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## *Introduction*

### **1. Digital Humanities, and beyond**

As the title says, this book is an attempt to describe and examine critically the main concepts and practices of Digital Humanities. Indeed, such a critical examination, taken from a certain distance, seems to be needed more than ever. The project “Around DH in 80 days,”<sup>1</sup> which gathers links and resources from around the world, reveals some surprises in the relationship between the center and peripheries of DH, and raises many doubts about the ability of DH to document itself. Europe and North America, where the fortunate term was born, has already lost one claim to fame: the sum of projects in Asia and the Middle East (China, India, Japan, Korea, Arabia, etc.) now exceeds that of the West. So, in addition to the increasing loss of economic power to the East, is the West now also beginning to lose supremacy in the digitization of our cultural heritage? The picture is too patchy and incomplete to draw any firm conclusions,<sup>2</sup> but it is clear that the phenomenon demonstrates that it is becoming ever more complicated, if not useless, to define what the Digital Humanities are today.<sup>3</sup> The usual definitions: “the application of information science to the humanities,” “an interdisciplinary field” or “an independent discipline?” (Pons 2013, 38–46) appear to conflict with the cultural, linguistic and social diversity of the various geographical areas over which it is being applied. The Conclusion will examine the interdisciplinary and global aspects of DH, but for the moment it may be noted that this movement of DH is part of a vaster phenomenon, a cataclysm that is changing not only the sciences and their transmission of knowledge, but, as is well known, also the worlds of finance, the media, politics, law, commerce and human relations. Digitization already goes beyond changing only what is external to us, to changing what defines our “digital presence”: the control of our identity, the representation of our minds (through the technique of neural imaging), even the food we eat, as is demonstrated by the increasingly close relationship between biotechnology and the reduction of biodiversity (Shiva 1993 and 2013).

Although this book is primarily a critical assessment of what the authors regard as the most relevant theoretical, historical, social and practical issues in the field of DH, they also believe that Digital Humanities is a fluid and critical discipline, which,

by tracing the history of the communication technologies that underpin it, should try to answer some basic questions such as: what kind of science do we need today to benefit our society? And how is digital knowledge constructed: what do we want to know and why? It is clear that it is not always possible to draw a line between what interests a humanist and the work of a lawyer, biologist or a neuroscientist. As a result, our work is naturally open to contributions from the social sciences, which should be regarded as an integral part of DH (Liu 2012; Quinnell 2012; Fiorimonte 2013; Presner 2012<sup>4</sup>). Among all the reflections on the subject of DH the following seems one of the more convincing:

... the proper object of Digital Humanities is what one might call “media consciousness” in a digital age, a particular kind of critical attitude analogous to, and indeed continuous with, a more general media consciousness as applied to cultural production in any nation or period. Such an awareness will begin in a study of linguistic and rhetorical forms, but it does not stop there. Yet even this is only half of it. Inasmuch as critique may imply refiguration and reinvention, Digital Humanities has also a reciprocal and complementary project. Not only do we study digital media and the cultures and cultural impacts of digital media; also we are concerned with designing and making them. (Piez 2008)

Piez’s definition includes at least four or five different disciplines, which today can be found scattered in as many faculties. These include certainly languages and literature, but also the sociology of communication, anthropological and ethnographic studies of new media, archival and library science, cultural heritage and, of course, informatics. This already poses a problem for the organization of our institutions, which cannot simply be solved by the creation of ad hoc departments, or by the creation of groups within or between disciplines, acting autonomously, as the pioneers of DH imagined in the 1990s (McCarty 1999; Orlandi 2002). One of the undesired side-effects of the tumultuous development of DH has in fact been its own unpredictability. Its success can no longer be delimited by a great boundary wall such as “culture” — and hence Crane’s proposal of the term “cultural informatics” likewise seems too restrictive (Crane, Bamman and Jones 2008). If the future is E-Science and the hyper-inclusive digital research infrastructures (see the Conclusion) the proposal by the science philosopher Mario Biagioli, who hopes for the strategic abandonment of the “dogma of the discipline,” would seem more flexible:

