NET PIONEERS 1.0

CONTEXTUALIZING EARLY NET-BASED ART

EDITED BY
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INTRODUCTION
Dieter Daniels / Gunther Reisinger

Net art is seen as an archaeology of the future, drawing on the past (especially of modernism) and producing a complex interaction of unrealized past potential and Utopian futures...[01] (Julian Stallabrass)

This is a book about media art history, and against that background it takes a new, interdisciplinary look at the historical, social, and economic dynamics of our contemporary, networked society.

Giving a potted history of Net-based art may seem to present no difficulty: The hype around Net-based art began in the early 1990s, before the Internet had become a commodity. It developed in skeptical parallel to the rise and decline of the new economy. In 1997, documenta X featured Net art. Around the same time, major museums in the US started online art commissions or virtual showcases.[02] The first (and last) retrospective exhibition, "netconditon," was held in 1999.[03] Several books published in the first years of the new millennium give overviews of the practice and theory of this art.[04] But since then, this particular chapter of art history appears to have closed. The final indication that Net-based art was not to become another genre in the contemporary art canon was perhaps the discontinuance of the "Net vision" category in the Prix Ars Electronica 2007.[05]

01 Julian Stallabrass, *Internet Art: The Online Clash of Culture and Commerce* (London: Tate Publishing, 2003), 48.

02 See the text by Christiane Paul in this volume.

03 The exhibition "net_condition" was a distributed exhibition in Graz, Barcelona, Tokyo, and Karlsruhe. See *net_condition: art and global media*, ed. Timothey Druckrey and Peter Weibel (Cambridge, MA: MIT Press, 2001).

04 e.g. Julian Stallabrass, see n. 1; Rachel Greene, *Internet Art* (London: Thames & Hudson, 2004); Tilman Baumgärtel, *[net.art]: Materialien zur Netzkunst* (Nürnberg: Verlag für Moderne Kunst, 1999), and *[net.art 2.0]: Neue Materialien zur Netzkunst* (Nürnberg: Verlag für Moderne Kunst, 2001).

But why does this chapter of art history appear to end so suddenly? Is it that the idea of Net-based art (also known as Internet art, Net art, Net.art, and Web-based art) involving itself in a revolutionary spirit in a networked society failed? One might equally well argue that it was far too successful simply to become another media-art genre. Looking today at the social, aesthetic, and conceptual approaches of the early 1990s presented in this book, it is clear that most of them have in fact come true, if in ways other than intended.

They materialized, but without establishing a new art genre, and they resisted the typical process of commodification met with in art institutions. What happened instead was that some of the initial ideas took shape in everyday socio-technological living conditions. The two major utopias of the modernist avant-garde of the 1920s and the 1960s are that art anticipates the future and that art transforms, or is transformed, into life. The history of Net-based art would seem to indicate that it fulfilled both of these utopias and, as an artistic exercise confined to the art world, rendered itself obsolete.

Early Net-based art, however, is significant mostly from the viewpoint of the history of ideas. For the most part, the figures and artworks of the time have been eclipsed. Current public awareness does not extend to the "Net pioneers" themselves, who entered neither the narrative of an emerging network society nor the canon of art history. Not just fame is at stake here, but also the material (and digital) evidence of one of the most exciting artistic phenomena of the final decade of the twentieth century. Even if future art historians change their minds and, as with Dada or Marcel Duchamp, decide

05 The definition-shifts in the Prix Ars Electronica category of Net-based art are a short history in their
     own right: 1995–1996 World WideWeb, 1997–2000.net, 2001–2003 Net Vision / Net Excellence,
     2004–2006 Net Vision.

to rediscover this art fifty years after the event, there will not be much of it left. Neither museums, universities, libraries, nor media archives consider themselves responsible for or capable of caring for this part of the cultural digital heritage by archiving, documenting, or maintaining Net-based art and its contexts. The constantly changing online technology and socio-economic environment ensure that it is as difficult to develop a methodology of preservation as for all of digital art. That these early instances of Net-based art never entered the art market (and in fact successfully opposed it) is also partially responsible for the lack of research in the field: their apparent lack of monetary value does not argue for the necessity of these works' survival.

