitalisierung amtlicher Quellen und Publikationen durch das Schweizerische Bundesarchiv (BAR), die über die Plattform *Amtsdruckschriften*[32] zugänglich sind. Digital verfügbar sind nicht nur schriftliche Publikationen und Quellen, sondern auch grössere Sammlungen von Karten[33] und Plänen, Bildern und Fotografien[34], Musiknoten[35] und Audioaufnahmen.[36] Das Projekt *Digicoord*[37] informiert umfassend über die abgeschlossenen und laufenden Digitalisierungsprojekte der Schweizer Bibliotheken und

[29] arbeiterbewegung.ch, <http://www.arbeiterbewegung.ch/> (19.06.2014).

[30] Peter Haber, Bücher im Netz. Das Projekt „Google Books" fasst nun auch in der Schweiz Fuss, Neue Zürcher Zeitung, 9. Juni 2007, <http://www.nzz.ch/aktuell/startseite/articleF7S2B-1.371243> (19.06.2014).

[31] Die digitalisierten Bücher sind ausschliesslich auf *Google Books* (<http://books.google.ch/bkshp?hl=de&tab=pp>, 19.06.2014) online verfügbar. Der Katalog der BCU Lausanne *réseau vaudois* (<http://opac.rero.ch/gateway?skin=vd>, 19.06.2014) verbindet die digitalisierten Bücher mit einem Direktlink auf Google Books.

[32] Amtsdruckschriften, <http://www.amtsdruckschriften.bar.admin.ch/> (19.06.2014).

[33] Historische und zeitgenössische Karten sind u.a. online verfügbar über *Kartenportal.CH* (<http://www.kartenportal.ch/>, 19.06.2014) oder *Euratlas – History and Geography of Europe and the World* (<http://www.euratlas.com/>, 19.06.2014).

[34] Grosse Bestände von digitalisierten Bildern und Fotografien sind u.a. verfügbar in *SIKART – Lexikon zur Kunst der Schweiz* (<http://www.sikart.ch/home2.aspx>, 19.06.2014), über die Plattform der ETH Zürich für Fotografien und Bilddokumente *e-pics* (<https://www.e-pics.ethz.ch/>, 19.06.2014) oder im Online-Archiv der Basler Mission *BM Archives* (<http://www.bmarchives.org/>, 19.06.2014).

[35] RISM-Schweiz erschliesst die handschriftlichen und gedruckten Noten und Schriften über Musik, <http://www.rism-ch.org/> (19.06.2014).

[36] Tondokumente werden insbesondere von der Schweizerischen Nationalphonothek gesammelt, <http://www.fonoteca.ch/> (19.06.2014).

[37] Digicoord. Informationsplattform zu den schweizerischen Digitalisierungsprojekten, <https://www.digicoord.ch/index.php/Accueil> (19.06.2014).

Archive.

Die digitalisierten Quellen und Publikationen stehen auf den Online-Portalen der einzelnen Bibliotheken und Archive bereit, sind aber mehrheitlich auch über Plattformen recherchierbar, die Bestände und Sammlungen aus mehreren Institutionen digital zusammenführen: Auf *retro.seals.ch*[38] stehen wissenschaftliche Zeitschriften aus verschiedenen Fachgebieten in retrodigitalisierter Form zur Verfügung; *e-codices*[39], die virtuelle Handschriftenbibliothek der Schweiz, bietet Zugang zu mittelalterlichen und frühneuzeitlichen Handschriften; seltene und wertvolle Drucke des 15. bis 19. Jahrhunderts sind auf *e-rara.ch*[40] virtuell vereint; weitere digitalisierte handschriftliche Quellen wie Briefe, Noten oder Bilder sind über *e-manuscripta*[41] zugänglich; Zugriff auf retrodigitalisierte Zeitungen eröffnet sich über *Schweizer Presse Online*[42] und in der *Schweizer Plakatsammlung*[43] können Plakate, die in verschiedenen Institutionen aufbewahrt werden, online recherchiert und angeschaut werden.

Seit Ende der 1990er-Jahre gibt es in der Schweiz Bestrebungen, eine flächendeckende elektronische Informationsversorgung aufzubauen.[44] Heute sind ein Grossteil der oben erwähnten Metakataloge und Plattformen sowie zahlreiche weitere Projekte über *e-lib.ch: Elektronische Bibliothek Schweiz*[45] miteinander verbunden.

[38] retro.seals.ch – digitalisierte Zeitschriften, <http://retro.seals.ch/digbib/home> (19.06.2014).

[39] e-codices – Virtuelle Handschriftenbibliothek der Schweiz, <http://www.e-codices.unifr.ch/de> (19.06.2014).

[40] e-rara.ch, <http://www.e-rara.ch/doc/home?lang=de> (19.06.2014).

[41] e-manuscripta.ch, Plattform für digitalisierte handschriftliche Quellen aus Schweizer Bibliotheken und Archiven, <http://www.e-manuscripta.ch/> (19.06.2014).

[42] Schweizer Presse Online, <http://newspaper.archives.rero.ch/olive/ODE/index_de.html> (19.06.2014).

[43] Schweizer Plakatsammlung, <http://ccsa.admin.ch/cgi-bin/gw/chameleon?skin=affiches&lng=de> (19.06.2014).

[44] Susanne Benitz / Nadja Böller, e-lib.ch: Elektronische Bibliothek Schweiz – Eine Erfolgsgeschichte?, in: B.I.T.online 16 (2), 2013, S. 97–102.

[45] e-lib.ch: Elektronische Bibliothek Schweiz, <http://www.e-lib.ch/de> (19.06.2014).

Fig. 5: *Screenshot: e-lib.ch, 19.5.2014*

Das dazugehörige Webportal e-lib.ch ist ein Einstiegspunkt für die simultane Recherche in den Beständen der Schweizer Hochschulbibliotheken und akademischen Einrichtungen. Es bietet einen zentralen Zugang zu den digital verfügbaren Ressourcen der insgesamt 20 Teilprojekte.[46] Das Projekt, dessen Leitung und Koordination an der ETH-Bibliothek[47] in Zürich angesiedelt ist, wird derzeit unter dem Namen P2 weiterentwickelt.

Hochschulen und Forschung – die grosse Vielfalt

Bis vor einigen Jahren zeigten die Universitäten wenig Interesse, die Geisteswissenschaften und die Computertechnologie miteinander zu verbinden. Initiativen zur Einbindung technologischer Anwendungen

[46] e-lib.ch: Elektronische Bibliothek Schweiz, Projekte, <http://www.e-lib.ch/de/Ueber-uns/Projekte> (19.06.2014).

[47] ETH Bibliothek, <http://www.library.ethz.ch/en> (19.06.2014).

in die geisteswissenschaftliche Forschung und Lehre gingen anfänglich von einzelnen Forscherinnen und Wissenschaftlern aus und blieben auf wenige Disziplinen beschränkt. Mittlerweile sind die digitalen Kommunikationskanäle und Werkzeuge aus dem wissenschaftlichen Arbeitsalltag nicht mehr wegzudenken. Darüber hinaus entstehen neue Institutionen und Projekte, die sich mit der Frage beschäftigen, wie der Computer in der Forschung und in der Lehre produktiv eingesetzt werden kann.

Die Etablierung der Digital Humanities an den Universitäten zeigt sich besonders in der Schaffung neuer Lehrstühle und Forschungszentren. Diese Institutionalisierung verläuft allerdings heterogen, was sich in der unterschiedlichen institutionellen Anbindung und den verschiedenen Forschungsschwerpunkten der neu geschaffenen Einrichtungen widerspiegelt:

Angebunden an die geisteswissenschaftliche Fakultät, beschäftigt sich das *Digital Humanities Lab*[48] der Universität Basel mit den Potentialen und Anwendungsfeldern der digitalen Geistes- und Sozialwissenschaften. Die Dienstleistungen und Forschungsprojekte des Digital Humanities Lab konzentrieren sich vor allem auf „Digitale Quellen", indem beispielsweise die virtuelle Forschungsumgebung *SALSAH*[49] aufgebaut wird, die es Forschenden erlaubt, wissenschaftlich mit retrodigitalisierten Quellen zu arbeiten.

Die Universität Lausanne schuf 2013 mit dem *Laboratoire de culture et humanités digitale (LADHUL)*[50] einen Raum, in dem sich Forschende, die an den digitalen Kultur- und Geisteswissenschaften interessiert sind, austauschen und zusammenarbeiten können. Das LADHUL ist an die sozial- und politikwissenschaftliche Fakultät angebunden, wird aber auch von der Fakultät der Geisteswissenschaften und jener der Theologie und der Religionswissenschaften mitgetragen. Entsprechend vielseitig sind die Tätigkeitsfelder der integrierten Projekte: Sie reichen von der Digitalisierung schriftlicher und audiovisueller Quellen über die

[48] Digital Humanities Lab, <http://www.dhlab.unibas.ch/index.php/de/> (19.06.2014).

[49] SALSAH, System for Annotation and Linkage of Sources in Arts and Humanities, <http://www.iml.unibas.ch/index.php/de/forschung/salsah> (19.06.2014).

[50] Laboratoire de cultures et humanités digitales de l'Université de Lausanne, <http://www.unil.ch/ladhul/page96485.html> (19.06.2014).

Auseinandersetzung mit dem Wissen im digitalen Raum, der Entwicklung von digitalen Tools bis hin zur Beschäftigung mit dem Einfluss der digitalen Kommunikations- und Informationstechnologien auf die sozialen Beziehungen. Das LADHUL bietet zudem Ausbildungsangebote für die Entwicklung und Anwendung digitaler Forschungsinstrumente und Präsentationsmöglichkeiten an.

An der Universität Bern fassten die Digital Humanities in Form des akademischen *Programms Digital Humanities @ Universität Bern*[51] Fuss, das Lehrveranstaltungen zu neuen Forschungsmethoden und Kooperationen mit bestehenden digitalen Projekten anbietet. Dieses Programm ist als Bestandteil des Kompetenznetzwerks Digitale Information, das auf die Forschung und die Lehre im Bereich der Informationswissenschaften ausgerichtet ist, interdisziplinär verflochten.[52]

Der erste explizit auf die Digital Humanities ausgerichtete Lehrstuhl wurde nicht an einer Universität, sondern an der EPFL eingerichtet. Das 2012 gegründete *Digital Humanities Laboratory (DHLAB)*[53] entwickelt computergestützte Anwendungen für die geisteswissenschaftliche Forschung und Lehre und vermittelt Kompetenzen zur Konzipierung und Umsetzung von Digital-Humanities-Projekten. Forschende aus verschiedenen geistes- und naturwissenschaftlichen Disziplinen arbeiten an der *Venice Time Machine*[54], einem Forschungsprojekt, das die Stadt Venedig und das maritime Imperium simulieren soll.

Forschungsprojekte, die mit computergestützten Methoden arbeiten oder ihre Quellen und Ergebnisse virtuell präsentieren, sind aber nicht nur an diesen neu eingerichteten, interdisziplinären Lehrstühlen und Forschungszentren angesiedelt, sondern auch an den traditionellen Institutionen. Zu nennen sind etwa das *Parzival-Projekt*[55], *Manuscrito digital de Juan Goytisolo*[56] und *HyperHamlet*[57], drei Beispiele aus den

[51] Digital Humanities @ Universität Bern, <http://www.dh.unibe.ch/> (19.06.2014).

[52] Universität Bern erhält Kompetenznetzwerk „Digitale Information", Universität Bern, 26.10.2012, <http://www.kommunikation.unibe.ch/content/medien/medienmitteilungen/news/2012/digitale_information/index_ger.html> (19.06.2014).

[53] Digital Humanities Laboratory (DHLAB), <http://dhlab.epfl.ch/> (19.06.2014).

[54] Venice Time Machine, <http://dhlab.epfl.ch/page-91073.html> (19.06.2014).

[55] Parzival-Projekt, <http://www.parzival.unibe.ch/home.html> (19.06.2014).

[56] Manuscrito digital de Juan Goytisolo, <http://goytisolo.unibe.ch/index.html> (19.06.2014).

[57] HyperHamlet: the cultural history of Shakespeare's play in quotations, <http://www.

Sprachwissenschaften. Die Vielfältigkeit der Projekte der digitalen Geschichtswissenschaften zeigte sich erstmals bei der von infoclio.ch im Jahr 2012 lancierten Ausschreibung Presenting History Online: 20 Projekte zu verschiedenen historischen Epochen wurden eingereicht, vier schliesslich finanziell unterstützt.[58] Über die Geschichtswissenschaften hinaus geht das *Verzeichnis laufender Digital-Humanities-Projekte*[59], das aus der Tagung „Digital Humanities: Neue Herausforderungen für den Forschungsplatz Schweiz" hervorging, die die SAGW im November 2013 organisierte.[60] Die Projekte reichen von der Digitalisierung von Bildern aus historischen Reiseberichten aus dem Alpenraum[61] über die Entwicklung eines Lehrkorpus für angehende Linguisten[62] bis hin zu einer Big-Data-Analyse[63], in der untersucht wird, ob die digitale Technologie die Demokratisierung fördert und die kulturelle und politische Partizipation erhöht.

Die Digital Humanities sind auch in der Lehre ein Thema: An den Hochschulen werden sowohl Bachelor- und Masterstudiengänge als auch Weiterbildungen angeboten. Eine *Übersicht über die Bildungsangebote von Schweizer Universitäten und Fachhochschulen im Bereich der*

hyperhamlet.unibas.ch/> (19.06.2014).

[58] Folgende vier Projekte, von denen drei inzwischen online sind, werden finanziell unterstützt: 14-18.ch (<http://14-18.ch/>, 19.06.2014) (Alexandre Elsig und Patrick Bondallaz, Université de Fribourg); App fontes (<http://www.adfontes.uzh.ch/1410.php>, 19.06.2014) (Christian DiGiusto, Universität Zürich); Espaces des savoirs (<http://www.espaces-des-savoirs.ch/>, 19.06.2014) (Sylvain Wenger, Université de Genève); Mémoires falashas (Charlotte Touati, Université de Lausanne).

[59] Schweizerische Akademie der Geistes- und Sozialwissenschaften. Digital Humanities: Infrastrukturen, Forschungsprojekte, Netzwerke, <http://www.sagw.ch/sagw/laufende-projekte/digital-humanities.html> (19.06.2014).

[60] Ein Überblick über die präsentierten Projekte und die Kurzfassungen der Referate sind auf der Tagungswebseite verfügbar: Digital Humanities: Neue Herausforderungen für den Forschungsplatz Schweiz, digital humanities sagw, o.D., <http://dh13.sagw.ch/dh13.html> (19.06.2014).

[61] Viaticalpes et Viatimages: un projet au coeur des humanités digitales, digital humanities sagw, o.D., <http://www.assh.ch/de/dh13/poster/poster/vaj.html> (19.06.2014).

[62] Hören, lesen, analysieren – ein Lehrkorpus für angehende Linguisten, digital humanities sagw, o.D., <http://www.assh.ch/de/dh13/poster/kurz-poster/dankel.html> (19.06.2014).

[63] Society 2.0. Demokratisierung und erhöhte Partizipation durch digitale Technologie – Ideologie oder Realität?, digital humanities sagw, o.D., <http://dh13.sagw.ch/de/dh13/poster/kurz-poster/keller.html> (19.06.2014).