The sciences are moving toward organizing their practitioners around problems, not disciplines, in clusters that may be too short-lived to be institutionalized into departments or programs or to be given lasting disciplinary labels. (Biagioli 2009, 820)<sup>5</sup>

Apart from practical considerations (as for example, the Social Sciences and Humanities being grouped together in the “SH” section of the European Research Council), the real reasons why it is useless and perhaps damaging to limit the Digital Humanities to the historical-literary-linguistic domain are primarily epistemological and methodological in nature.<sup>6</sup>

From the epistemological point of view the central theme is the redefinition of the objects of knowledge, or rather of their forms and means of communication. Such objects have today become *perenni mutanti*, which can no longer be studied and analyzed from a single point of view, or in an isolated unit of space-time. One example, which concerns one of the principal themes of this book, should suffice: the concept of the document. Digital encoding of a document of any kind (written, oral, filmed, etc.) is today one of the more important areas in the redefinition of knowledge. First, because every encoding is a hermeneutic act. It is not simply a problem to discover the change in information content when one goes from the original analog document to the digital medium (whether it is the case of a single character in the Hangul alphabet or the manuscript of a canonical author), but to select what and how to preserve and transmit. Nor is it simply a matter of denouncing either the limitations and geopolitical implications of Google’s search algorithm (cf. Chapter 5) or the massive control of our personal data by governments and multinationals. The problem runs deeper. For example, is it possible to speak nowadays of human rights without mentioning procedures and values mediated by colloquial practices, documents and information streams that are heavily dependent on the processes engendered by information technologies? And is it possible to speak of politics and society in countries like Egypt, Tunisia, Iran, or even the United States or Cuba, without first understanding how their network infrastructure is constructed or how it works? But the presence of humanists and social scientists cannot simply be inserted into a finished product, because each stage in the process of digitization (or original production) up to the finished product of communication has, among other things, semiotic, social, cultural and political implications.

The question of methodology is connected to all of the above, even if it demands an additional self-reflection (and probably self-criticism). Everyone has to deal with standards, instruments and resources, which influence and inform research and teaching. But the engagement of digital humanists with the instruments they use is more or less passive. To seek to have influence over the process of constructing such instruments and resources is vital to guarantee not only their efficacy but also to avoid the application of those same resources against the interests of democracy and social equality. This is not just a reference to the digital divide, but also to the related problem of information literacy, and the need for teaching digital literacy in all countries, including the affluent ones (cf. § 2.5). But for the moment, pending the arrival of adequate instruments, the relationship between research and teaching (based on the model of “progressive accumulation” and “controlled release”) has collapsed. This has had a destabilizing effect on the teacher-pupil relationship because the expertise of the teacher can be immediately verified. And this phenomenon concerns as much the individual as entire nations. As “certified agencies” of knowledge

(inhabited by prestigious intellectuals, who write in respected journals) are gradually disappearing, the search is on for new methods of combining research and teaching, which in their present forms have suddenly become uninteresting or unacceptable to society.

In conclusion, how can these immense challenges be tackled without forging an alliance between the social sciences, information science and the humanities? The problem of representation, of production, of access and transmission of knowledge in the digital dimension must be tackled by all the voices and points of view that make up the socio-humanistic-informational galaxy. The reader may be surprised, but the path that this “marriage” must follow, from the intellectual point of view, is already well-trodden. It has been pointed out, from the fifties and sixties, by pioneers and leaders like Pierre Bourdieu, Padre Busa, Régis Debray, Jack Goody, Eric Havelock, Harold Innis, André Leroi-Gourhan, Bruno Latour, Marshall McLuhan, Edgar Morin, Walter Ong, Raymond Williams and many others.



## 2. Do we still need humanists, and why?

If these are the challenges, what is the current situation? And doesn't what has just been said make the crisis in the humanities into a perfect obstacle course? The answer, at first, does not seem very encouraging. Humanists, with few exceptions, do not appear to be so much at the center of the process of diffusion of culture, neither as managers, nor as producers or designers. Certainly the crisis in the *studia humanitatis* has other more distant causes, and it cannot be summarized here in a few lines. However, this crisis is also an opportunity.