The historical importance of the early Net-based artworks presented here as evidence of a pivotal moment in digital culture, and of a paradigm shift in media society in general, goes far beyond art history. Yet the framework of art history alone can provide the basis for understanding the context, ideas, and concepts behind the works. They were created in response to a specific setting in the art world of the early 1990s. A historical view must therefore maintain this context, although the works are also significant in that they simultaneously testify to the development of the socio-technical media. The research approach developed at the Ludwig Boltzmann Institute Media.Art. Research over a period of three years has focused on developing a documentary archive and contextualization methodology, for which a range of case studies was selected. While this does not solve the problem of the survival of Net-based art, it does aspire to set an example and to instill a consciousness of the responsibility we owe these fragile and ephemeral "monuments" of our media society.

This book is thus a part of the art-historical research project titled "netpioneers 1.0." The essays published here are in part the result of a conference organized by the Ludwig Boltzmann Institute Media.Art.Research Linz on

the occasion of Ars Electronica 2007, and in part reflect new approaches that have since been developed. The contributions cover a wide variety of topics, ranging from art-scholarly methodological debate (Bentkowska-Kafel, Kuni); source-critical analysis (Reisinger); archiving, exhibition, and analytical practice (Ernst, London, Paul, Sakrowski) to media-philosophical aspects (Ries) and technical and artistic innovations (Daniels).

To begin with, the significance of art-based or media-critical Internet plat-forms (THE THING New York, THE THING Vienna and public netbase) that were instrumental in facilitating the establishment and media-immanent discussion of early Net artworks are addressed. In line with the genuinely archival character of these frameworks, a predominantly source-based scientific approach was chosen. For research purposes and for the textual contributions, both primary and secondary sources were first made digitally accessible, thus facilitating an overview of hitherto scattered archival materials.

METHODOLOGICAL ANALYSIS
Seeing that works of art "only ever answer those questions that we ask them,"[06] a first step in a methodologically valid approach to Net art under-taken within art history as a discipline will consist in putting the right questions both to the art phenomenon and to the archival and museum contexts. As a draft and discussion of a methodological hypothesis, the essays here primarily address questions to the analytical method and the art itself. Artworks and source-based context are on a par in the analytical process.

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06 Hans Belting, *Das Ende der Kunstgeschichte: Eine Revision nach zehn Jahren* (Munich: C. H. Beck, 1995), 150.

The Ludwig Boltzmann Institute Media.Art.Research "netpioneers 1.0" research project brings together source-critical methodological issues of art scholarship and the media-art category of Net art as a genre-specific case study. Unlike digitized born-analog art, Net-based art forms never depart genealogically from their production medium during archiving, documentation, and contextualization scenarios. They are thus hybrids, uniting work, archiving, and re-presentation in the work's own specific medium (Internet). On the basis of this hypothesis of the media unity of work, copy, and source in Net-based art, the options for art-historically approaching performative, ephemeral, digital art forms such as Net art are discussed.

Building on this theoretical position, the netpioneers 1.0 research project seeks to stimulate the internationally and inter-institutionally sought-after development and synchronization of work-adequate metadata structures (archiving, description, and re-presentation) of Net-based art and of the similarly outstanding reconfiguration of art-historical concepts pertaining to innovative media and Net-based art in particular.[07] The interdisciplinary combination of methods here (art scholarship, museology, informatics) aims to serve as paradigm for the discussion of new patterns of analysis and description for current media art forms and their digital sources.

As praxis-oriented counterpart to the theoretical issues, early Net art and Net activities (in part already offline) have been completely reconstructed, re-presented online, and historically contextualized for art-scholarly research purposes. The use of semantic indexing by means of computer markup structures (XML, TEI) facilitates a scientific network visualization of all source materials.