Digital Humanities[64] ist im PDF-Format online verfügbar. In der Ausbildung werden die digitalen Instrumente und das Internet in zweifacher Hinsicht in die Geisteswissenschaften integriert: Einerseits durch die Vermittlung von Informations- und Recherchekompetenzen – beispielsweise mithilfe des Online Lehrmittels *compas – Strukturiertes Forschen im Web*[65], andererseits durch das Angebot von Online-Kursen[66] oder eLearning-Programmen. Digitale Lernangebote sind etwa die *Arabic Papyrology School*[67] für die Beschäftigung mit arabischen Originalquellen oder *Ad fontes*[68], das eine Einführung in den Umgang mit Quellen im Archiv bietet. Diesbezüglich sind auch die virtuellen Lernumgebungen zu erwähnen, die jedoch nicht spezifisch auf die Studierenden der Geisteswissenschaften ausgerichtet sind. Die meist genutzte Lernplattform ist das *Online Learning And Training* (OLAT)[69], das seit 1999 an der Universität Zürich entwickelt, mittlerweile aber auch an anderen Universitäten eingesetzt wird.

Das Interesse an den Digital Humanities führt verschiedene Disziplinen zusammen und geht über den universitären Kreis hinaus. Dies zeigte sich an mehreren Veranstaltungen, an denen neben Forschenden und Studierenden auch Vertreterinnen und Vertreter von Archiven, Bibliotheken und weiteren Institutionen teilnahmen: Neben der bereits erwähnten SAGW-Tagung sind insbesondere das *THATCamp*[70], das 2011 in Lausanne stattfand, und die 2013 in Bern durchgeführte *Digital Humanities Summer School*[71] zu erwähnen. Diese beiden interdiszi-

[64] Schweizer Bildungsangebote im Bereich Digital Humanities / Recensement de l'offre éducative en Suisse dans le domaine des Digitale Humanities, infoclio.ch, o.D., <http://www.infoclio.ch/sites/default/files/standard_page/final_liste_brochure131202.pdf> (19.06.2014).

[65] Compas. Strukturiertes Forschen im Web, <http://www.compas.infoclio.ch/de> (19.06.2014).

[66] Massive Open Online Course (MOOC) werden beispielsweise an der EPFL, Université de Genève oder an der Universität Zürich angeboten.

[67] ARABIC PAPYROLOGY SCHOOL (APS), <http://orientx.uzh.ch:8080/aps_test_2/home/index.jsp> (19.06.2014).

[68] «Ad fontes» – Eine Einführung in den Umgang mit Quellen im Archiv, <http://www.adfontes.uzh.ch/1000.php> (19.06.2014).

[69] OLAT - Online Learning And Training, <https://www.olat.uzh.ch/olat/dmz/> (19.06.2014).

[70] The Humanities and Technology Camp, THATCamp 2011, <http://switzerland2011.thatcamp.org/> (19.06.2014).

[71] Digital Humanities Summer School 2013, <http://www.dhsummerschool.ch/>

plinären und partizipativ ausgerichteten Veranstaltungen setzten sich aus Referaten und Workshops zusammen, in denen Anwendungs- und Programmierkurse angeboten, Projekte präsentiert und die Entwicklungen im Bereich der Digital Humanities reflektiert wurden. Auch das *Memoriav Kolloquium*[72] widmete sich 2013 den Digital Humanities und thematisierte die Rolle der audiovisuellen Dokumente in diesen. Eine weitere Gelegenheit, sich über die Fach- und Landesgrenzen hinaus zu vernetzen, bot sich den Digital Humanists vom 8. bis 11. Juli 2014 in Lausanne. *Digital humanities*[73] ist eine jährlich stattfindende, internationale Konferenz der Alliance of Digital Humanities Organizations (ADHO), die im Jahr 2014 von der EPFL und der Université de Lausanne zum Thema „Digital Cultural Empowerment" organisiert wurde.[74]

(19.06.2014).

[72]Memoriav, Kolloqium 2013, <http://de.memoriav.ch/service/news/newsdetails.aspx?id=4570622b-17a2-44c6-a66c-655b414c9e4f

[73]digital humanities, Lausanne – Switzerland '14, <http://dh2014.org/> (19.06.2014).

[74]Dieser Artikel wurde verfasst, bevor die Veranstaltung digital humanities(<http://dh2014.org/>, 19.06.2014) stattgefunden hat.

Fig. 6: *Die Teilnehmenden des THATCamps entscheiden vor Ort über das Programm. Bild: Serge Noiret: THATCamp organisation plenary session, Lausanne 11.11.2011. Online: Picasa - infoclio.ch, 19.5.2014.*

Das dazugehörige Webportal e-lib.ch ist ein Einstiegspunkt für die simultane Recherche in den Beständen der Schweizer Hochschulbibliotheken und akademischen Einrichtungen. Es bietet einen zentralen Zugang zu den digital verfügbaren Ressourcen der insgesamt 20 Teilprojekte. Die internationale Ausrichtung der Digital Humanities, die am THATCamp und an der Digital Humanities Summer School deutlich wurde, widerspiegelt sich in der Bildung von Netzwerken, die über die nationalen Grenzen hinausgehen. Die SAGW vertritt die Schweiz als assoziiertes Mitglied im Europäischen Netzwerk *Digital Research Infrastructure for the Arts and Humanities (DARIAH)*.[75] Seit 2013 laufen Vorbereitungen für eine volle Mitgliedschaft, aufgrund der aktuellen politischen Entwicklungen bezüglich der bilateralen Beziehungen zwischen der Schweiz und der EU ist der Ausgang dieser Verhandlungen

[75]DARIAH, Digital Research Infrastructure for the Arts and Humanities, <http://dariah.eu/> (19.06.2014).

allerdings wieder offen. Ebenfalls durch die SAGW vertreten wird die Schweiz in der Working Group EHumanities der *European Federation of Academies of Sciences and Humanities (ALLEA)*.[76] Zahlreiche Forschende aus der Schweiz arbeiten darüber hinaus in internationalen Netzwerken mit, beispielsweise im *Network for Digital Methods in the Arts and Humanities (NEDIMAH)*[77], in der *European Association of Digital Humanities (EADH)*[78], der *Association francophone DH* oder im *Verein Digital Humanities im Deutschsprachigen Raum*.[79]

Im Bereich des digitalen Publizierens entwickeln sich die digitalen Geisteswissenschaften der Schweiz im Vergleich zum Ausland und den Naturwissenschaften mit Verzögerung. Weil nach wie vor sowohl die Anerkennung durch die Fachwelt wie auch die entsprechenden Gefässe zur Veröffentlichung von wissenschaftlichen Arbeiten im Internet fehlen, gibt es bislang kaum geisteswissenschaftliche Online-Zeitschriften oder EBooks. Wenn wissenschaftliche Arbeiten überhaupt digital erscheinen, dann meist als PDF der gedruckten Publikationen und mit zeitlicher Verzögerung. Das Potential der neuen Publikationsformen und –foren wird in der Schweiz nicht ausgeschöpft. Eine der wenigen Ausnahmen bilden die *Quaderni di Dodis*[80], eine wissenschaftliche Publikationsreihe, in der die Forschungsgruppe Diplomatische Dokumente der Schweiz (DDS) Monographien, Aufsätze und Quellen zur schweizerischen Aussenpolitik herausgibt. Die Publikationen dieser Reihe können in verschiedenen Formaten heruntergeladen oder in Buchform als Print on Demand bestellt werden. Aufgrund der fehlenden digitalen Publikationsplattformen migrieren einige schweizerische Zeitschriften ins Ausland. Auf der französischen Plattform *OpenEdition*[81] werden beispielsweise derzeit dreizehn schweizerische Zeitschriften aus den Sozial- und Geisteswissenschaften publiziert.[82]

[76] ALLEA. ALL European Academies, <http://www.allea.org/> (19.06.2014).

[77] NeDiMAH. Network for Digital Methods in the Arts and Humanities, <http://www.nedimah.eu/> (19.06.2014).

[78] The European Association for Digital Humanities (EADH), <http://www.eadh.eu/> (19.06.2014).

[79] DHd - Digital Humanities im deutschsprachigen Raum, <https://dig-hum.de/> (19.06.2014).

[80] Quaderni di Dodis, <http://dodis.ch/de/quaderni> (19.06.2014).

[81] OpenEdition, <http://www.openedition.org/> (19.06.2014).

[82] OpenEdition, catalogue des revues & collections, Tri par pays de publication: Suisse, <http://www.openedition.org/4013> (19.06.2014).

Auch die Open-Access-Politik wird bisher nicht konsequent umgesetzt. Obwohl alle wichtigen Schweizer Wissenschaftsorganisationen die „Berliner Erklärung über den offenen Zugang zu wissenschaftlichem Wissen“[83] unterzeichnet haben und der Schweizerische Nationalfonds (SNF) seine Beitragsempfängerinnen und -empfänger seit 2007 zur Veröffentlichung ihrer Forschungsresultate im Internet verpflichtet[84], hat diese Regelung bisher nur wenig konkrete Resultate gebracht – dies gilt insbesondere auch für die Geschichtswissenschaften. Mit den neuen Bestimmungen des SNF vom Mai 2014[85], nach denen die geförderten Buchpublikationen nach zwei Jahren in Open Access zugänglich sein müssen, ist eine Veränderung der Situation absehbar. Fast alle Schweizer Hochschulen haben mittlerweile Repositorien eingerichtet.[86] Diese sind aber grösstenteils ungenügend entwickelt und wenig sichtbar, sodass das Ablegen der wissenschaftlichen Arbeiten unattraktiv und die Recherche in den Beständen mühsam bleiben.

Wissenschaftspolitik – vor der Entscheidung

Mit der Etablierung der Digital Humanities findet gleichzeitig eine auf nationaler Ebene geführte Diskussion über die Forschungsinfrastruktur statt. Ausgangspunkt bildet der Umgang mit den stetig wachsenden Beständen an digitalen Daten, den Digitalisaten und den genuin digitalen Quellen: Wie können die Daten und Ressourcen koordiniert und sichtbarer gemacht werden? Und wie bleiben sie langfristig erhalten und für nachfolgende Projekte nutzbar? Unklar bleibt indessen, was in den Geisteswissenschaften unter Forschungsinfrastruktur zu verstehen

[83] In der Berliner Erklärung werden die Wissenschaftlerinnen und Wissenschaftler der Unterzeichnerorganisationen aufgefordert, ihre Arbeiten so zu veröffentlichen, dass sie dauerhaft, kosten- und barrierefrei zugänglich sind. Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities, Max-Planck-Gesellschaft, Open Access, Berliner Erklärung, 22.10.2003, <http://openaccess.mpg.de/Berliner-Erklaerung> (19.06.2014).

[84] Open Access, Schweizerischer Nationalfonds, o.D. <http://www.snf.ch/de/derSnf/forschungspolitische_positionen/open_access/Seiten/default.aspx> (19.06.2014).

[85] Open Access-Regelung des SNF auf einen Blick, Schweizerischer Nationalfonds, o.D., http://www.snf.ch/SiteCollectionDocuments/Dossiers/dos_OA_regelung_auf_einen_blick_d.pdf> (19.06.2014).

[86] Eine Auflistung der akademischen Repositorien der Schweizerischen Hochschulen findet sich unter infoclio.ch, Open Access, <http://www.infoclio.ch/de/node/130345> (19.06.2014).

ist. Erschwert wird diese Frage dadurch, dass mit dem Label Digital Humanities geschmückte Initiativen die Grenzen zwischen Forschungsprojekten und Forschungsinfrastruktur verwischen. So blieb bisher offen, ob Fachportale, Quelleneditionen und Datenbanken im Bereich der Forschung, der Infrastruktur oder der Dienstleistung anzusiedeln sind.

Um die bestehenden Ressourcen und Angebote einzelner geisteswissenschaftlicher Fächer zu bündeln und sichtbarer zu machen, lancierten einige Fachgesellschaften wissenschaftliche Portale wie *Sciences-arts.ch*[87], das Fachportal für Kunst, Musik und Theater, *infoclio.ch*[88], das Fachportal für die Geschichtswissenschaften oder das *Fachportal Altertumswissenschaften Schweiz*.[89] Die Fachportale bieten Dienstleistungen an, übernehmen aber auch koordinative Funktionen, indem sie die Informationen und Ressourcen verschiedener wissenschaftlicher Einrichtungen, Forschungsprojekte und Webseiten zusammenführen.

Im Bereich der Geschichtswissenschaften werden auf nationaler Ebene zwei weitere Projekte zur webbasierten Verknüpfung der bestehenden Wissens- und Datenbestände entwickelt: *metagrid.ch*[90] ist ein Projekt zur Vernetzung geisteswissenschaftlicher Ressourcen. Datenbanken und Webseiten können über identische Personen, Körperschaften oder geografische Orte miteinander verlinkt werden.[91] Im Weiteren startet zeitgleich mit dem bevorstehenden Abschluss der gedruckten Ausgabe des Historischen Lexikons der Schweiz (HLS)[92] ein digitales Anschlussprojekt: Das *Neue HLS*, das voraussichtlich im Jahr 2017 bereit stehen wird, ist auf den Ausbau und die externe Vernetzung des bisherigen Online-Angebotes ausgerichtet.[93]

Die Sicherung und langfristige Verwendbarkeit der digitalen Daten

[87] Sciences-Arts. Fachportal für Kunst und Musik und Theater in der Schweiz, <http://www.sciences-arts.ch/?L=0&list_inst=> (19.06.2014).

[88] infoclio.ch, <http://www.infoclio.ch/de/home> (19.06.2014).

[89] Fachportal Altertumswissenschaften in der Schweiz, <http://www.ch-antiquitas.ch/antiquitas> (19.06.2014).

[90] metagrid, <http://metagrid.ch/> (19.06.2014).

[91] metagrid.ch, Diplomatische Dokumente der Schweiz, o.D., <http://www.dodis.ch/de/metagridch> (25.02.2014). Ein Prototyp dieses Webservices existiert bereits.

[92] Historisches Lexikon der Schweiz, <http://www.hls-dhs-dss.ch/index.php> (19.06.2014).

[93] Historisches Lexikon der Schweiz: Das neue HLS. Beschreibung betreffend Zukunft des Historischen Lexikons der Schweiz, o.O. 2010.

der geisteswissenschaftlichen Forschung stellt dagegen für die wissenschaftspolitischen Akteure eine grössere Herausforderung dar. Aus diesem Grund hat die SAGW 2009 eine Initiative zur Schaffung einer institutionenübergreifenden digitalen Infrastruktur lanciert. Ein Daten- und Dienstleistungszentrum soll den Zugang zu Forschungsdaten aus geisteswissenschaftlichen Projekten sicherstellen.[94] Unter der Leitung von Lukas Rosenthaler wird derzeit am Digital Humanities Lab der Universität Basel ein Konzept zur Schaffung des vorgeschlagenen Zentrums überprüft. Abhängig von den Resultaten dieses Pilotprojektes, könnte 2017 die Schaffung einer neuen nationalen Institution zur Verwaltung der Forschungsdaten in den Geisteswissenschaften in Angriff genommen werden.[95]

In eine ähnliche Richtung geht das von der Schweizerischen Universitätskonferenz (SUK) lancierte Projekt „Wissenschaftliche Information: Zugang, Verarbeitung und Speicherung (P2)“. Das mit 45 Millionen Schweizer Franken dotierte Projekt betrifft nicht nur die Geisteswissenschaften, sondern sieht die Reorganisation der gesamten Verwaltung der wissenschaftlichen Informationen vor. Bis Ende 2014 werden die ersten Resultate einer laufenden Projektausschreibung erwartet. Dieses Projekt macht deutlich, dass die digitalen Technologien einen tiefgreifenden Einfluss auf die Organisation der Forschung haben und eine ständige Erneuerung der etablierten Prozesse verlangen.[96]

Und schliesslich erweitert das Staatssekretariat für Bildung, Forschung und Innovation (SBFI), die „Schweizer Roadmap für Forschungs-

[94] Schweizerische Akademie der Geistes- und Sozialwissenschaften, Digitale Infrastrukturinitiative für die Geisteswissenschaften. Bericht zuhanden des Staatssekretariats für Bildung und Forschung, Bern 29.9.2009. Online: SAGW, Abklärungen zu einem Daten- und Dienstleistungszentrum für geisteswissenschaftliche Forschungsdaten, o.D., <http://www.sagw.ch/de/sagw/laufende-projekte/ddz.html> (23.02.2014).