The objective of this book is to show that the profound changes already underway require the skills of humanists and social scientists, their innovation, their historical-critical reflection, and their ability to think outside the square. Technology in fact does not advance with the shrewdness of reason in Hegelian memory, but assumes casual forms, in response to the momentary demands of its own history. In short, technology is the result of choices, or as Alexander Galloway puts it, *technical is always political* (Galloway 2004, 245). The choice for the digital representation of information can also be ascribed to these occasional aspects.

To gain the benefits of their abilities, however, humanists must complete a *paso doble*, a double step: to rediscover the roots of their own discipline and to consider the changes necessary for its renewal. The start of this process is the realization that humanists have indeed played a role in the history of informatics. This book proposes to investigate the bonds between the two disciplines, through an epistemological vision of technology, focusing on the interdisciplinary aspects of informatics and telecommunications. Computer science is a recent discipline, without a clear epistemological statute, born out of a number of open interdisciplinary fields throughout and immediately after the Second World War. Bletchley Park, where the machines

for decoding the messages of the German Army, and the Macy's Lectures (1946–1953), where the idea of cybernetics was born, are cases where the transdisciplinary nature of informatics is most strongly evident. The centers of research, throughout the Second World War, and in the years immediately after, created a space between the disciplines, belonging to no one, where, as Norbert Wiener said, innovation became possible. The impression of the authors is that the ethical, social, philosophical and epistemological problems have been discussed since the birth of informatics, and have also been present in the subsequent period of innovation: when the computer was represented as an instrument of communication. This communicative perspective, which one should not hesitate to call revolutionary, has been the basis both for the idea of the human-machine interface and also for idea of connecting all machines into a network. Personalities like Vannevar Bush, J.C.R. Licklider, Robert Taylor, Douglas Engelbart, Ted Nelson, Donald Norman and others have contributed to it (cf. §§ 1.3–1.6). These people either came from a background in the social sciences or humanities, such as Licklider, Taylor, Norman and Nelson, or had a profound sensitivity that stimulated them to be visionary when confronted by the prospect of developing a rapport between the machine and humanity. The humanistic approach has thus had a central role in the history of computer science, and especially of the Internet and the World Wide Web.

Jerome McGann, one of the scholars most dedicated to defining the unstable boundaries between tradition and innovation, wrote: “A hundred years from now, which of the following two names is likely to remain pertinent to traditions of critical thinking and which will seem merely quaint, if it is recalled at all outside pedantic circles: Vannevar Bush or Harold Bloom?” (McGann 2001, 18). Part of the challenge of this book is to try to answer this question. Complex historical reasons are driving the disciplines of information processing and the analysis, production and preservation of cultural output towards convergence. It is up to digital humanists themselves to determine whether Vannevar Bush will be regarded as the first of the new humanists or the builder of a kind of Trojan Horse, which, by the middle of the century, will have deprived the humanistic disciplines of meaning. One thing is certain: we won't have to wait a hundred years because the new house of the digital humanist is already taking shape.



### 3. How this book is organized

The book is divided into two parts: the first part (Chapters 1–2) serves as a historical, social and critical introduction, while the second part (Chapters 3–5) reflects a kind of ideal (and essential) digital trivium: Writing and Content Production — Representing and Archiving — Searching and Organizing. Parts I and II conclude with summaries to help the reader grasp the main points raised in the preceding chapters.

The term “trivium” is understood here in the sense given to it by Marshall McLuhan, either as a “blueprint for education” (McLuhan 2006: x), or as a project for reforming the instruments of our work. For even the medieval trivium (grammar, rhetoric, dialectics) did not only reflect abstract interests:

Grammatica, or grammar ... is not to be understood in the sense of parts of speech, sentence structure or any other narrow sense belonging to either prescriptive grammar or modern linguistics. In the widest meaning of the term, and particularly in its relation to dialectics and rhetoric, with which it constitutes the three dimensions of the classical ideal of learning, grammar is the art of interpreting not only literary texts but all phenomena. Above all, grammar entails a fully articulated science of exegesis, or interpretation. Dialectics is, variously, a way of testing evidence or the study of kinds of proofs for an argument, a method of dialogue, or simply logic. Rhetoric, of course, includes the rhetorical devices such as alliteration that are most commonly associated with it in general use today, but ... it proves to be a very complex feature of discourse, involving five divisions ... (McLuhan 2006: xi)

Although all this still sounds very familiar, the digital trivium explored in this book does not necessarily overlap with the medieval one. But it is perhaps in a form remixed and re-mediated in those three tasks (Writing and content production — Representing and archiving — Searching and organizing) that constitute in the view of the authors the main areas in the work of the digital humanist, and at the same time form the principal sources of change, challenge and risk.