[07] See the text by Gunther Reisinger in this volume.
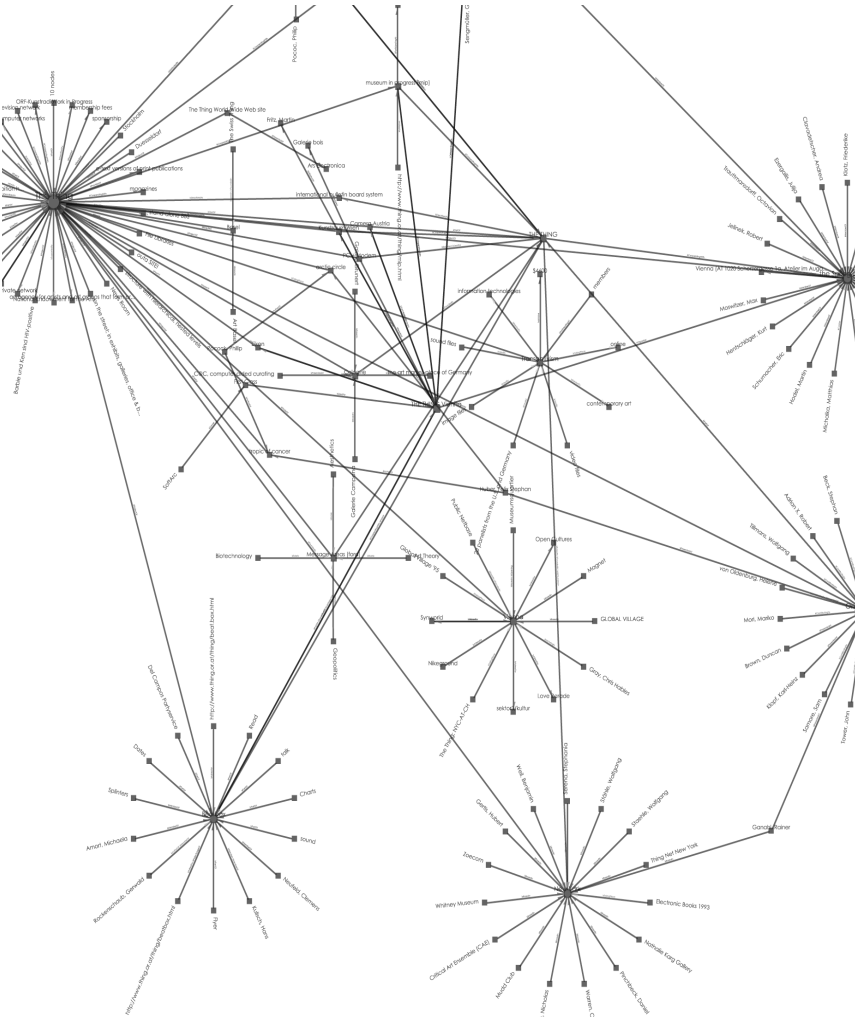
Data visualization, Dietmar Offenhuber for netpioneers 1.0, Linz 2009

The practical aspects of the research project mirror a three-stage scheme: the present book as international, interdisciplinary contextualization; the indexed, source pool of the example case studies[08] and the development of work- and source-adequate exhibition displays for historically processed Net art in museum spatial situations.[09] Netpioneers 1.0 is thus to be understood as applied basic research: restoration and re-presentation of Net-based art, digital source analysis (indexing and data visualization), and, consequently, the adaptation of art-scholarly methods.

The choice of a source-based bottom-up strategy is, on the one hand, in line with the desired adaptation of art-scholarly methodology; on the other, it facilitates terminologically approaching the media-art phenomena of Net art and its environment in as objective a manner as possible. This also accords with the choice of the methodological tool of visualization within the online source analysis: a "sensualizing" of quantities and qualities of a particular data pool that, at the outset, cannot be perceived by the senses.[10] By its means, a multilevel network of relations and clusters within the source pool are made visible.[11]

CONTRIBUTIONS
In his essay, Dieter Daniels addresses the early formative phases of networked art forms. Referring to the twentieth-century avant-garde movements, Daniels explores the possibilities of a "last avant-garde" in the 1990s from media-technical and art-historical perspectives. Like Daniels, Marc Ries

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[08] See netpioneers.info.

[09] See the text by Robert Sakrowski in this volume.

[10] An approach Hans H. Diebner has described as "performative science." See Hans Diebner, *Performative Science and Beyond: Involving the Process in Research* (Vienna/New York: Springer, 2006).

[11] See netpioneers.info

also investigates Net-based projects originating in part before the First World War and, drawing on Jean-Luc Nancy's theses, develops a history of the "self-imparting partaking" made possible by new communication structures. Concluding his thoughts on "pure sociality" in Net art, in the sense of a self-enhancing perception of the other, Ries, not unlike Julian Stallabrass and Dieter Daniels, also discerns forms of commodification.