[95] Weitere Informationen über die aktuellen Entwicklungen zur Schaffung eines Daten- und Dienstleistungszentrums für geisteswissenschaftliche Forschung sind online verfügbar: SAGW, Abklärungen zu einem Daten- und Dienstleistungszentrum für geisteswissenschaftliche Forschungsdaten, <http://www.sagw.ch/de/sagw/laufende-projekte/ddz.html> (19.06.2014).

[96] Berichte, Dokumente und Informationen über die weiteren Entwicklungen sind online verfügbar: Rektorenkonferenz der Schweizer Universitäten (CRUS), SUK-Programm 2013-2016 P-2 „Wissenschaftliche Information: Zugang, Verarbeitung und Speicherung“, <http://www.crus.ch/information-programme/projekte-programme/isci.html?L=2> (19.06.2014).

infrastrukturen“. Diese Roadmap, die die Finanzierung der grossen, nationalen Infrastrukturprojekte bestimmt, war bisher in erster Linie auf die Naturwissenschaften ausgerichtet. Dieses Jahr bewerben sich jedoch auch einige Projekte aus dem Bereich der Digital Humanities – etwa das Projekt Neues HLS oder das Daten- und Dienstleistungszentrum – um eine Integration in diese Roadmap.[97]

Mit dem Aufbau einer Forschungsinfrastruktur verbunden ist die Frage nach der langfristigen Finanzierung der Digital-Humanities-Projekte. Diese sind aufgrund der ständigen Veränderungen der digitalen Technologien und der Dienstleistungsangebote, die einige Projekte beinhalten, auf eine Langzeitbetreuung angewiesen. In der Schweiz gibt es bislang keine Finanzierungsmodelle, die auf die Eigenschaften dieser Projekte ausgerichtet sind. Auch der Schweizerische Nationalfonds (SNF), der für die Förderung der wissenschaftlichen Forschung und die Finanzierung von Projekten zuständig ist, hat bisher keine Programme für die Digital Humanities aufgebaut, unterstützt aber Langzeitprojekte aus dem Bereich der digitalen Editionen. Mit den Veränderungen, die das digitale Zeitalter mit sich brachte, hat der SNF beschlossen, die Unterstützung an Editionsprojekte neu zu organisieren, wobei diese künftig als Infrastrukturprojekte betrachtet werden. Im Januar 2014 hat der SNF eine „Bedarfsanalyse für geisteswissenschaftliche Editionsprojekte“ lanciert, die gleichzeitig als Bestandesaufnahme und als Grundlage zur zukünftigen Förderung von Editionsprojekten dient.[98]

Umstrittene Digital Humanities

Die Etablierung der Digital Humanities an den Universitäten und in der Wissenschaftspolitik bringt immer mehr Geisteswissenschaftlerinnen und -wissenschaftler dazu, sich kritisch mit dem neuen Phänomen auseinanderzusetzen. Obwohl sie gelegentlich als „sozialutopisches Projekt“[99] beschrieben wurden, das technowissenschaftliche Visionen

[97] Informationen über die weiteren Entwicklungen der Schweizer Roadmap sind online verfügbar: Staatssekretariat für Bildung, Forschung und Innovation SBFI, Schweizer Roadmap für Forschungsinfrastrukturen, <http://www.sbfi.admin.ch/themen/01367/02040/index.html?lang=de> (19.06.2014).

[98] Editionen, Schweizerischer Nationalfonds, o.D., <http://www.snf.ch/de/foerderung/infrastrukturen/editionen/Seiten/default.aspx> (19.06.2014).

[99] Michael Hagner / Caspar Hirschi, Editorial, in: David Gugerli / Michael Hagner / Caspar Hirschi (Hrsg.), Digital Humanities, Zürich 2013, S. 7.

mit Heilserwartungen in den Geisteswissenschaften verbinde, werden die Digital Humanities zunehmend als Forschungsfeld betrachtet, das mit einem kritischen Potential ausgestattet ist.

Peter Habers 2011 erschienene Monographie „Digital Past. Geschichtswissenschaften im digitalen Zeitalter“ ist eine der wichtigsten Beiträge zu den Digital Humanities. Haber beschäftigt sich in seinem Buch mit einer „Archäologie“ der digitalen Medien in den Geisteswissenschaften und diskutiert die möglichen Konsequenzen der technologischen Entwicklungen für die historische Disziplin. Einer der zentralen Punkte seiner Arbeit ist ein Plädoyer für eine erweiterte Quellenkritik, die auch die Medialität der digitalen Quellen berücksichtigt.[100]

In der Folge beschäftigten sich zwei Veranstaltungen, die 2011 und 2013 an der Université de Lausanne stattfanden, mit der Frage nach der Zukunft der Geisteswissenschaften im digitalen Zeitalter.[101] Dabei zeigte sich ein wiedergewecktes Interesse an der Geschichte der materiellen und sozialen Formen des Wissens, die den digitalen Medien vorausgingen. So hat die Beschäftigung mit dem Internet auch die Auseinandersetzung mit der Wissensvermittlung durch mündliche Überlieferungen, Handschriften, gedruckte Bücher und andere Medien angeregt. Die daraus folgenden Diskussionen und Untersuchungen bleiben nicht auf die Reflexion über den Mehrwert durch den Einsatz von digitalen Werkzeugen in den Geisteswissenschaften beschränkt, sondern nehmen die Vergangenheit als Ausgangspunkt, um die neuen Medien kritisch zu hinterfragen.

Damit verbunden ist auch die Frage, ob die Digital Humanities neue Fragestellungen und Hypothesen hervorbringen und wie diese allenfalls überprüft werden können. Diskutiert wird, inwiefern in den Geisteswissenschaften die Heuristik von den Verfahren der computergestützten quantitativen Analyse profitieren kann, oder ob diese vielmehr zu einer Verarmung der geisteswissenschaftlichen Forschungsansätze führen. Caspar Hirschi und Michael Hagner, die sich in der Einleitung

[100] Peter Haber, Digital Past. Geschichtswissenschaften im digitalen Zeitalter, München 2011, S.104–112.

[101] Claire Clivaz / Jérôme Meizoz / François Vallotton u.a. (Hrsg.), Lire demain: des manuscrits antiques à l'ère digitale, Lausanne 2012; Tagung: Les „Humanités Délivrées“: Cultures parlées, visuelles et écrites, réinventées hors du livre, organisiert von Claire Clivaz / Dominique Vinck / Frédéric Kaplan, Université de Lausanne, 1.–2.10.2013.

des neunten Züricher Jahrbuchs für Wissensgeschichte durchaus kritisch mit den Digital Humanities auseinandersetzen, sehen die Arbeit mit Big Data in Bezug auf neue Einsichten für einige Wissensbereiche als fruchtbar. Die „Kombination aus originellen Fragestellungen, digitaler Textanalyse, Lust an der Provokation und gründlicher Belesenheit" könne sich zu einem anregenden Forschungsansatz zusammenfügen.[102]

Die Entwicklung der digitalen Praktiken der Informationsrecherche und ihre epistemologischen Konsequenzen auf die Forschungsresultate sind ebenfalls Gegenstand des neuen Interesses. In Gedenken an Peter Haber, der im April 2013 frühzeitig verstorben ist, hat Philipp Sarasin in einem Artikel[103] die Frage nach dem Einfluss von Google auf die Informationsrecherche wieder aufgenommen, mit der sich Haber auseinandergesetzt hatte.[104] Thematisiert wird, dass die Historikerinnen und Historiker in der Regel kaum über ihre Arbeit im Archiv berichten. Im Gegensatz dazu erfordere die universelle Verwendung des World Wide Web als Rechercheinstrument von den Historikerinnen und Historikern eine vertiefte Reflexion über die Suche im Internet und die Verwendung von digitalen Ressourcen – immerhin sei man sich der Gefahr bewusst, Informationen zu konsumieren, die einem von Algorithmen serviert werden ohne zu wissen, wie sie ausgewählt wurden.

Sowohl die kritischen wie auch die befürwortenden Argumente bezeugen die Notwendigkeit, die Praktiken und Methoden der digitalen Forschung zu hinterfragen, denn diese werden auch in der Zukunft eine entscheidende Rolle in den Wissenschaften spielen. Ausgehend von dieser Feststellung beschäftigen sich auch die Historikerinnen und Historiker zunehmend nicht mehr nur mit der Produktion von digital verfügbarem historischem Wissen, sondern auch mit der Rolle der digitalen Medien für die Wissensproduktion.[105]

[102] Michael Hagner / Caspar Hirschi, Editorial, in: David Gugerli / Michael Hagner / Caspar Hirschi (Hrsg.), Digital Humanities, Zürich 2013, S. 9.

[103] Philipp Sarasin, Schlaue Maschinen. Peter Habers kritische Medienwissenschaft und unsere Lage im Netz heute, in: David Gugerli / Michael Hagner / Caspar Hirschi (Hrsg.), Digital Humanities, Zürich 2013, S. 191–199.

[104] Peter Haber, Digital Past. Geschichtswissenschaften im digitalen Zeitalter, München 2011, S.73–91; Peter Haber, «Google-Syndrom». Phantasmagorien des historischen Allwissens im World Wide Web, in: Angelika Epple / Peter Haber, Vom Nutzen und Nachteil des Internet für die historische Erkenntnis: Version 1.0, Zürich 2004, S. 70–98.

[105] Online-Nachweise für die Abbildungen: Abbildung 1: <http://www.e-pics.ethz.ch/index/ETHBIB.Bildarchiv/ETHBIB.Bildarchiv_Ans_03681_8405.html>; Abbildung 2: <http://www.e-pics.ethz.ch/index/ETHBIB.Bildarchiv/ETHBIB.Bildarchiv_Ans_00353_238.html>; Abbildung 4: <https://infoclio.ch/de/home>; Abbildung 5: <http://e-lib.ch/de/>; Abbildung 6: <https://picasaweb.google.com/infoclio.ch/THATCampSwitzerland20115675255732056535426>.

A historical perspective on the digital humanities in Spain

von Paul Spence und Elena Gonzalez-Blanco

Origins[1]

The field now called Digital Humanities can lay claim to a long history in the Spanish-speaking world, with landmark international collaborations such as *BOOST* („the Bibliography of Old Spanish Texts"), which initially emerged in the 1970s to explore the application of computer-based methodologies to the study of the Spanish language, and were then extended to provide bibliographies for medieval and early modern texts from the Iberian Peninsula under the umbrella project „Philobiblon"[2]. These were fundamentally U.S.-based projects but lay the foundation for the milestone „Admyte"[3] project and involved leading Spanish scholars such as Francisco Marcos Marin, who in 1994 published one of the first books about computing and the humanities in Spain. What followed were years of isolated research projects, often with a strong philological focus, but also encompassing bibliographic studies, multimedia and other forms of digital scholarship. Some of these projects – such as the „Miguel de Cervantes Digital Library"[4] and the Spanish Royal

[1] This article does not pretend to be a comprehensive review of the full history of the digital humanities in Spain, which is still to be written (and re-written in a Borgesian sense), although readers could do worse than read Rojas Castro's recent historical survey of the field through its bibliography; Antonio Rojas Castro, El mapa y el territorio. Una aproximación histórico-bibliográfica a la emergencia de las Humanidades Digitales en España, 2013, in: <http://revistacaracteres.net/revista/vol2n2noviembre2013/el-mapa-y-el-territorio/> (16.07.2014).

[2] <http://bancroft.berkeley.edu/philobiblon/history_en.html> (16.07.2014).

[3] <http://www.admyte.com> (16.07.2014).

[4] <http://www.cervantesvirtual.com/> (16.07.2014). See also Alejandro Bia / Andrés Pedreño, The Miguel de Cervantes Digital Library: the Hispanic Voice on the Web, in: Literary and Linguistic Computing 16, 2 (2001), pp. 161–177, for a historical perspective on the digital library's early work in the field of digital humanities.

Academy's *CORDE* and *CREA* project[5] – enjoyed major institutional support (occasionally with significant private funding), but many were promoted by small teams of researchers enthused by the new innovations made possibly by relational database technology and electronic markup in the 1980s and 1990s.

Fig. 1: *Screenshot of the Biblioteca Cervantes Virtual, 12.05.2014*

Some of this research connected strongly to concepts of „humanities computing"[6] or its Italian equivalent „informatica umanistica"[7], and the

[5] <http://corpus.rae.es/cordenet.html> (16.07.2014).

[6] This period also saw substantial involvement in related endeavours such as the Text Encoding Initiative (TEI), where, for example, Alejandro Bia formed part of the TEI Board 2003–2006.

[7] With a notable influence from figures such as Tito Orlandi, Francesca Tomasi and Domenico Fiormonte, among others.

Spanish term „informática humanística" grew in currency[8], although many who made substantial contributions to digital scholarship in the humanities, such as José Luis Canet Vallés[9], who was one of the pioneers in electronic journals, have not necessarily always self-identified as digital humanists.

Much activity in humanities computing (from now on we will use the term digital humanities, which has largely replaced it) in Spain has centred on philology, and favouring language-based research over literary research[10], often focusing on the Spanish Golden Age. Examples include the „Golden Age Digital Library"[11], the „Andrés de Poza" project[12], the *ARTELOPE* project[13], the „Bibliography of Spanish Women Writers"[14], the „Bibliography of Spanish Literature since 1980"[15], the *REMETCA* project[16] the *ATENEA* project[17] and project *TESORO*.[18]

Although rather less connected to digital humanities than in its infancy (in Spain as elsewhere) there has been particular historic strength in computational linguistics and other computer-based techniques covering all of the languages spoken in Spain: some examples include the lexicographic databases of the Spanish Royal Academy *CREA* and *CORDE*[19], research into the Basque language by the IXA group involv-

[8] José Manuel Lucía Megías, La informática humanística: una puerta abierta para los estudios medievales en el siglo XXI, in: Revista de poética medieval 20 (2008), accessible at <http://eprints.ucm.es/8942/1/05–.pdf> (16.07.14).

[9] José Luis Canet Vallés, La evolución de las revistas digitales, at: Seminar „Humanidades Digitales: Edición y Difusión", Universidade da Coruña, 2–3 July 2012, <http://www.bidiso.es/sielae/upload/estaticas/file/CANET2%281%29.pdf> (16.07.2014).

[10] Sagrario López Poza, Humanidades digitales hispánicas, in: Cincuentenario de la AIH, A Coruña, 2014 (forthcoming).

[11] <http://www.bidiso.es> (16.07.2014).

[12] <http://andresdepoza.com/> (16.07.2014).

[13] <http://artelope.uv.es/> (16.07.2014).

[14] <www.bieses.net> (16.07.2014).

[15] <http://ble.chadwyck.co.uk/> (16.07.2014).

[16] <http://www.uned.es/remetca/> (16.07.2014).