The initial chapters aim to retrace the role of humanistic knowledge through its epistemological structure and the history of digitization. The course followed leads backwards from the new media to the idea of the computer as an instrument of communication, by showing how this vision has produced profound changes in the perception of technology itself and in its practical organization. Chapter two takes a critical look at the Internet, its hidden stories and its founding fathers. The history of the Net is assigned the greatest space because it is from the time of the diffusion of the Internet, and the advent of the World Wide Web that humanists began to reflect in depth on the social, cultural and philosophical aspects of informatics. This chapter is called “The humanistic machine” because it is humanists who should, in the view of the authors, take a more active role in reshaping and innovating the network, and in addressing the social imbalances and cultural divides of the Internet.

Chapter three reflects on writing as an instrument for transmitting a culture and constructing its identity, on its material nature, and on the cognitive aspects of changes already under way. In the real world, this chapter describes and analyzes the forms, kinds and modes of production of digital textuality, from Web usability to the ethnographic writing of Web 2.0, from microcontent to collaborative writing.

Chapter four deals with the conservation of digital objects in the form of texts, images, audio and video files, to ensure their accessibility over time. A digital object may be understood as a complex entity, a union of data and metadata. Considered in this way, it is crucial to understand which systems are designed to conserve this entity over time, starting on the level of the document's creation in digital form. Every representation produces a re-reading of an object, and every transformation (required for its conservation) is never neutral. This chapter investigates the role of central repositories in permitting access in the form of ordered collections, and the present challenge of open knowledge — a strategic issue not only for humanists, but also for science as a whole. Digital libraries, open archives and open data are currently among the most researched subjects in DH, which suggests that the role of humanists in the redefinition of the instruments of research should be central. The authors are convinced that these movements, together with the technologies of Web 2.0, will play a crucial role in the future of the Net, through the active presence of users in social networking and the availability of shared spaces for work and research.

The final chapter focuses on access to online information. Humanistic expertise has long held the keys of access to knowledge: from the tradition of manuscript copying to the modern archive, the transmission of culture has always been directed by intellectuals. The cataloging of texts to facilitate their retrieval has been the task of librarians, who devised the mechanisms and conditions necessary to verify the availability (or unavailability) of texts. The new phenomenon of search engines, which control our access to digital information, has yet to be thoroughly analyzed, recognized or sanctioned by culture or politics. The Web has transformed itself into a kind of huge monastery, where access to texts in the library is controlled by a series of technical instruments, among them the powerful search-ranking algorithm, whose operation is mostly secret, but upon which the retrieval of the contents entirely depends. Such a situation cannot fail to have ethical, political and social consequences, which must be confronted by the digital humanist.

The Conclusion explores the reflections of the authors on the “global turn” of DH, indicating its principal evolutionary lines, its national paradigms, the international conglomerates and the various geopolitical tensions that exist in our community.

Finally, a note for the reader. Although in the course of reading this book the fundamental contribution of Anglo-American scholars will become evident, it is probable that the vision of DH presented here does not correspond with that disseminated in the anglophone world. The book reflects in the background of its authors (a sociologist trained as a philologist, an engineer trained as a literary historian, and a philosopher trained as a logician) the irreducibly composite nature of the field. Even in a strong and united effort this work represents interacting points of view, from which to observe digital phenomena.<sup>7</sup> This may inevitably lead to alternative interpretations and visions of certain key factors of DH. But as Virginia Woolf remarked, when speaking of women writers: “That is all as it should be, for in a question like this truth is only to be had by laying together many varieties of error” (Woolf 2005, 105).