Wolfgang Ernst addresses the classical concept of the archive, calling for the development of a systematically adapted art and archival language for digitally networked artworks and their archival structures. Net art archives should meaningfully link up information nodes, generating and presenting relations rather than objects. Hence Ernst also speaks of "archive art" and sees in the Internet a constitutively higher-order archival structure. As such it can offer no ultimate knowledge, but only a script in progress, an agglomeration rather than a collection. In connection with the problem of software documentation, Ernst describes the archiving of ephemeral media art as an additional challenge for the new archives as "cybernetic being[s] gifted with feedback."[12]

Christiane Paul's contribution addresses the question of whether museums, research institutes, and art history are in a position to archive and contextualize fleeting and genuinely transient art forms. With reference to significant ventures in the field and to institutional problems past and present, Paul presents an exemplary approach from the project "Forging the Future." Barbara London, drawing on her experience as curator at the Museum of Modern Art New York, also looks at the history of how museums and art institutions have handled the phenomenon of media art, including early Net art.

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[12] See the text by Wolfgang Ernst in this volume, 99.

As a methodological critique, if from different standpoints, Anna Bentkowska-Kafel, Verena Kuni, and Gunther Reisinger formulate the difficulties facing any work-adequate involvement with Net art within a discipline of art history, tied down to non-performative art forms and hence to methods that in the broadest sense are traditional. While Kuni approaches the issues from an explicitly subjective point of view, Bentkowska-Kafel, not unlike Paul, offers an institutional overview, but in her case the focus is on applied art-historical methodology. Reisinger looks at the currently still-problematic methodological issues in handling the *digital* sources of a *digital* art form, and drafts a necessarily new approach to art-scholarly source work for genuinely digital-born Net art. Thematically close to Verena Kuni, and with reference to the similarly problematic history of photography's development as an art, Julian Stallabrass also addresses the difficulty of making the phenomenon of Net art accessible to traditional art history.

Finally, in an essay that shares themes with both Paul and London, Robert Sakrowski draws on research work done at the Ludwig Boltzmann Institute to look critically at the problems of exhibiting digital, Net-based, ephemeral art and to discuss potential practical solutions.

The overriding goal of the book is to provide an up-to-date, interdisciplinary view of the artistic phenomenon of early Net art that focuses on art-scholarly methodology. The aim is not to write a chronologically based history of Net art, but to stimulate discussion of different ways of approaching work-adequate archiving, re-presentation, and contextualization structures.

PART 1: HISTORICAL SETTINGS

REVERSE ENGINEERING MODERNISM WITH THE LAST AVANT-GARDE
Dieter Daniels

The concept of an avantgarde, disavowed by postmodern theory, is actually more relevant today than ever before, but it has nothing to do with aesthetics. Only social situations, not artworks, qualify as avantgarde. We need access to alternative experience, not merely new ideas, for we know more about our being than we have being for what we know. Today only metadesign satisfies the original criteria for avantgarde practice. Gene Youngblood[01]

THE LAST AVANT-GARDE?
The case studies analyzed, documented, and contextualized in the Net Pioneers research project provide a representative cross-section of the creation of Net-based art between 1992 and 1997.[02] An entire typology of these new art forms developed in just five years. This astonishing dynamic emerged from the particularly intense meeting and interaction of art history and media history: a rapidly developing, international art found itself racing a fast-changing techno-sociological context.

As the 1990s drew on, a new browser interface known as the World Wide Web transformed the Internet from a non-public, mostly academic and military medium (with a gray area comprised of nerds and hackers) into a

01 Gene Youngblood, "Metadesign: Towards a Postmodernism of Reconstruction," abstract for a lecture at Ars Electronica, 1986, http://90.146.8.18/en/archives/festival_archive/festival_catalogs/festival_artikel.asp?iProjectID=9210. All Internet references in this volume last accessed on November 30, 2009.

02 Note on the terminology: "Net-based art forms" is used here as an inclusive term, but in the following, I will differentiate between "frameworks" and "Net art."

mass medium accessible to all, a phenomenon lending weight to the "Internet truism that one Internet year was equal to seven years in the 'real world.'"[03] In other words, these five years in which the art projects examined by Net Pioneers were created would be equivalent to thirty-five years of standard time—much longer than the active lifetimes of most avant-garde movements in history!

Thus the short period in which "Net art avant-garde" was ahead of its time compared to mainstream media should be recognized as such, not only conceptually and in terms of technology, but also within the larger history of media art. The frequently argued thesis claiming that the mid-1990s Internet boom stimulated the creation of Net-based art must be revised.[04] Artists had already discovered a fascination for electronic networks and telecommunications in the early 1980s, and began using them long before the power of these technologies to change society had become common knowledge.[05] It is also from the field of media art that the earliest theoretical models for the future of telecommunications and networking—to which the (otherwise all too frivolously used) adjective "visionary" can be uncon-ditionally applied—emerged. A notable example of this was Nam June

03 See Tilman Baumgärtel, *net.art: Materialien zur Netzkunst* (Nürnberg: Verlag für Moderne Kunst, 1999), 166.

04 With this in mind, compare to the jacket blurb for Rachel Green's *Internet Art* (London: Thames & Hudson, 2004): "When the Internet emerged as a mass global communication network in the mid-1990s, artists immediately recognized the exciting possibilities for creative innovation that came with it."