[17] <http://www.proyectoatenea.es/> (16.07.2014).

[18] <http://www.bib.uc3m.es/~nogales/xml/tesoro/> (16.07.2014).

[19] See Aurora Martín de Santa Olalla Sánchez, Una propuesta de codificación morfosintáctica para corpus de referencia en lengua española, in: Estudios de lingüística del español 3 (1999), accessible at <http://elies.rediris.es/elies.html> (16.07.2014); or Mercedes Sánchez Sánchez and Carlos Domínguez Cintas, El banco de datos de la RAE: CREA y CORDE, in: Per Abbat: boletín filológico de actualización académica y didáctica

ing *NLP*[20], the *CICA corpus* of old Catalan[21] and the Centro Ramón Piñeiro, with the database *MedDB*.[22] Similarly, information library and science projects have played overlapping if not always precisely coterminous roles in advancing digital scholarship (the Instituto de Cultura y Tecnología Miguel de Unamuno, with its broader focus on human culture and technology, the Tecnodoc research group and the influential figure of Antonio Rodríguez de las Heras, all at Universidad de Carlos III[23], have been especially relevant here) and some landmark projects such as *PARES*[24] (which provides access to the digital holdings of Spanish archives) and *HISPANA*[25] (which follows OAI principles in connecting digital holdings throughout Spanish archives, libraries and museums) have played a key part in broader digitisation initiatives.

2 (2007), pp. 137–148.

[20] <http://ixa.si.ehu.es/Ixa> (16.07.2014).

[21] <http://www.cica.cat/> (16.07.2014).

[22] <http://www.cirp.es/pls/bdo2/f?p=MEDDB2> (16.07.2014).

[23] <http://portal.uc3m.es/portal/page/portal/instituto_cultura_tecnologia_miguel_unamuno> (16.07.2014).

[24] <http://pares.mcu.es/> (16.07.2014).

[25] <http://roai.mcu.es/es/estaticos/contenido.cmd?pagina=estaticos/presentacion> (16.07.2014).

Fig. 2: *Sreenshot of website of HISPANA, 12.05.2014*

The portal *PCDig*[26], which explores connections between art, technology and digital culture, and is led by Nuria Rodríguez Ortega of the University of Malaga, is one of the more prominent illustrations of the spread of digital humanities beyond its textual roots in Spain and of the growing convergence of research into digital humanities and digital culture. And specific domains offer more focused applications of technology to humanities teaching and research, although again here there may be no formal identification with the digital humanities: examples include the „Sociedad Española de Arqueología Virtual“ (SEAV)[27], which serves as an umbrella for a number of initiatives in digital archaeology in Spain, and the „Hispania Epigraphica“ project[28], which offers a database of Roman Inscriptions from the Iberian Peninsula.[29]

[26] <http://patrimonioyculturadigital.uma.es/pcdig> (16.07.2014).

[27] <http://www.arqueologiavirtual.com/> (16.07.2014).

[28] <http://eda-bea.es/pub/contact.php> (16.07.2014).

[29] The reasons for a lack of formal identification with the „digital humanities“ label vary from country to country and from partner discipline to another, but while serious academic research often emerges, these reasons appear to be more related to pragmatic con-

Notably, there have been few experiences in teaching digital humanities as a subject, although the now defunct online Masters programme in Digital Humanities[30] (and associated programmes) at the University of Castilla La Mancha UCLM, Spain, which was led by Concha Sanz Miguel and ran with some success 2005–2011, was crucial in establishing digital humanities as a subject of study in its own right in Spain, and in cementing bonds between many scholars and practitioners in the field.

The state of the art

This brief summary of digital humanities activity in Spain is by no means comprehensive. It shows the range and depth of digital humanities initiatives in Spain over the years, but this activity neither constitutes smooth and unchallenged development – Lucía Megías observes moments of relative silence[31] – nor does it constitute a recognisable whole in its current form, but rather a series of loosely interwoven patches of digital scholarship and technical development. Spanish digital humanists have generally not received the kind of international attention afforded by some of their counterparts in other fields related to digital culture (such as Laura Borràs in digital literature), although they have played important roles in some initiatives with a Southern European focus (such as the CLiP seminar which operated around the turn of the millennium[32]) and have responded well to certain initiatives such as „Who are you, Digital Humanists?" survey, where respondents living in Spain ranked fourth in the list of participants by country.[33]

This picture of relatively disconnected initiatives has changed significantly in the last few years, and this transformation is particularly visible in the number of events (including meetings, seminars, workshops and conferences) exploring the relationship between humanities and digital technology, which has accelerated since 2011. In February of that year a conference was held in Barcelona on humanities and the internet from a medieval perspective („Humanidades en la Red: mundo medieval")[34], which provided both a link back to the origins of digital humanities in Spain (through the Catalan language project *Biteca*, incorporated under *Philobiblon*) and forward through a common reflection on the state of the art in digital scholarship in the humanities at that moment in time. 2011 also saw a *THATCamp* in Madrid[35], an international seminar on digital libraries and Spanish literary research databases at the Universidad Complutense in Madrid[36]), a workshop in „Digital Art History" at the University of Malaga and two seminars in digital edition (one organised by Carmen Isasi at the University of Deusto[37], and the other by Sagrario López at the University of A Coruña[38]) which were to be crucial in laying the seeds of a Hispanic[39] association in digital humanities[40], followed by a meeting in Elche in November 2012[41], where the new association „Humanidades Digitales Hispánicas"[42], or Hispanic Digital Humanities, was formally presented. Earlier that year, the Mexican organisation RedHD („Red de Humanidades Digitiales",

siderations than academic ones. Jeremy Huggett, Core or Periphery? Digital Humanities from an Archaeological Perspective, in: Controversies around the Digital Humanities. A special issue from Historical Social Research/Historische Sozialforschung Vol. 37,3 (2012), pp. 86–105, for example argues that „Digital Humanities is seen as being better-placed to respond to the kind of large-scale collaborative research programmes increasingly favoured by funding bodies, and as more oriented towards public engagement within funding regimes increasingly emphasising „impact".

[30] <http://www.mhd.posgrado.uclm.es/> and <http://masterhumanidadesdigitales.wordpress.com/> (16.07.2014).

[31] José Manuel Lucía Megías, La informática humanística: una puerta abierta para los estudios medievales en el siglo XXI, in: Revista de poética medieval 20 (2008), accessible at <http://eprints.ucm.es/8942/1/05–.pdf> (16.07.2014).

[32] <http://www.cch.kcl.ac.uk/clip2006/> (16.07.2014).

[33] <http://blog.homo-numericus.net/article11138.html> (16.07.2014).

[34] <http://www.biteca.net/sim2011/index.html> (16.07.2014).

[35] <http://madrid2011.thatcamp.org/> (16.07.2014).

[36] Seminario Internacional sobre Bibliotecas Digitales y Bases de Datos Especializadas para la Investigación en Literaturas Hispánicas (BIDESLITE), whose proceedings are summarized at <http://eprints.ucm.es/21207/>, and from which the project Red Aracne <http://www.red-aracne.es> arose (16.07.2014).

[37] <http://carmenisasi.es/2011/simposio-sobre-edicion-digital-de-textos-multiples/> (16.07.2014).

[38] <http://www.dfel.udc.es/upload/estaticas/file/Carteseminarioteidef.pdf> (16.07.2014).

[39] It is worth noting that the term „hispanic", while having slightly different connotations to its Spanish equivalent „hispánica", does however share some of the ambiguities which allow for different interpretations along geographic, cultural or disciplinary boundaries.

[40] Sagrario López Poza, Humanidades digitales hispánicas, in: Cincuentenario de la AIH, A Coruña, 2014 (forthcoming).

[41] <http://dhw.umh.es/humdig2012/> (16.07.2014).

[42] <http://www.humanidadesdigitales.com> (16.07.2014).

or „Digital Humanities Network“ in full)[43] had organised the first major international conference on Digital Humanities in Spanish in May 2012[44], but the first conference in Digital Humanities in Spain did not take place until May 2013 at the University of Navarre[45], with themes related to research visibility and dissemination. This was followed by the inaugural conference „HDH2013“ (with the theme „Digital Humanities: challenges, achievements and future perspectives“) of the newly-formed HDH association, in A Coruña in July 2013.[46]

The HDH2013 conference brought together 103 attendees, with 59 papers and posters accepted from nine different countries (Canada, Colombia, France, Italy, Mexico, Portugal, Spain, Switzerland and the United States) and covering a wide range of subject matter, including lexicology, digital libraries, art history, information retrieval, pedagogy, e-learning, digital edition, crowdsourcing, text encoding, digital archives and preservation. In addition to the papers, posters and a pre-conference workshop called „Digital Humanities: focal points and applications“, the conference hosted roundtable discussions about the state of digital scholarship in Spain, the institutional requirements to ensure that digital humanities research achieves due recognition and strategies for promoting education in the field, and the conference ended with the formal constitution of HDH as an international association promoting Spanish language Digital Humanities.

A year of intense activity ended with a *THATCamp* on digital humanities and social sciences organised in Granada[47] and a series of seminars taking a critical look at the digital humanities at the University of Salamanca throughout the autumn.[48]

In addition to these conferences and seminars, there have been numerous other initiatives including a Spanish language edition of the „Day of Digital Humanities“ event in June 2013, called „Día de humanidades digitales“[49] hosted by the UNAM university in Mexico but co-ordinated by a number of institutions in Spain, Portugal and Latin America, and involving 56 bloggers.

Finally, it is worth noting a number of events not directly labelled under digital humanities, but nevertheless with strong overlap, such as the fourth edition of the „Learnovation day IV: ‚Digital Humanities'“[50] (an initiative mainly focused on e-learning) with „digital humanities“ as its theme, organised by Centro Superior para la Enseñanza Virtual (CSEV) and Universidad Nacional de Educacica a Distancia (UNED), the main distance learning university in Spain.

Another area which has seen a recent surge of activity is the scholarly journal, with a number of journals which include digital humanities themes emerging in the last few years, although there is still no formal journal for digital humanities in Spain or in Spanish at this moment in time. Current journals in Spain covering DH themes include Janus (fundamentally relating to Golden Age studies)[51], „Digithum“ (focusing on humanities in the digital age)[52], „Scriptum digital„ (about digital edition and computer-based historical corpora in Ibero-Romance languages)[53] and the Caracteres journal (which covers critical cultural studies in the digital age).[54] Recent years have seen an increasing number of special editions of conventional journals dedicating special issues to digital themes, such as the „Anuario Lope de Vega“, which dedicated its twentieth volume to „Digital and Critical Editions“[55] or the forthcoming issue of „Profesional de la Información“.[56]

What is striking is that there are, as yet, very few books about the field in Spain, or indeed, in Spanish, and those that exist, with the possible exception of „Elogio del texto“ by Lucía Megías[57] (which is in any case essentially a rather broader essay on the history and future of text),

[43] <http://humanidadesdigitales.net/> (16.07.2014).
[44] <http://www.humanidadesdigitales.mx/index.php/encuentro> (16.07.2014).
[45] <http://www.unav.edu/congreso/humanidades-digitales/> (16.07.2014).
[46] <http://hdh2013.humanidadesdigitales.org/> (16.07.2014).
[47] <http://grinugr.org/noticias-de-eventos/i-jornadas-de-ciencias-sociales-y-humanidades-digitales-de-la-universidad-de-granada/> (16.07.2014).
[48] <http://medialab.usal.es/blog/humanidades-digitales/> (16.07.2014).
[49] <http://dhd2013.filos.unam.mx/> (16.07.2014).
[50] <http://www.eventoscsev.org/learnovation/?page_id=1184> (16.07.2014).
[51] <http://www.janusdigital.es/> (16.07.2014).
[52] <http://journals.uoc.edu/ojs/index.php/digithum/> (16.07.2014).
[53] <http://scriptumdigital.org/> (16.07.2014).
[54] <http://revistacaracteres.net/> (16.07.2014).
[55] <http://revistes.uab.cat/anuariolopedevega/issue/view/v20> (16.07.2014).
[56] <http://www.elprofesionaldelainformacion.com> (16.07.2014).
[57] José Manuel Lucía Megías, El elogio del texto, Madrid 2012.

are mostly edited volumes such as the recently published monograph based on the HDH2013 conference or „Ciencias Sociales y Humanidades Digitales“ („Digital Humanities and Social Sciences“).[58]

Perhaps not surprisingly, there is rather more to report in the realm of informal publications, especially with blogs such as „Filología Digital“ by Javier Espejo Surós[59], „Investigar y Redactar en la Red“ by José Manuel Fradejas[60], „Morflog“ by Elena Azofra[61], Unweaving the web/Destejiendo la red by Esteban Romero[62] and „Filología e innovación en Humanidades digitales“ by Elena González-Blanco[63].

There is no doubt, that at the time of writing (early 2014), there is substantial interest in the digital humanities in Spain, but, as elsewhere, the growth in interest has not served to provide a stable account of the broader academic contribution of the digital humanities, nor to establish a stable location within the broader academic enterprise. There is little sign, as yet, of the kind of long-lasting epistemic angst common in Anglophone digital humanities[64], but the surge in interest, notably including considerable attention from information scientists, has served to raise questions about the core epistemic commitments. Should, for example, the field be expanded to cover the social sciences, as is the case in the forthcoming book on e-research and collaborative research[65] which looks at Digital Cultures from the perspective of the Social Sciences and Humanities, the focus of research by the *GrinUGR* group? What is the relationship between digital humanities and other

[58] <http://grinugr.org/grin/adelanto-de-publicacion-del-libro-ciencias-sociales-y-humanidades-digitales/> (16.07.2014).

[59] <http://fildigital.hypotheses.org/> (16.07.2014).

[60] <http://investigaryredactar.blogspot.com.es/> (16.07.2014).

[61] <http://morflog.hypotheses.org/> (16.07.2014).

[62] <http://estebanromero.com/> (16.07.2014).

[63] <http://filindig.hypotheses.org/> (16.07.2014).

[64] See for example Stephen Ramsay's blogpost of 2013 „DH Types One and Two“, <http://stephenramsay.us/2013/05/03/dh-one-and-two/> (16.07.2014) or the writings of Willard McCarty, including „Humanities computing as interdiscipline“, 1999, <http://www.iath.virginia.edu/hcs/mccarty.html> or his Busa prize presentation „Getting there from here: Remembering the future of digital humanities“, <http://www.youtube.com/watch?v=nTHa1rDR680> (16.07.2014).

[65] Esteban Romero / María Sánchez (eds.), Ciencias Sociales y Humanidades Digitales: técnicas, herramientas y experiencias de e-research e investigación en colaboración, forthcoming, accessible at <http://grinugr.org/grin/adelanto-de-publicacion-del-libro-ciencias-sociales-y-humanidades-digitales/> (16.07.2014).

fields interested in the effects of digital technology on human culture?[66] Can „digital humanities“ function as a formal discipline (or interdisciplinary/transdisciplinary area) within Spanish academia, or is it simply a label of convenience for a series of discussions and practices which explore the fast-moving but ultimately long-lasting transitions brought about by the complex relationship between human enquiry and digital cultures and technology?