05 For more on telecommunications art in the 1980s, see *Art + Telecommunication*, ed. Heidi Grundmann (Vancouver: Western Front/Vienna: BLIX, 1984). See also *At a Distance: Precursors to Art and Activism on the Internet*, ed. Annmarie Chandler and Norie Neumark (Cambridge, MA: MIT Press, 2005).

Paik's study "Media Planning for the Postindustrial Society—The 21st Century is Now Only 26 Years Away," a 1974 Rockefeller Foundation commission in which Paik was already advocating an "electronic super-highway."[06] Twenty years later, during the 1992 presidential campaign, Bill Clinton and Al Gore made the "data super-highway" a centerpiece of their program to revitalize the United States's economy. This prompted Paik to ironically comment in 1993, "Bill Clinton stole my idea."[07] Equally prescient is Gene Youngblood's concept of "metadesign," which he presented at the 1986 Ars Electronica. Metadesign was inspired by the telecommunications projects created in tandem by artists Kit Galloway and Sherrie Rabinowitz, most notably their 1984 project *Electronic Café*. Youngblood's theses see far beyond the practices of his time. His theory anticipating the emergence of art out of networked, autonomous "reality communities" reads like a blueprint for the Net-based art of the 1990s.[08]

06 Reprinted in *Media Art Interaction: The 1980s and 1990s in Germany*, ed. Rudolf Frieling and Dieter Daniels (Vienna/New York: Springer, 2000), 239–242.

07 *Nam June Paik: Eine DATAbase*, ed. Klaus Bussmann and Florian Matzner (Stuttgart: Hatje Cantz, 1993), 110.

08 Youngblood had been developing the concept of "reality communities" since the late 1970s, and later linked it to the concept of metadesign: "A communications revolution is not about technology; it's about possible relations among people. It implies an inversion of existing social relations, whereby today's hierarchical mass culture would disperse into autonomous self-constituting 'reality communities'—social groups of politically significant magnitude, defined not by geography but by consciousness, ideology, and desire... The continuous simulation of alternative realities within autonomous reality-communities would constitute a New Renaissance in which the artist-designer might address the profound social and political challenges of our time." Gene Youngblood, "A Medium Matures: Video and the Cinematic Enterprise," in *The Second Link: Viewpoints on Video in the Eighties* (Alberta: Walter Phillips Gallery, Banf Centre School of Fine Arts, 1983), 10.

Consciously opposing the postmodern zeitgeist of the 1980s, Youngblood insisted on the possibility of an avant-garde. Along with some revolutionary rhetoric, he summarized the crucial social dimension of the electronic networks: "The only relevant strategy now is metadesign—the creation of context rather than content."[09] With this, he delivered the motto for the early Net art of the 1990s. A counterpart to this might be Joseph Beuys' notion of "social sculpture."[10] While Youngblood declared media technology the "only new frontier," Beuys relied on direct human interaction to change existing social structures and to refer back to nature and ecology. These two visions are prototypical of the American and European concepts of the relationship between technology and society—different in origin, yet similar in intention—that constitute Net-based art's parental lineage. The Net

09 Youngblood 1986 (see note 1). See also an expanded version in German: Gene Youngblood, "Meta-design, Die neue Allianz und die Avantgarde," *Kunstforum International*, 98 (Jan/Feb 1989): 76–94. I would like to thank Helmut Mark for the reference to this text, which Mark regards as an important inspiration for his work with THE THING.

10 Beuys' concept of "social sculpture" is a reference for Wolfgang Staehle, initiator of THE THING, and Mark Tribe, founder of the Rhizome List, as well as others. Wolfgang Staehle: "Beuys was interested in social sculpture, an artistic production that comprises a group or a community. THE THING is this kind of sculpture: it realizes Beuys's idea of direct democracy, of a political community as a social structure. At the same time, it is an expansion of the concept of art." (In: Vera Graf, "Kunst im Informationszeitalter," *Süddeutsche Zeitung*, March 22, 1994, 11). Mark Tribe: "I do think of Rhizome as social sculpture. As such, it could be seen as an artwork. This does not mean that I see it as one of my art projects." (Tribe quoted in Josephine Bosma, "Constructing Media Spaces," 2004, http://www.medienkunstnetz.de/themes/public_sphere_s/media_spaces/16/). In contrast, here is Helmut Mark, initiator of THE THING Vienna: "Unlike Stähle I did not regard THE THING Vienna as a 'social sculpture,' but rather, as a 'communications sculpture.' Naturally, I was greatly influenced by Beuys, but I was also influenced by the performance art movement of the late 1970s and early '80s." (E-mail to the author, March 3, 2009).

Pioneers project focus is therefore not so much restoring and preserving individual artworks, but their contextualization with on- and offline sources in order to grasp the significance of Net-based art as a social, artistic, and technological document.

Arguments found in media history research provide the first cornerstone of support for the avant-garde status of the case studies examined in the Net Pioneers. THE THING was created in the early 1990s, before the Internet was available to the normal user, as an international network based on its own BBS (bulletin board system) that was initially not linked to the Internet.[11] It was, however, not until the mid-1990s—with the breakthrough of the World Wide Web and the subsequent public interest in all of the new Internet-related phenomena—that interest in these art forms expanded beyond a small circle of insiders. A symptom of this was the tagline for the theme issue of *Art in America*: "Future art historians will mark the 1994–95 season as the year the art world went online."[12]. While this shows the Internet's designation as a medium, the attempt to establish "Internet Art" as the next new genre to be defined only by its technology (after "Video Art") appears to have failed—at least from today's perspective. It is, however, the intensity of this interaction between artistic, technological, social, and economic developments

[11] THE THING New York can be seen as a phenomenon that bridged the transition between telecommunications actions and Net-based art. Founder Wolfgang Staehle planned a temporary BBS project which, however, stabilized and, bit by bit, became linked to the Internet. Around 1993 it became possible to send e-mail to the Internet through the BBS, and several Thing nodes were present on the Web, starting in the mid-1990s.

[12] Robert Atkins, "The Art World & I Go On Line," *Art in America* (December 1995): 58. Some of the projects presented in the magazine were still based on bulletin board systems, but most of them were already on the Web, or else in a transition phase, which shows the parallel state of both systems around 1995.

from 1992 to 1997 that make this highly condensed development historically significant for the research in the overlapping areas of media and art. Net-based art formed a microcosm that anticipated or sometimes even triggered parts of the paradigm shifts involved in the development of a networked society at large.[13]

Youngblood's thesis that, in the era of telecommunications, a new avant-garde is only possible as a "social situation" can be reformulated from a contemporary perspective: Net-based art is the "last avant-garde" movement at this point in time, both in terms of the way it sees itself and with regard to its historical context. So rather than propose theories that rush ahead of practice, the following retrospective analysis attempts to set the framework for a comparison of the artistic development and the techno-social context. This also involves an essential distinction from mail art, a form frequently mentioned as a predecessor of Net-based art, since mail art involves an institutionalized, stable media system whose technology has remained relatively unchanged. That said, as traditional mail has largely been replaced by e-mail, so-called real mail has come to be associated with a certain nostalgia.

13 Key concepts for several early Web projects were at first designed independently of the Internet, but found their ideal medium in the Web, and are, apparently, no longer conceivable without it. This is true, for instance, of Ingo Günther, Refugee Republic and Antoni Muntadas, The File Room (author's conversations with the artists, 1994–95). Also, "typical" Net artists such as Heath Bunting began working with media such as voice mail and the BBS, before the introduction of the Web. (See Rachel Green, *Internet Art* [London: Thames & Hudson, 2004], 35, and Josephine Bosma, "Constructing Media Spaces," 2004, http://www.medienkunstnetz.de/themes/public_sphere_s/media_spaces/scroll/#ref21.)