Institutional challenges

Institutional recognition has been a major obstacle to the advancement of the digital humanities in Spain until the present time, and there is little evidence that this will change much in the foreseeable future. There is little or no official recognition or support from the national ministry or regional councils, from the various funding regimes in operation in Spain, or from those responsible for formal academic accreditation, and this is exacerbated by the rather more formal and inflexible structures which make interdisciplinary collaboration much more difficult. We note, in particular, the sharp divide between the academic researcher (who leads the research but supposedly does not „need“ to engage properly with the technologies) and the technologist (who performs a supporting „service“ role), and this is one of the many reasons why there has been far less of an emphasis on building tools in digital humanities in Spain than has been the case in many English-speaking countries[67], with digital innovations typically resulting from fragile and unstable partnerships with computational science researchers offering their time on a volunteer basis or from commercial agreements with software companies.[68] Neither is there a strong connection with innovations in the GLAM (Galleries, Libraries, Archives and Museums) sector

[66] Paul Spence, Centros y fronteras: el panorama internacional de las humanidades digitales, in: Humanidades Digitales: desafíos, logros y perspectivas de futuro, ed. Sagrario López Poza y Nieves Pena Sueiro, Janus [online], Anexo 1 (2014), pp. 37–61, available at http://www.janusdigital.es/anexos/contribucion.htm?id=6 (16.07.2014).

[67] As observed, for example by Priani in his review of the HDH2013 conference: Ernesto Priani, blogpost 27 July 2013, „España y las humanidades digitales“, in: <http://humanidadesdigitales.net/blog/2013/07/27/espana-y-las-humanidades-digitales/> (16.07.2014).

[68] With a few notable exceptions, such as the international collaboration Succeed <http://succeed-project.eu/> (16.07.2014).

(such as Spanish National Library/BNE's linked data research project[69]), where digital humanists have largely been marginal, with honourable exceptions (such as the early stages of the „Biblioteca Virtual Miguel de Cervantes"). While Spanish cultural heritage institutions typically play a role in the major international consortia and initiatives such as Europeana, The European Library and the World Digital Library, Spain is typically absent from equivalent initiatives relating to digital infrastructure in the arts and humanities (such as *NeDiMaH*[70] or *DARIAH*[71]), and under-represented in international digital humanities fora such as *ADHO*[72] or *EADH*.[73]

[69] <http://datos.bne.es/> (16.07.2014).
[70] <http://www.nedimah.eu/Contributing-Organisations> (16.07.2014).
[71] <http://dariah.eu/about/our-partners.html> (16.07.2014). This contrasts with its participation in the European body associated with language resources and technologies, CLARIN, where Spain has been highly active <http://clarin-es.iula.upf.edu/es/< (16.07.2014).
[72] <http://adho.org/> (16.07.2014).
[73] <http://eadh.org/> (16.07.2014).

Fig. 3: *Screenshot of the Linked data project at the BNE, 12.05.2014*

In teaching too, the coverage of digital humanities has been patchy and inconsistent, with no formal digital humanities teaching since the unexpected suspension of the UCLM's online Masters in Digital Humanities in 2011 at the height of the financial crisis in Spain (with no apparent suggestion that this was a decision based on academic criteria) although there are now plans to introduce a Masters in DH at the Universidad Autónoma de Barcelona[74] and a number of postgraduate courses do exist in overlapping areas, such as the Masters in Digital Library and Information Services at the Universidad Carlos III de Madrid[75] or the Specialisation in Digital Art History at the University of Malaga.[76] There

[74] <http://dhd2013.filos.unam.mx/masterhd/> (16.07.2014).
[75] Máster en bibliotecas y servicios de información digital <http://portal.uc3m.es/portal/page/portal/postgrado_mast_doct/masters/Master_Bibliotecas_y_Servicios_Informacion_Digital> (16.07.2014).
[76] <http://historiadelartemalaga.es/cehad/> (16.07.2014).

has been rather more success in organising unofficial courses and workshops, often with a practical component, including the workshop in digital humanities held at the HDH2013 conference[77] and the forthcoming DH@Madrid Summer School, part of a series of new initiatives in digital humanities soon to be offered by UNED, including a new Diploma.[78]

The move to establishing events and other activities formally identified under the „digital humanities" banner has helped to compensate for the poor representation of the field at a formal institutional level, and the establishment of professional associations, and in particular HDH, has no doubt made a significant contribution to the consolidation of digital humanities as a field in the Spanish context. Also filling this vacuum are a number of domain-specific communities of practice such as the TC12 partnership for research involving Spanish early modern theatre studies[79] or the CHARTA network, led by Pedro Sánchez Prieto-Borja, which unites research into the history of the Spanish language, although any technical innovations here are highly dependent on major grants.[80]

As Priani[81] has shown, the kind of interdisciplinary centre common in some countries is hard to formalise within Spanish academic structures, which are firmly marked by disciplinary boundaries, although one area where this kind of research has flourished (with different degrees of connection to the digital humanities) is within the Institute, Laboratory or MediaLab models applied in MediaLab USAL (Salamanca)[82], MediaLab Prado[83], GrinUGR[84], CCCBLAB[85] and Instituto de Cultura y Tecnología Miguel de Unamuno de la Universidad Carlos

[77] <http://hdh2013.humanidadesdigitales.org/estaticas/ver.htm;jsessionid=AF3FE3DB47864B575A1503F7258591F1?id=8> (16.07.2014).

[78] <http://www.uned.es/humanidadesdigitales> (16.07.2014).

[79] <http://tc12.uv.es/> (16.07.2014).

[80] <http://www.charta.es/> (16.07.2014).

[81] Ernesto Priani, blogpost 27 July 2013, „España y las humanidades digitales", in: <http://humanidadesdigitales.net/blog/2013/07/27/espana-y-las-humanidades-digitales/> (16.07.2014).

[82] <http://medialab.usal.es/blog/humanidades-digitales/> (16.07.2014).

[83] <http://medialab-prado.es/> (16.07.2014).

[84] <http://grinugr.org/> (16.07.2014).

[85] <http://blogs.cccb.org/lab/es> (16.07.2014).

III.[86] These satellite entities have more autonomy but are to a greater or lesser degree detached from the core academic structure. Some entities show strong leanings towards private enterprise, such as the Tecnodoc research group[87], or Liceus[88], which provides education programmes on a commercial footing, while independent foundations like the Ignacio Larramendi have also played key roles in related areas of digital scholarship.[89]

Until recently, there has been no identifiable centre which specifically identifies itself as a digital humanities centre in Spain, in spite of the calls of people like Lucía Megías[90] for a formal institutional presence of this kind, but there are signs that this may be changing, with the creation of LINHD (Laboratorio de Innovacion en Humanidades Digitales), launched in April 2014 as a hub for developing projects, offering information and orientation to researchers and preparing teaching programs to boost DH in Spain, with a strong Linked Data component.[91].

It is impossible to list all the initiatives which have arisen in Spanish digital humanities in the last years, but the lack of centralised information about the field has led to numerous attempts to catalogue or publicise them[92] and researchers like Rojas have started to fill the historiographical gap with his article mapping the territory of Spanish digital humanities from a bibliographic perspective[93] (in part based on

[86] <http://portal.uc3m.es/portal/page/portal/instituto_cultura_tecnologia_miguel_unamuno> (16.07.2014).

[87] <http://klingon.uc3m.es/drupal/en/node/7> (16.07.2014).

[88] <http://www.liceus.com/formacion/publica/index.asp> (16.07.2014).

[89] <http://www.larramendi.es> (16.07.2014).

[90] José Manuel Lucía Megías, La informática humanística: una puerta abierta para los estudios medievales en el siglo XXI, in: Revista de poética medieval 20 (2008), accessible at <http://eprints.ucm.es/8942/1/05–.pdf> (16.07.14).

[91] <http://linhd.uned.es> (30.04.2014).

[92] Including the GRINUgr atlas of digital humanities <http://grinugr.org/>, the PCDig portal <http://patrimonioyculturadigital.uma.es/mapa-PCDig>, and the summary maintained infrequently by one of the authors of this article <http://hd.paulspence.org/recursos/hh-dd-es/> (16.07.2014).

[93] See also Elena González-Blanco García, Actualidad de las Humanidades Digitales y un ejemplo de ensamblaje poético en la red: ReMetCa, in: Cuadernos Hispanoamericanos 761 (2013), pp. 53–67, accessible at <http://www.academia.edu/5068889/Actualidad_de_las_Humanidades_Digitales_y_un_ejemplo_de_ensamblaje_poetico_en_la_red_ReMetCa> (16.07.2014).

research carried out within a Zotero group created by the author and dedicated to the field from a Spanish perspective[94]).

Towards a definition of digital humanities in Spain

We might ask why the field of digital humanities has suddenly started to gain traction in the last few years. Why now? Without any doubt, part of the answer lies in broader technological changes, which have had a profound impact on the Spanish society's relationship with digital culture, not to mention on scholarly communications (including a sudden and rising perception of a huge divide between knowledge creation in academia and in society at large), although we also wish to highlight some factors which are only now starting to be researched properly.

In 2006, Isabelle Leibrandt[95] asked if „humanidades digitales" was science fiction or an imminent reality. Now there can be little doubt that digital humanities has a role to play in Spain, but the question is what that will be, and up to now there has been little attempt to define an intellectual agenda for the digital humanities in Spain or in Spanish, although that has recently started to change.[96]

In the information sheet for the digital humanities workshop organised in Elche in December 2012, digital humanities was described as an area of study, research, teaching and innovation which is at the intersection between technology and humanities, defined broadly, but focusing on digitisation and the analysis of materials related to traditional disciplines in humanities[97]. The distinction between digitisation and digital humanities research is not always clear in Spain (as is the case to a greater or lesser extent elsewhere) and the historical bias towards text-based disciplines is still evident[98], with a particular bias

[94] <https://www.zotero.org/groups/humanidades_digitales> (16.07.2014).

[95] Isabelle Leibrandt, Humanidades digitales, ¿ciencia ficción o realidad inminente?, in: Espéculo. Revista de estudios literarios (2006), accessible at <http://pendientedemigracion.ucm.es/info/especulo/numero33/humadigi.html> (16.07.2014).

[96] Sagrario López Poza, Humanidades digitales hispánicas, in: Cincuentenario de la AIH, A Coruña, 2014 (forthcoming); Esteban Romero / María Sánchez (eds.), Ciencias Sociales y Humanidades Digitales: técnicas, herramientas y experiencias de e-research e investigación en colaboración, forthcoming, accessible at <http://grinugr.org/grin/adelanto-de-publicacion-del-libro-ciencias-sociales-y-humanidades-digitales/> (16.07.2014).

[97] Translation by Spence.

[98] Rojas Castro notes for example, that the eight founding members of HDH were researchers from philology or literature; Antonio Rojas Castro, El mapa y el territorio. Una aproximación histórico-bibliográfica a la emergencia de las Humanidades Digitales en España, 2013, in: <http://revistacaracteres.net/revista/vol2n2noviembre2013/el-mapa-y-el-territorio/> (16.07.2014).

towards language[99], but recent developments have seen much stronger connections to an open scholarship agenda and to a broader sense of belonging to a global knowledge economy.

What is important for the digital humanities in Spain is that there has also been a growing sense that the field can both address the technical deficit in the humanities[100] and offer a dialogue about the effects of digital culture on changing economic and academic conditions[101], with one important strand taking a critical look at multicultural perspectives within the digital humanities, and focusing on the role of non-Anglophone academic communities in digital knowledge creation.[102]

Spanish digital humanities still faces significant challenges in the years ahead. In spite of recent positive developments, the field still suffers from a degree of atomisation, lacks a clear identity and is in urgent need of more communication channels across disciplines, across career stages and across human/technological knowledge spaces. The academic system does not currently favour the development of the kind of interdisciplinary collaboration which is central to the digital humanities elsewhere, and organisations such as HDH will need to lobby hard for research to be recognised: recognition for digital humanities work

[99] Sagrario López Poza, Humanidades digitales hispánicas, in: Cincuentenario de la AIH, A Coruña, 2014 (forthcoming).

[100] In the words of José Manuel Lucía Megías, El elogio del texto, Madrid 2012, providing academic humanities scholars a chance to recover a social space which they consistently lost over the course of the twentieth century, and to recuperate a dynamic role in knowledge creation within society. Sagrario López Poza, Humanidades digitales hispánicas, in: Cincuentenario de la AIH, A Coruña, 2014 (forthcoming).

[101] Cf. Patrik Svensson, The digital humanities as a humanities project, in: Arts and Humanities in Higher Education 11 (2012), pp. 42–60.

[102] See, for examples, Amelia Sainz Cabrerizo at a MediaLab Prado lecture Digital Humanities or Hypercolonial Studies, in: March 2013 <http://medialab-prado.es/mmedia/10614/view> (16.07.2014). This has significant resonance with broader multicultural agendas, including the Latin American perspective provided by Galina, who in her keynote speech to DH2013 started to outline some of the challenges in envisioning a truly global field of digital humanities, asking if DH is as open and universal as it claims to be; Isabel Galina blogpost 19 July 2013, Is There Anybody Out There? Building a global Digital Humanities community, <http://humanidadesdigitales.net/blog/2013/07/19/is-there-anybody-out-there-building-a-global-digital-humanities-community/> (16.07.2014).

by peers exist at disciplinary level, but is fragmented, and at national level many digital outcomes are not formally recognised properly by national (ANECA) or regional councils, and underplay the collaborative role of digital humanists mediating between humanities and technology. Similarly, thought will need to be given to opportunities for early career researchers[103] and to career incentives/paths for digital humanists, something identified way back in 2002 as a challenge.[104]

The discovery of a new play attributed to Lope de Vega play previously assumed to be missing by the Spanish researcher Alejandro García-Reidy early in 2014 demonstrated the wider potential value of the digital humanities in developing innovative research methods and tools for the humanities which may have a clear broader social impact. The newly discovered play was a result of two research projects, one based in the U.S.[105] and the other led by Teresa Ferrer at the University of Valencia, whose *CATCOM* database of Spanish theatre performances in the early modern period[106] alerted Reidy to the play in the first place, and its publication by the Prolope research group has garnered both significant public attention and academic debate.[107]

There are both reasons to be optimistic and pessimistic about the future of the digital humanities in Spain in the near future, and the tension between the dynamics pushing for (including innovation, connection to wider digital cultural changes in society and perceived facilitation of public engagement) and against (academic traditions, political realities and lack of consensus over its concrete academic contribution) the advancement of the field, is far from resolved. The institutional and infrastructural challenges are significant, but the combination identified by Rodríguez-Yunta[108] of an ample demand for humanities-focused

[103] „Young Researchers in Digital Humanities: A Manifesto" is one recent initiative in this area, <http://dhdhi.hypotheses.org/1855> (16.07.2014).

[104] Ángela Celis, El humanista como tecnólogo del futuro, in: Lamusa 2002, 1, pp. 31–34, accessible at <http://bit.ly/1AYiVNh> (16.07.2014).

[105] <http://manosteatrales.org/> (16.07.2014).

[106] <http://catcom.uv.es/> (16.07.2014).

[107] <http://cultura.elpais.com/cultura/2014/02/03/actualidad/1391459859_701623.html> (16.07.2014).

[108] Luis Rodríguez-Yunta, Las humanidades digitales, ¿una mera etiqueta o un campo por el que deben apostar las ciencias de la documentación?, in: Notas ThinkEPI 2013, 12 September 2012, <http://www.thinkepi.net/humanidades-digitales-etiqueta-campo-apostar-ciencias-documentacion>, (16.07.2014).

sources and documentation, the benefit of a permanent reflection on its own epistemology at a time of rapid and significant cultural transformations and the implied role of the humanities in „humanizing" technology augurs well for a field which offers both practical and reflective perspectives on digital culture and technology.