NET-BASED ART BEFORE THE WWW BOOM

In the 1960s and 1970s, art movements such as Fluxus, mail art, and conceptual art began considering the ways that art could manifest itself in communications processes, as well as within network structures.[14] After 1980, artists began incorporating so-called electronic space into their practice, using (and abusing) various new and old telecommunications media.[15] A 1982 action called *Die Welt in 24 Stunden* (The World in 24 Hours), for example, utilized a network of telephone, fax, slow-scan TV, and the ARTEX on-line conference system. Initiator Robert Adrian X summarized the purpose of the project in this way: "The project tries to provide individual access to telecommunications media, and to develop strategies for using them in art. However, the artistic dimension of the whole project does not consist of creating special objects—artworks (via fax, for instance)—but in producing relationships through dialogue, meaning, and special relationships among the participants, who 'produce' communicative events, not works of art."[16] The telecommunications projects of the 1980s were ephemeral actions aimed primarily at the participants' horizons of experience, and as such remained relatively imperceptible to a non-participating audience of spectators. In this sense, they might be compared to Allan Kaprow's original concept for Happenings, which were not intended as spectacles but were meant to manifest themselves in the personal experiences of the participants involved.

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[14] See *Vom Verschwinden der Ferne: Telekommunikation und Kunst*, ed. Edith Decker and Peter Weibel (Cologne: DuMont, 1990), and the exhibition "Before the Internet: Networks and Art," Western Front Exhibitions, curated by Peter Courtemanche and Candice Hopkins, February 3– March 10, 2007.

[15] See *Art + Telecommunication*, ed. Heidi Grundmann (Vancouver: Western Front; Vienna: BLIX, 1984).

[16] Robert Adrian X, in the publication accompanying the *On Line* exhibition, Graz 1993.

Heidi Grundmann remarked of Roy Ascott's 1983 collaborative writing piece, *La Plissure du Texte* (The Pleating of Text—another ARTEX-based project): "[it] once again made clear how the character of the work of art is changed in electronic space: not one of the participants—not even the initiator—was able to keep track of all the ramifications of this planetary fairytale, which was told over a period of ten days and nights, since it could only be documented in selected, random parts. *La Plissure du Texte* has to remain a legend. Only those involved could possibly report on it, however, and only then, on those parts which they themselves experienced. And no art historian will ever succeed in finding all those involved and then interviewing everyone about their experiences."[17] These processual, performative telecommunications projects constitute an important prehistory for early Net-based art as documented and contextualized by the Net Pioneers project, in which we consider not only the testing of certain technologies, but also the genesis of an artistic consciousness and the formation of related interest groups. This was particularly true in Austria, where such groups resulted in some of the most important artistic activities of the 1980s and 1990s.

As it is, the artistic "network avant-garde" existed in three phases:

- In the 1980s, performative, temporary experiments and interventions in "foreign" (meaning already existing) networks using (and abusing) old and new telecommunication media.
- In the early 1990s artists built, designed, and operated their own permanent structures for simultaneously social, discursive, and technical networks. Even more important than the technological innovation involved was the integration of these networks into the participants'

17 Heidi Grundmann, "Doubts and other Virtues: Some Aspects of Telecommunication Art in Austria," in *On Line: Kunst im Netz*, ed. Helga Konrad (Graz: Steirische Kulturinitiative, 1993), 43.

Screenshot of THE THING Vienna BBS, 1994

everyday lives and the communities that emerged within the projects, as well as an international exchange among the projects.

• In 1994–95, projects started on or migrated to the Web, where they reached a larger audience and were made permanently accessible to the public via URLs.

Bridging the first and second levels were innovative approaches such as ARTEX, or Carl Löffler's ACEN, a project that began in San Francisco in 1986 and that was based at The WELL, the first commercial BBS online community system.[18] Both were sub-systems in larger, corporate contexts, representing a kind of artistic niche in the system. Artists Rena Tanges and padeluun built the Fidonet-based Bionic Mailbox in Bielefeld, Germany

in 1987, but the project's intentions were more socio-cultural than artistic.[19] Chronologically and conceptually, THE THING, which began in 1991 as a BBS, was directly linked to these developments of the 1980s.[20] Around 1995, individual Thing nodes migrated online and thus became part of the transition from the second to the third level. On the other hand, Public Netbase, Internationale Stadt Berlin, and etoy started working directly in the Internet and the Web in the mid-1990s. Still, the early 1990s projects, referred to as "frameworks" in the following, are primarily characterized not by their technologies, but rather by a unique techno-social dynamic that, having reached a certain critical mass of participants, also had an effect on the outside world. These resulted in self-organized infrastructures that lasted several years.[21]

18 ARTEX (Artist's Electronic Exchange Network) is a simplified, more affordable version of the commercial software for the Computer Timesharing Network by I. P. Sharp Associates; from 1980 to 1991, it was used by thirty-five artists around the world. For more on this, see http://alien.mur. at/rax/ARTEX/index.html. For more on ACEN, see: Carl Loeffler, "Telecomputing und die digitale Kultur," *Kunstforum International*, no. 103, "Im Netz der Systeme," (Sept./Oct. 1989): 128–133; and Roy Ascott and Carl Eugene Loeffler, guest eds., "Connectivity: Art and Interactive Telecommunications," *Leonardo*, no. 24:2 (1991); and Seeta Gangadharan, "Mail Art: Networking Without Technology," *New Media & Society* 11, no. 1–2 (2009): 279–298.