The Slovenian Digital Humanities Landscape ? A Brief Overview

von Jurij Hadalin

When thinking of a status quo in the field of Digital Humanities in Slovenia (in wider humanist professional circles still an unknown term) one can see a remarkable progress on the one side, but also gets the feeling that its penetration into scholarly and student circles remains remarkably low and at times even painful. The level of the reception of new methods and tools can be described with an anecdote that occurred a few months ago in the process of submitting project proposals for grants to the Slovenian Research Agency. One research proposal was based on an application of computer linguistic methodology to the collection of digitised stenographical minutes of the Slovenian Parliament. The aim of the project was to ensure a computer readable and advanced tagged corpus, which would allow excerpting shapes of the main problems of the Slovenian society in the last 35 years. The project was prepared in a cooperation of historians and linguists from the Jozef Stefan Institute[1] (the biggest and most influential Slovene technical research institution). A digitally mature, but methodologically very conservative historian of the younger generation was listening to the conversation and said in pejorative tone that this meant turning history into „html history". Especially because almost all mentioned material was already digitised and available in PDF format. At that point no one even bothered to point out that we are talking about „xml history" and the fact that OCR is not the same as computer readable. Not to mention that a „find" button, although helpful, is not exactly at the peak of new technology.

[1] JSI – Institut „Jozef Stefan", <http://www.ijs.si/ijsw/JSI> (25.07.2014).

But such technical „mumbo-jumbo“ should not and in fact does not bother the huge majority of the researchers who use many different digital resources daily, mostly online. Since I am here to describe not only a current state of art, but also to give a short review of the last 20 years of Slovenian Digital Humanities, I should mention that our state was founded almost exactly 23 years ago. We celebrated the 20th anniversary of modern Internet in Slovenia last November. 21 years ago the first Slovenian server started to operate at the afore-mentioned Jozef Stefan Institute[2], thus enabling to spread the activities of the Academic and Research Network of Slovenia (Arnes), which is the main public institution that provides network services to organizations in the field of research, education and culture.[3] Today's average rate of regular internet users in Slovenia in the age group from 10 to 74 years is around 70 per cent.[4] In the beginnings of the computer era it was of course much lower, but it seems that Slovenians are getting attracted to the new media regardless of age - it only depends on the digital contents that a respectful organization is willing to share. And here we come to the slippery parquet of politics which dominates some aspects of Slovenian public life, since several aspects of our history are still the issues of daily politics and thus public interest. At the Institute of Contemporary History, we offer a wide range of digital contents, but only one was constantly in the centre of public interest – a database named *„Smrtne žrtve med prebivalstvom na obmocju Republike Slovenije med drugo svetovno vojno in neposredno po njej“*.[5] On the other hand a platform called „Videolectures“ was developed at Jozef Stefan Institute, publishing scholarly lectures in a video format which was met with

[2]Mineva 20 let od spletnega strežnika s prvimi slovenskimi stranmi: Prvi interaktivni multimedijski portal, MMC RTV Slovenija, <http://www.rtvslo.si/znanost-in-tehnologija/mineva-20-let-od-spletnega-streznika-s-prvimi-slovenskimi-stranmi/323599> (25.07.2014).

[3]ARNES homepage, <http://www.arnes.si/en.html> (25.07.2014).

[4]RIS – Raba Interneta v Sloveniji, <http://www.ris.org/c/1184/Uporabniki_interneta_/?preid=656> (25.07.2014).

[5]Tadeja Tominšek Cehulic, Mojca Šorn, Marta Rendla, Dunja Dobaja, Smrtne žrtve med prebivalstvom na obmocju Republike Slovenije med drugo svetovno vojno in neposredno po njej (Death Toll in the Population on the Territory of the Republic of Slovenia during WWII and Immediately Afterwards), <http://www.sistory.si/zrtve> (25.07.2014).

instant success in Slovenia and abroad.[6]

As in other parts of Europe, first serious attempts to include computer methods in the scientific research in non-technical disciplines were used in the Social Sciences, which remain a very important player to this day. Early beginnings of the Slovenian Data Archive *„Archive of Social Science Data“*[7] (established in 1997) can be traced in the first attempt to measure public opinion in the socialist world in 1968 at today's Faculty of Social Sciences in Ljubljana. A still existing longitudinal study of Slovenian public opinion provided a vast quantity of raw data, which is now also an important source for historians. Early and rather widespread use of computing methods can also be seen as the reason for starting the only informatics graduate and master university program in the non-technical disciplines in Slovenia today, namely Social Informatics at the above mentioned faculty.[8]

Digital Humanities showed on the horizon later, at the beginning of the 1990s. Some pioneers/computer enthusiasts started to think about the use of newly available methods, most remarkably in the field of ethnology.[9] The other discipline which grasped new ideas quickly was literary history. The loudest voice in the first years belonged to Miran Hladnik from the Faculty of Arts in Ljubljana, who has been introducing Digital Humanities in curricula since 2009, which is probably the only serious attempt at such action in Slovenia until now. In his wiki on Digital Humanities Hladnik names most of the researchers in Slovenia that identify themselves as digital humanists. The number, although maybe not complete (I miss a few names), does not reach more than 30 persons.[10] Slovenia may be a small country where everyone is familiar with his neighbours and colleagues, but taking into account the number of events, meetings and agendas that I attended,

[6]Videolectures.net. Exchange ideas and share knowledge, <http://videolectures.net/> (25.07.2014).

[7]Arhiv družboslovnih podatkov, <http://www.adp.fdv.uni-lj.si> (25.07.2014). Slovenia is also a CEESDA member, with Archive of Social Sciences Data as partner.

[8]Monika Kalin Golob / Anton Grizold (eds.), Fakulteta za družbene vede: 50 let znanosti o družbi. Založba FDV, Ljubljana:2011, <http://www.fdv.uni-lj.si/docs/50-let/50-let-znanosti-o-druzbi.pdf?sfvrsn=4> (25.07.2014).

[9]See bibliography of Jurij Fikfak.

[10]Miran Hladnik, Digitalna humanistika na Slovenskem – Wikiverza (13. 12. 2013), <http://sl.wikiversity.org/wiki/Digitalna_humanistika_na_Slovenskem> (25.07.2014).

the circle of researchers seriously involved in the Digital Humanities is, indeed, rather „intimate“. Luckily the number of users of digitised and Digital Humanities material is increasing rapidly and thus incensing the interest of researchers and enthusiasts, and allows a more steady production. Literary historians at the Research Centre of the Slovenian Academy of Sciences and Art (SRC SASA)[11] are heavily responsible for the usage of new methods, since they started to publish online critical editions of older literary works, introducing the TEI standard (Text Encoding Initiative) in Slovenia for the first time. In cooperation with the linguist Tomaž Erjavec and the literary comparatist Jan Jona Javoršek from Jozef Stefan Institute, many smaller, but groundbreaking projects emerged and are still growing. One of the best known results is the digital edition of the Slovenian biographical lexicon.[12] Even the merit for the introduction of the term Digital Humanities in the Slovenian language goes, according to Miran Hladnik, to the member of the literary historian/linguist club Matija Ogrin, who introduced the term in a foreword to a book of proceedings from the „Scientific Editions and Electronic Media“ conference in 2005.[13] Together with Tomaž Erjavec he also received a Google Digital Humanities Research Award for his work on critical editions in 2010.[14]

As is seen in the European Digital Humanities community, also in Slovenia groundbreaking work was done by the linguists. Slovenia is not a member of CLARIN at the moment, although this research infrastructure is enlisted in the Slovenian Research Infrastructure Development Plan 2011–2020.[15] Slovenian CLARIN was left out of financing at the beginning, but financial support was promised for the near future. A series of projects was done in the last 20 years in this field. The most useful project, which has been funded for the past 15 years by differ-

[11] Institute of Slovenian Literature and Literary Studies, <http://isllv.zrc-sazu.si/en/predstavitev#v> (25.07.2014).

[12] Now merged into a new project, called Slovenian biography portal, <http://www.slovenska-biografija.si/> (25.07.2014).

[13] Matija Ogrin, Uvod. O znanstvenih izdajah in digitalni humanistiki. Ljubljana 2005, <http://nl.ijs.si/e-zrc/bib/eziss-Ogrin_Matija.pdf> (25.07.2014).

[14] Matija Ogrin, Biography, <http://isllv.zrc-sazu.si/en/sodelavci/matija-ogrin-en#v> (25.07.2014).

[15] Nacrt razvoja raziskovalnih infrastruktur 2011–2020, <http://www.arhiv.mvzt.gov.si/fileadmin/mvzt.gov.si/pageuploads/pdf/znanost/RISS/NRRI.pdf> (25.07.2014).

ent research projects, is a text corpus of written and spoken Slovenian language which is now embedded under the name *„GigaFida“* into the web portal *Slovenščina.eu*.[16] The Slovenian language has around two million speakers and it is necessary to keep up with the technical development to ensure the future use of this language, which could eventually be extinct in the digital environment. One of the motors of the Slovene digital linguisticic community, Simon Krek, once plastically described how lagging behind digital standards of bigger languages could affect the Slovenian language in the future: Our fancy new talking refrigerators simply would not want to speak Slovenian.

Speaking of text corpora and their use we should mention the fact that the awareness of the existence of copyright and its management came to the Slovenian research and cultural heritage circles very late. But while the use of copyrighted material to produce the corpora did not raise any problems, the newly introduced right of a person to be forgotten and the very strict policy on the protection of sensitive personal data hindered the use of corpora, since the Information Commissioners Office issued an Act that forbade searching for personal names.[17] The Act was focused on the corpus *„Nova beseda“*[18], which is part of the activities of the Fran Ramovš Institute of the Slovenian Language at SRC SASA.[19] Insensible provisions which gave the creators a lot of headache were later annulled and today the base is searchable for names and their collocations (surnames) without restrictions.

[16] Slovenščina.eu homepage, <http://eng.slovenscina.eu/> (25.07.2014).

[17] Odlocba Informacijskega pooblašcenca Republike Slovenije št. 0612-63/2012/5 z dne 05.07.2012, <http://www.lenartkucic.net/wp-content/uploads/2012/07/Institut_za_slovenski_jezik-Odlocba_ZIN-anonim.pdf> (25.07.2014).

[18] Fran Ramovš Institute of Slovenian Language ZRC SAZU Corpus Laboratory Nova beseda, <http://bos.zrc-sazu.si/a_beseda.html> (25.07.2014).

[19] Inštitut za slovenski jezik Frana Ramovša, <http://isjfr.zrc-sazu.si/en/predstavitev#v> (25.07.2014).

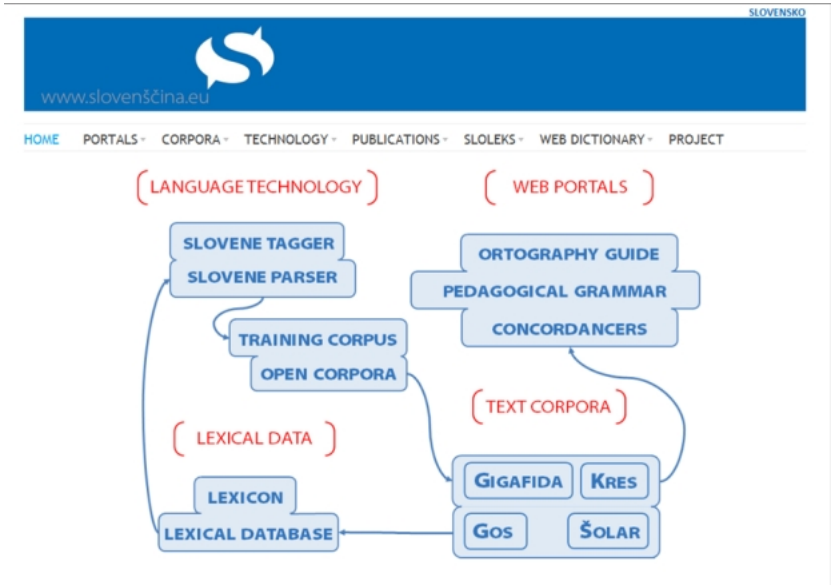

Fig. 1: *Screenshot of the Slovenscina Portal: http://slovenscina.eu, 21.06.2014*

An even wider debate on Digital Humanities began in the second half of 2013 not in scientific or specialized journals, but in the daily newspapers. Since the middle of the 19th century the position of the Slovenian language was calm, when the Alphabet Dispute from the early days of national romanticism[20] ended with the quick victory of Gaj's Latin alphabet. In 2013 a new dispute arose concerning the making of the new dictionary of Slovenian written language. The Slovenian government finances only one group of linguists at the Fran Ramovš Institute, whose methodology is conservative and tends to perfect accuracy, but is also much slower when trying to catch the rapid changes in the Slovenian language, spoken or written. A rival group, inspired by Digital Humanities methodology, proposed to consider making new vocabulary in a modern way, using digital methods, tools and even crowdsourcing. Following this way, new vocabulary could be better adapted to the present

[20]Slovenska abecedna vojna, <http://sl.wikipedia.org/wiki/Slovenska_abecedna_vojna> (25.07.2014).

reality and would be – by the way – much cheaper to make. Even more important was that the rival group, gathered around the Institute Trojina[21], opposed the restrictive use of data for the dicitonary project and demanded open access to all data. Dictionaries/vocabularies made at the Scientific Research Centre of the Slovenian Academy of Sciences and Arts (SRC SASA) are usually first published as printed volumes and are offered in digital form later. Even access to the latest online version of the vocabulary project is still restricted.[22] The same problem applies to the fact that the methodology is also used in the process of updating the grammar.[23] The dispute is still unresolved, although even the minister of culture gave a clear signal that efforts should be conjoined[24], awaiting new financial schemes for the research programs in 2015. A „war", as the minister said, put changes in methodology into the very centre of the public sphere. Interestingly, the conservative approach was usually more likely to be defended by journalists and established researchers.[25]

Considering the very vivid Digital Humanities scene in some disciplines and some efforts in the others, a very typical differentiation is showing in the Slovenian Digital Agenda. Namely, research and higher education is under the aegis of one ministry, while the cultural sphere (libraries, archives etc. – ergo cultural heritage) belongs to another ministry's field of duties. Cultural heritage, which is essential for research in the humanities, was mostly digitised in vast quantities by the network of public libraries, led by the National and University Library

[21]Trojina, Institute for Applied Slovene Studies, <http://www.trojina.si/en> (25.07.2014).

[22]Inštitut za slovenski jezik Frana Ramovša ZRC SAZU. Slovar slovenskega knjižnega jezika, <http://bos.zrc-sazu.si/sskj.html#naslovnica> (25.07.2014).

[23]Simon Krek, Slovenski pravopis: Ali je pilot v letalu? <http://www.simonkrek.si/blog/blog_pilot.html> (25.07.2014).

[24]Maja Megla / Uroš Grilc, Kriticno razpravo jemljem zelo resno. Delo, Sobotna priloga, 16.11.2013, <http://www.delo.si/zgodbe/sobotnapriloga/uros-grilc-kriticno-javno-razpravo-jemljem-zelo-zares.html> (25.07.2014).

[25]„The work (of Zavod Trojina) bears a stamp of effort to replace the content credibility with the technological approaches." In: Ada Vidovic Muha, Slovenščina na preizkušnji slovaropisja in univerze. Delo, Književni listi, 09.12.2013, <http://www.delo.si/kultura/knjizevni-listi/slovenscina-na-preizkusnji-slovaropisja-in-univerze.html> (25.07.2014). The last critical reflection was published in the leading Slovenian daily newspaper Delo. Simon Krek, Papirnata slovenščina. Delo, Književni listi, 07.02.2014, <http://www.delo.si/mnenja/gostujoce-pero/papirnata-slovenscina.html> (25.07.2014).

(NUL) in Ljubljana.[26] NUL is also a partner in Europeana and has established a digital library „dLib“[27], which is a central point for digitised material in Slovenia and entrance point into the Europeana network. Regional libraries are publishing materials important for local studies in the *Kamra.si* platform.[28] The needs of the research community are not always on top of the digitisation agenda, and a centralized platform for scholarly print, mostly journals, has not been established at a national level, although some efforts were made in 2012 when the ministries were merged for a short time.[29] Copyrighted material is a very problematic field, since the use of Creative Commons licensing is rare, collecting permissions for digital reuse non existing and online publishing still seen as second grade in much of the humanist research community. It is still common to hold back the publication of PDF versions of journals for at least three years to keep traditional audiences, since the number of subscribers to printed publications is decreasing - sometimes also due to availability of digital resources online. The official policy of the funding body for scholarly periodicals, the Slovenian Research Agency, is to finance only periodicals whose publishers give a digital copy of a journal to the repository of the National and University Library, but these can be withheld from public use. Some attempts at publishing digital scholarly publications in the up-to-date manner using an Open Journals platform were made in the last two years by the publishing house of SRC SASA. In 2014 the publishing department of Ljubljana's Academy of Arts started with an online collection of 12 digital editions of scientific journals using a translated version of the Open Journal System.[30] Some researchers tried to promote their work also by guerrilla projects of republishing their older works in digital formats on popular commercial platforms[31], while some maintain small digital libraries in

[26]Narodna in univerzitetna knjižnica, Ljubljana, <https://www.nuk.uni-lj.si/> (25.07.2014).

[27]dLib.si. Digitalna knjižnica Slovenije, <http://www.dlib.si/> (25.07.2014).

[28]Kamra.si. Digitalizirana kulturna dediščina slovenskih pokrajin, <http://www.kamra.si/> (25.07.2014).

[29]A project website announces a 404 failure two years after its establishment, <http://www.jakrs.si/portal_znanstvenih_in_literarnih_revij/> (25.07.2014).

[30]ZRC založba, <http://zalozba.zrc-sazu.si/#v> (25.07.2014) and Revije Filozofske fakultete Univerze v Ljubljani. At: http://revije.ff.uni-lj.si/ (21.06.2014).

[31]See works of Andrej Pleterski in iTunes store,

very different technological quality, comparing the TEI based *eZMono* project[32] with the technologically less advanced Digital Library of the Educational Research Institute.[33]

A well maintained bibliographical service is extremely important for Digital Humanities activities. In Slovenia, it is provided by the public Institute Izum from Maribor. The *Cobiss* platform is a user friendly, multitasking and centralized bibliographical catalogue. It was also one of the most successful Slovenian exports, since the *Cobiss* platform is also used in Bulgaria, Bosnia and Herzegovina, Montenegro, Macedonia, Serbia, Kosovo and Albania.

Fig. 2: *Screenshot http://www.cobiss.net/, 21.06.2014*

<https://itunes.apple.com/be/artist/andrej-pleterski/id497687122?mt=11> (25.07.2014).

[32]eZMono: Elektronske znanstvene monografije, <http://ezb.ijs.si/fedora/get/ezmono:ezmono/VIEW/> (25.07.2014).

[33]Digitalna knjižnica. Digitalna, netiskana uredniško-izdajateljska platforma, <http://www.pei.si/Sifranti/StaticPage.aspx?id=27> (25.07.2014).

The joint *Cobbis.net* platform enables parallel browsing through all catalogues of partner countries. *Cobiss* is also a vantage point for *SICRIS*[34], a platform for gathering information on researchers and their publications. The System is managed by Izum and the Slovenian Research Agency. A very interesting project emerged from the *SICRIS* data called *ScienceAtlas*, which is a web portal exploring the scientific community in Slovenia. *ScienceAtlas* integrates data about researchers, projects and organizations from different sources and provides tools for visualizing collaboration and competences of the researchers.[35] A specialized citation index for historiography and related disciplines was established in 2007, named HIC (History citation index), since national humanities rarely enter into global citations indexes. The HIC provides a good database for future bibliographic references.[36]

Fig. 3: *Screenshot http://www.sistory.si/, 21.06.2014*

[34]Slovenian current research information system, <http://www.sicris.si/default.aspx?lang=eng> (25.07.2014).

[35]Atlas slovenske znanosti, <http://scienceatlas.si/> (25.07.2014).

[36]Zgodovinarski indeks citiranosti – ZIC, <http://www.sistory.si/zic> (25.07.2014).

The Slovenian Research Infrastructure Development Plan 2011–2020[37] provides (besides the unfinanced CLARIN) only one ESFRI project in the humanities, namely DARIAH. Another important initiative in this field, the Europeana project, is not directly a part of the plan, since it covers a field which is in the domain of the Ministry of Culture, thus leaving Slovenia outside the Europeana Cloud.[38] The Slovenian DARIAH branch develops as a collaboration of the two leading institutions in the field of Digital Humanities, SRC SASA and the Institute of Contemporary History (ICH). When the national DARIAH project SIDIH (Slovenian Digital Infrastructure for Humanities and Arts)[39] was planned, the question of relatively unorganized and technically very unevenly developed repositories and collections emerged. A serious question of compatibility was solved by introducing a web browser, which is based on relatively simple architecture using the OAI-PMH harvester for metadata, which are harvested in an adapted Dublin core metadata scheme. The problem of unorthodox or even nonexisting metadata, nothing unusual in the wave of hurried digitisation typical for the first decade of the new millennium, was a bit simplified and the main activities of SIDIH-DARIAH were pointed to raise the awareness of the research community on metadata production, copyright issues and other neuralgic legal matter. SIDIH in its current shape functions as a hub for researchers who would like to obtain more information on the current trends in Digital Humanities[40] and a web browser through contents (digital or only metadata on analogue objects). Knowing that a serious use of Digital Humanities tools for a wider scholarly public is only possible with large quantities of contents and that these contents are either scholarly related or in the cultural heritage domain, one of

[37]Nacrt razvoja raziskovalnih infrastruktur 2011–2020, <http://www.arhiv.mvzt.gov.si/fileadmin/mvzt.gov.si/pageuploads/pdf/znanost/RISS/NRRI.pdf> (25.07.2014).

[38]Europeana professional: Partners of the Europeana cloud <http://pro.europeana.eu/web/europeana-cloud/project-partners;jsessionid=372BC45D577DCEF273451FD9438A3903> (25.07.2014).

[39]SIDIH – Digitalna infrastruktura za humanistiko in umetnost. Portal contains also an indefinite list of existing Slovenian DH projects, <http://www.sidih.si> (25.07.2014).

[40]Another important hub is also the Slovenian Open Acces portal. Open Access Slovenia, <http://www.openaccess.si/> (25.07.2014).

the objectives of the Slovenian DARIAH is to connect as many different repositories as possible, regardless of their official origin. It currently comprises materials from the collections of SRC SASA (18 research institutes/mostly from the humanities) and their portal *@rzenal*[41], ethnological collections from the Faculty of Arts from Ljubljana University[42] and historiographical contents from the central portal for historians *History of Slovenia – SIstory* from the Institute of Contemporary History. In this year first contents from the collections of the National Museum of Slovenia will be also searchable through SIDIH, while some contents from the national and regional archives are already available through cooperation with the ICH.

I would like to finish this brief overview by emphasizing the possibilities Digital Humanities open up for historians. The central hub for „digital history" is since 2007 the web portal *History of Slovenia - SIstory*[43], accessible in Slovenian and English versions. Until that moment historians did not have much influenced the development of Digital Humanities, although some excursions, using statistical software and databases as primary research method, can be detected[44], the latest one by Miha Serucnik in his PhD on Grape phylloxera in Slovenian territory in the 19th Century.[45]

Although the portal bears a rather restrictive name, Slovenian history is not something that can exist in a closed circuit. Special care is given to the accessibility of materials that are essential for the whole research community of the once common Yugoslav or Austro-Hungarian state. A series of stenographical minutes from the Slovenian parliament/socialist assembly can be found on the portal, combined with stenographical minutes from the parliament and senate of the Yugoslav kingdom and post-war assemblies of the second Yugoslav state. The same can be said for official gazettes. A vast digital library, comprising most of Slovenian historiographical periodicals and many older and current scholarly monographs, is available to researchers who got used to the instant availability very quickly. The estimated number of visitors in the last year, considering some problems when the new European legislation on internet privacy was applied[46], is around 90.000. That clearly shows that digitised history is interesting to a very wide audience of professional researchers and enthusiasts. The *SIstory* portal comprises not only textual files and databases, but also helps to present archive materials, unpublished manuscripts, video recordings of lectures and scientific conferences, and virtual exhibitions by joining the efforts of many different institutions. But while the digital library was an instant success, possessing a large quantity of materials with organized metadata and solved legal issues (with collected permissions and licensed under OA standards using CC licenses), a question arises: How to use these materials in new ways? A wide network of partners helped the ICH Research Infrastructure team to detect some very interesting collections, and a collection of photographs from the Ljubljana Historical Archive[47] served as a base for the Augmented Reality mobile application *ZgoLJ* (acronym for Zgodovina Ljubljane – History of Ljubljana), which enables a virtual tour on three different augmented reality platforms through the Ljubljana historical centre, showing old photographs, architectural plans and description for each building, even for the ones which do not exist anymore.[48] The project platform was

[41] @rzenal – Virtualna zakladnica nacionalne dedišcine ZRC SAZU, <http://www.arzenal.si/> (25.07.2014).

[42] EtnoInfoLab, <http://www.etnoinfolab.org/> (25.07.2014).

[43] Zgodovina Slovenije – SIstory, <http://www.sistory.si> (25.07.2014).

[44] I am aware of that fact only because of long fruitful conversations with colleague Andrej Studen, who wrote his PhD thesis on living conditions in Ljubljana with help of a friend, who modified videostore managment system software for that purpose in early 1990's. Andrej Studen, Stanovati v Ljubljani, Studia Humanitatis, Ljubljana 1995. He also pointed out on earlier use of computing methods in the work of Jasna Fischer on social and political history of labour movement in Ljubljana in 19th Century. Jasna Fischer, Cas vesolniga socialnega punta se bliža: socialna in politicna zgodovina delavskega gibanja v Ljubljani od zacetkov do leta 1889, Krt – Knjižnica revolucionarne teorije, Ljubljana 1985. There are probably some other „apocryphal" stories on use of the computing tools in Slovenian historiography in the „ancient times" with which I am not familiar.

[45] Miha Serucnik, Trtna uš, ta strašno drobna pošast, Založba ZRC, Ljubljana 2011. He also described his methods in an article on use of MS Access databases as a historian's tool. Miha Serucnik, Accessove podatkovne zbirke kot zgodovinarjevo orodje. Historicni seminar 9, Založba ZRC, Ljubljana 2011, <http://hs.zrc-sazu.si/eknjiga/HS9.pdf> (25.07.2014).

[46] UKAZ o razglasitvi Zakona o elektronskih komunikacijah (ZEKom-1), Uradni list Republike Slovenije, 109/2012, 31.12.2012, <https://www.uradni-list.si/1/content?id=111442> (25.07.2014).

[47] Zgodovinski arhiv Ljubljana, <http://www.zal.si> (25.07.2014).

[48] Andrej Pancur, ZgoLJ –Zgodovina Ljubljane, <http://prezi.com/h-uwi9kqlvyd

later reused in the town of Murska Sobota. A publication of the xml schemes/project documentation in a special Digital Humanities section of *SIstory* a few months ago created a fuss among usual users, who did not quite understand the intention, taking us back to the whining in the first paragraph of this essay.[49]

Fig. 4: *Screenshots from: „ZgoLJ" (acronym for Zgodovina Ljubljane – History of Ljubljana), an Augmented Reality mobile application*

But nevertheless progress is underway full throttle, starting with the project of digitising and creating an openly accessible database of population censuses. The first published census originates from Ljubljana and was made in 1830. Shortly after the first modern population census from 1869 was digitised and transcribed, followed by the census from 1931[50], censuses from other Slovenian towns (Novo Mesto, Izola) were added into a database which allows browsing as well as exporting data and represents the starting point for planned longitudinal studies. Scanned census questionnaires are attached to the database, thus allowing com-

/copy-of-zgolj-zgodovina-ljubljane/> (25.07.2014).

[49]DH on SIstory – History of Slovenia portal, <http://www.sistory.si/publikacije/?menu=28> (25.07.2014).

[50]As the last one available for publication considering current personal data protection legislation.

parisons with the transcription, which is going to be useful regarding the fact that some data will be gained by crowdsourcing, relying on the help of students of history from the Faculty of Arts at Ljubljana University. The project is going to evolve over the next years and its final goal is to connect as much computer readable data from population censuses and other preserved historical public records as possible, creating a semantic database.[51] Work on that particular project showed also a growing need to produce a historical topography index with GIS coordinates for the abovementioned project, which is slowly coming into focus, and also a quantity of other different subprojects. These efforts interlink with some other activities which are taking place in the Slovenian research community, since a research project entitled „Historical Topography of Slovenia from the Middle Ages to the 19th Century" is currently taking place at the Milko Kos Historical Institute at SRC SASA, using digital technologies to achieve that goal.[52] The know-how from the population censuses project was used to digitise and publish a collection of primary school datasheets from the Yugoslav part of Slovenia in the interwar period (1928–1941). The material is extremely valuable because of the statistic data and many pictorial appendixes. It represents a basic source for researchers in the history of education. Publishing it online with indexed metadata on the name and place of each school allows researchers to use them with ease. Added value on that base represents geographical encoding via <*http://geonames.org and http://dbpedia.org*> which helps to visualize metadata and links them to the semantic web. The collection will be openly accessible in the coming months.[53]

Knowing the level of penetration of Digital Humanities in scholarly activities in other European countries I can conclude with a statement that Slovenia is on the one hand still a virgin territory, but on the other

[51]Ljubljana Historical Archive: Population censuses in Slovenia 1830–1931, <http://www.sistory.si/publikacije/?menu=435> (25.07.2014).

[52]Slovenian Place Names in Time and Space (Historical Topography of Slovenia from the Middle Ages to the 19th Century) – fundamental research project, <http://zimk.zrc-sazu.si/en/programi-in-projekti/slovenian-place-names-in-time-and-space-historical-topography-of-slovenia-from#v> (25.07.2014).

[53]Zemljevid krajev s seznami šol popisanih v šolskih listih v letih 1928–1941, <http://www.sistory.si/SISTORY:ID:20868> (27.07.2014).

hand, taking into account the number of active humanities scholars, above mentioned achievements do not exactly reflect that fact. Yet it is still not timely to say that Digital Humanities as a field has established its rightful position. Coming generations are definitely more digitally mature and should not be afraid of new challenges. For now, preciously rare students at the MA and PhD level are more deeply involved into introducing new techniques and methodologies into our scholarly work.

Some thoughts on Digital Humanities in Norway

von Espen S. Ore

1. Introduction

While there is always new development, new ideas and methods appear, there is continuity in Norwegian Digital Humanities that goes back to the days of „Computing in the Humanities" in the 1970s. In 1972, the Norwegian Computing Centre for the Humanities was created by the Norwegian Research Council (then the NAVF – *Norges Almennvitenskapelige Forskningsråd*, now NFR – *Norges Forskningsråd*). This was a national institution located at the University of Bergen while there were consultants at the three other universities then existing in Norway. From 1973 to 1991 the Centre published the journal *Humanistiske Data*, which is available as PDF facsimile today[1] and is an interesting source for the history of Norwegian Digital Humanities. When one is looking through the issues of this journal it is easy to see that for the first years much work was concerned with building archives. But Computing in the Humanities was not limited to that field. Additional work was done with statistical tools and the preparation of data sets for such tools. At the center in Bergen much emphasis was placed on multimedia and hypermedia from the second half of the 1980s. This was partly based on the assumption that scholarship as well as teaching in the Humanities was concerned with more than just textual and numerical data. The Norwegian Computing Centre for the Humanities as a national institution

[1] Humanistiske Data, ISSN 0800-6792, 1973–91, University of Bergen. For the facsimile, see <http://gandalf.aksis.uib.no/info/arkiv/hd/> (accessed 15.10.2014).

ended in 1992; instead, it became part of the University of Bergen, and since then there has been no national institution for Digital Humanities or Humanities Computing in Norway.

As a parallel institution to the Norwegian Computing Centre for the Humanities, the Research Council established a Social Science computing center (*Norsk Samfunnsvitenskapelig datatjeneste* – NSD – Norwegian Social Science Data Services), also located at the University of Bergen and now an independent national institution.[2] Although this center is mainly aimed at providing data and tools for studies in the social sciences, it is also used by historians.

Already back in the 1980s there were field specific subdivisions within the overall field of Humanities Computing. Computational Linguistics soon began to follow its own path of development, as was indeed an international trend. This was made very clear during the work that led to the conference „The Future of the Humanities in the Digital Age"[3] and the book „Computing in Humanities Education"[4], the Socrates/Erasmus thematic network project ACO*HUM during which the representatives from the Computational Linguistics Community found that there was no common ground between their field and the rest of the Humanities disciplines. Other disciplines in the Humanities have built their own scholarly traditions and methodological toolboxes to such a degree that it may at times be difficult to view it all under one single umbrella. There are however some overlapping problems and methods. In the following I will look mainly at text related studies, especially related to free text/natural languages, but I will also consider some of the development in Norway on tabular text data, material culture and more.

2. Digital Humanities in Norway from around 1990

History is a discipline that uses tools common to both the Humanities in general and to the Social Sciences. From the early days of Humanities Computing in Norway tools were developed for entering and storing

[2] See <http://www.nsd.uib.no/nsd/english/index.html> (accessed 15.10.2014).

[3] The Future of the Humanities in the Digital Age – Abstracts: ISBN 82-994823-0-5, University of Bergen 1998.

[4] De Smedt Koenraad et al.(eds), Computing in Humanities Education – A European Perspective, Bergen 1999.

tabular data[5] which could then in a next step be analyzed with statistical tools such as SPSS.[6] Some of the early data registration projects done for historical research was old census data. The first „complete" – meaning that all persons including children and not only tax payers or possible soldiers were included – Norwegian census, the one from 1801, was also the first one to be computerized. This project led by Jan Oldervoll at the University of Bergen led to further work on digitizing Norwegian census data, and now this data set has later been refined and is available along with other old census data.[7]

More or less structured data were also important in linguistic studies and to a certain degree in literary scholarship. The 1970s were in Norway the starting point for construction of and work with text corpora. These are tools that are very much still with us today, and their use has moved into other disciplines: It is, for instance, difficult to imagine serious lexicographical work being done without text corpora.

Throughout the 1980s and in the first years of the 1990s text archives containing free, running text (as opposed to structured, lemmatized text chunks typical of text corpora used in linguistic research) became more important. An early and important international influence came from the *Thesaurus Linguae Graecae* (TLG) then being constructed at the University of California, Irvine, where it is still maintained.[8] The TLG developed the so-called Beta code which was developed to make it possible to store classical Greek in a 5-bit character encoding system. The Beta code is still used within the TLG; it is thus one of the oldest encoding systems developed for Humanities computing still in use.[9]

From the late 1980s the idea of digital critical text editions became important also in Norway. In Germany, for example, much work had been done in this area, such as the development of the TUSTEP tools led

[5]One popular tool was RUBREG, see <http://home.ifi.uio.no/asbr/RubReg/rubreg-overview.html> (accessed 15.10.2014).

[6]See <http://www-01.ibm.com/software/analytics/spss/> (accessed 15.10.2014).

[7]See <http://gda.arkivverket.no/cgi-win/webcens.exe?slag=visbase&filnamn=f1801> (accessed 15.10.2014).

[8]See <http://www.tlg.uci.edu/> (accessed 15.10.2014).

[9]At the University of Oxford, there are tools for converting data encoded in COCOA (with roots back to the 1960s) into modern TEI, see for instance <http://tei.oucs.ox.ac.uk/Projects/nuOTA/cocoa-to-tei.xsl> (accessed 15.10.2014).

by Professor Wilhelm Ott in Tübingen[10] – these tools were for instance used by Hans Wilhelm Gabler in his synoptic edition of James Joyce: Ulysses[11]. In Norway, two large scale projects started in 1990: the electronic edition of Ludwig Wittgenstein's *Nachlass* at the University of Bergen[12] and the Documentation Project (*Dokumentasjonsprosjektet*), a national project with project leader and project administration located at the University of Oslo.[13] While the Wittgenstein project published one author's papers, the Documentation Project had a much wider scope: on the one hand it digitized museum data, acquisition catalogs, photos and other variants of meta data and digitized data, something that also implied the construction of database models which are still in use. Additionally, the project also stored encoded (SGML) transcriptions of literary and documentary text sources. These texts have later been re-encoded into XML for the most part. Both projects have made an international impact in methodological development. The Wittgenstein Archives (WAB) at the University of Bergen developed its own encoding system, MECS (Multi Element Coding System) since this happened at a time when SGML seemed the only option and the TEI (Text Encoding Initiative) had not yet released its first version (TEI P1).[14] After the CD-ROM publication of the *Nachlass* in 2002, the archive was transformed into XML/TEI. But it is worth noting that when XML itself was under development, the idea of well-formed documents (as different from documents valid according to a DTD or schema) was taken into XML from MECS.[15] The Documentation Project not only built a large archive of literary and documentary texts. It also created models for storing data such as acquisition data from archeological museums. The Documentation Project and its later incarnations, such as the Unit for Digital Documentation at the University of Oslo, partici-

[10]See for instance <http://de.wikipedia.org/wiki/TUSTEP> (accessed 15.10.2014).

[11]See for instance <http://epub.ub.uni-muenchen.de/5686/1/5686.pdf> (accessed 15.10.2014).

[12]See <http://wab.uib.no/1990-99/> (accessed 15.10.2014).

[13]See <http://www.dokpro.uio.no/engelsk/index.html> (accessed 15.10.2014).

[14]See <http://etjanst.hb.se/bhs/ith/4-97/pc-eso.htm> (accessed 15.10.2014).

[15]This statement is based on personal communications from Claus Huitfeldt, then leader of the WAB at the University of Bergen and Michael Sperberg-McQueen, co-editor of the XML 1.0 specifications in 1998.

pated in the ICOM/CIDOC work on a conceptual reference model, the CIDOC-CRM[16], which is now an ISP standard. The CIDOC-CRM has also influenced work on the international bibliographic standard FRBR, and as a result this has produced the FRBR-OO in collaboration with the international library organization IFLA.[17]

The Wittgenstein edition and the work done in the Documentation Project are also important for the next development on critical and/or scholarly editions which first manifested itself in 1998 when work was started on the project Henrik Ibsen's Writings (HIW).[18] As we will see later, one of the important features in Norwegian and Nordic large scale projects producing digital editions is collaboration. This collaboration is found both on a national level between institutions and projects, but also on a Nordic level. Back in the 1970s the Computing Centre for the Humanities at the University of Bergen started work on a concordance to Henrik Ibsen's plays and poems.[19] In the early 1990s the University of Oslo produced a collection of digital facsimiles of all of Ibsen's manuscripts and letters that were available at that time – mainly at the Royal Library in Copenhagen and at the National Library of Norway.[20] When the new Ibsen edition project HIW started, much of the theory behind the edition was influenced by the work on the new edition of Søren Kierkegaard's writings at the University of Copenhagen[21], and all the transcriptions from the concordance project in Bergen and the facsimiles from the (separate) facsimile project were made available for this new Ibsen edition.

The Nordic collaboration was formally recognized when the Nordic Network for Edition Philology (NNE) was established in 1995.[22] This network is concerned with editions of modern texts in general, but there are links to networks working on medieval texts. And within the NNE an informal Special Interest Group (SIG) for electronic/digital

[16]See <http://www.cidoc-crm.org/official_release_cidoc.html> (accessed 15.10.2014).
[17]See <http://www.cidoc-crm.org/frbr_inro.html> (accessed 15.10.2014).
[18]See <http://www.ibsen.uio.no/forside.xhtml> (accessed 15.10.2014).
[19]See <http://clu.uni.no/ibsen/index-e.html> (accessed 15.10.2014).
[20]See <http://www.dokpro.uio.no/litteratur/ibsen/ms/indexe.html> (accessed 15.10.2014).
[21]See <http://www.sks.dk/red/forord-e.asp> (accessed 15.10.2014).
[22]See <http://www.nnedit.org/> (accessed 15.10.2014).

editions is working and organizes its own workshops and conferences. This network and the tradition of sharing data and knowledge can be seen in the further development of digital editions: People who worked on the Ibsen project are now working on other large scale projects such as the publication of the painter Edvard Munch's writings (he left a large corpus of written material)[23], and we see international collaboration such as in the publication of the Norwegian-Danish author Ludvig Holberg's works.[24] In Norway, the National Library on its own produces searchable facsimiles of all of its printed books (some of this work is internationally available, but some of it is only locally available due to copyright reasons), and it hosts digital collections. One of these collections is *bokselskap.no*, which originally was established by the Norwegian Society for Language and Literature (NSL). *Bokselskap.no* published critical editions under the banner of NSL and other quality-approved digital texts.[25] The National Library also hosts the collection of Norwegian language data *Språkbanken*, whose material is mainly aimed at linguistic research and developers in language technology.[26]

3. Some recent and/or ongoing projects

Digital editions and text corpora have a long tradition in Norwegian Digital Humanities. A new generation of scholars has been growing over the years, and at the University of Oslo a toolbox for lexicography has been developed with a background in the department of Linguistics and Scandinavian studies. It is in daily use in the large-scale project *Norsk Ordbok* (Norwegian Dictionary) 2014[27], and some of the tools have been used also for lexicographical work in Zimbabwe and other African countries.[28]

At the Department of Philosophy, Classics, History of Art and Ideas (IFIKK) at the University of Oslo the PROIEL (Pragmatic Resources in

[23]See <http://www.emunch.no/german.xhtml#.U51_LHV_vCI> (accessed 15.10.2014).
[24]See <http://holbergsskrifter.dk/holberg-public/view?docId=adm/main.xml&lang.set=en> (accessed 15.10.2014).
[25]See <http://www.bokselskap.no/> (accessed 15.10.2014).
[26]See <http://www.nb.no/English/Collection-and-Services/Spraakbanken> (accessed 15.10.2014).
[27]See <http://no2014.uio.no/perl/ordbok/no2014.cgi> (accessed 15.10.2014).
[28]See <http://www.edd.uio.no/allex/> (accessed 15.10.2014).

Old Indo-European Languages) project ran from 2010 to 2012.[29] This project resulted in both a multilingual corpus and tools for building a corpus and for grammatical analysis and search and retrieval of texts from the corpus. A separate project working on medieval Norse material, MENOTA (Medieval Nordic Text Archive)[30] established in 2001 has now used the PROIEL tools for a separate Norse grammatical tagging[31] while it also keeps its own TEI-based archive, which in many ways also is an edition of the Norse manuscripts.

Scholars working on various aspects of musicology were among the early users of computers in Norway. Today we find projects spanning from technological tools for analysis of sound/music to a large-scale national project concerning the musical heritage of Norway, Norwegian Musical Heritage.[32] As we could see in the case of large-scale literary projects, here too we find a project involving multiple institutions and not only universities, but also for instance the National Library of Norway. This project uses MEI (Musical Encoding Initiative) encoding, and this may in many ways be compared to the general use of TEI for literary projects.

4. Digital Humanities as an academic degree?

Humanities Computing was established as a one term (semester) course at the Faculty of the Humanities at the University of Oslo around 1980 and this course continued until 1998, when it was integrated with other courses at the Department of Informatics at the Faculty of Science. At the University of Bergen in the late 1970s a Department for Information Science was established at the Faculty of Social Science, but aiming also at students at the Faculty of Arts. This department moved, however, more in the direction of Social Sciences over time. The University of Bergen also established a Department for Humanities Computing. This was later transformed into a Subdivision for Digital Culture which is flourishing as part of the larger Department of Linguistic, Literary and

[29] See <http://www.hf.uio.no/ifikk/english/research/projects/proiel/> (accessed 15.10.2014).

[30] See <http://www.menota.org/EN_forside.xhtml> (accessed 15.10.2014).

[31] See <http://www.edd.uio.no:3000/> (accessed 15.10.2014) (requires username/password which can be registered automatically).

[32] See <http://www.musikkarven.no/> (accessed 15.10.2014).

Aesthetic Studies. But while this sub-department is well established and producing good scholarly work, it is not so much a department (or sub-department) for Digital Humanities as such, but more a place where (as the department title suggests) digital culture is the object that is studied. In addition to academic departments such as those listed above, some Digital Humanities tools (such as digital editions and text encoding) have at times been taught as parts of curricula. What still seems to be lacking are departments and degrees centered on Digital Humanities.

5. Digital Humanities – a Norwegian revival

As described above, there was a national Norwegian Center for Computing in the Humanities (NCCH) that existed from 1973 to 1991. From the late 1990s there seems to have been a low interest – at least at national or institutional top levels – for general Digital Humanities. This integrative approach was substituted by various discipline-specific developments and projects. But with a growing interest in Digital Humanities also on an institutional level, things seem to be changing now (June 2014). In the 1970s much of the work done by the NCCH was of the „evangelizing" kind, giving introductions to the possibilities opening up by computer-based tools to scholars mainly used to working with pen and paper. The continuity mentioned at the beginning of this essay is also supplemented by fundamental changes in the place of the computer in Humanities research and teaching. While computers now are involved some way or another in all the scholarly work being done in the Humanities, there is still a division between those who use computers mainly as a combination of writing tools and reference works and those who use IT actively as part of their research – whether for statistical tools, text editions, geographic information systems (GIS), or something else.

In June 2013 the seminar „What are Digital Humanities?" organized by Annika Rockenberger at the University of Oslo[33] included presenters from other Norwegian and Nordic Universities as well as from further abroad. One of the results of this seminar is the establishment of a cross-discipline Digital Humanities Network at the University of Oslo,

[33] See <http://whataredigitalhumanities2013.wordpress.com/programme/> (accessed 15.10.2014).

which also aims to link up with other national and international groups. A „Centrum för digital humaniora“ (Center for Digital Humanities) was recently established at the University of Gothenborg, Sweden, and there are hopes that something similar may appear at one or more universities in Norway. And since we can see a growing trend towards Digital Humanities centers and networks in other countries and towards regional associated organizations being established under the umbrella of the European Association for Digital Humanities[34] (such as the German language based „Digital Humanities in deutschsprachigen Raum“[35]), we may also see a Nordic Digital Humanities network being established in the not too distant future.

[34]See <http://www.eadh.org/> (accessed 15.10.2014).
[35]See <http://www.dig-hum.de/> (accessed 15.10.2014).

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