19 Cf. "Rena Tangens," *On Line: Kunst im Netz*, ed. Helga Konrad (Graz: Steirische Kulturinitiative, 1993), 99–101.

20 According to Wolfgang Staehle, THE THING New York at first resembled 1980s telecommunications art, in that it was conceived as a temporary project that would enable a discourse to take place over a certain period of time: "In my mind, the project was set up to last for a couple of months..." (Wolfgang Staehle, interviewed by Nina Fuchs, Berlin, August 21, 2008).

21 A main reason was the larger number of home computers and modems, which made it possible for more people to participate. For more on the transition from the telecommunications projects of the 1980s to the Net-based art of the 1990s, see also Marc Ries, "Netzkunst: Kunst der Netze," in *Medienkulturen*, ed. Marc Ries (Vienna: Sonderzahl Verlag, 2002), 247–66.

THE THING ad, *Flash Art International*, Vol. XXVII No. 179, Nov.–Dec. 1994, 42

An internationally networked community of artists formed before the Internet became a medium with a mass audience; for its members, the Net's communicative and aesthetic potential became a part of private, everyday life for the first time, and new forms of discourse developed that could not exist outside of the network. Consequently, while these projects prefigured concepts and substantiated ideas, their impact on society at large would not become evident for a few more years. In the early 1990s, the equally visionary, once seemingly contradictory concepts mentioned at the beginning of this essay—Joseph Beuys's interpersonal communication as "social sculpture" and Gene Youngblood's telecommunications as "metadesign"—translated into an artistic practice inspired by both.

The projects we refer to as frameworks here—for example THE THING (which began in New York in November 1991, with independent nodes in Cologne, Düsseldorf, Frankfurt, Hamburg, London, Stockholm, Basel, and Vienna from 1992–93 onward), or Public Netbase in Vienna, or Internationale Stadt Berlin (both begun in 1994)—emerged out of a kind of gray zone that existed before the Internet became available on a mass scale, beyond any state or commercial control. They were individual initiatives: most lacked any sort of subsidies and they had no legal status, unlike requirements for Web sites or domains today. They belonged to that "terra incognita"—previously known to the cultural public only through hearsay—called cyberspace. They were not, however, phantasms of a three-dimensional virtual reality, but rather a low-tech, language-based expansion of the world in which we live. A trio of factors distinguish them in their avant-garde status as it related to the surrounding technological, social, and artistic environments:

- Construction of an independent, partly self-designed technological infrastructure
- Formation of a self-organized, networked community, and the collective

design and testing of a corresponding model of discourse
- Development of a form of art specific to the network, exploring the medium's potential in an experimental, self-reflective way

What is fascinating about this early phase (up to about 1995) is the close correlation between these three factors. It was not about intervening in an existing medium (as video art did with television), but rather it was about the simultaneous development and testing of a new medium and its mutual influence on technological, social, and aesthetic functions of electronic networks. By the mid-1980s, BBS technology was already being used for commercial and cultural projects (The WELL is one example) to form publicly accessible "virtual communities."[22] With THE THING, the global potential of the BBS medium unfolded in the international discourse. Until then, such intense real-time discussions between the United States and Europe had been impossible.[23] There were no central operators or nodes for this decentralized, self-organized, non-commercial artistic community. The social network already in place in the international art scene delivered the basis for, and was later expanded by, this electronic network. Most members had known each other personally from the beginning, but soon widened their circle of acquaintances online as they formed (among other things) topical newsgroups and in some cases created multiple online identities for the discussions. THE THING did not spread as a technology package or a franchise, but simply because people were fascinated by the concept:

22 For more on the history of The Well, see Fred Turner, *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network, and the Rise of Digital Utopianism* (Chicago: University of Chicago Press, 2006).

23 See the online symposium moderated by Jordan Crandall, "Transactivism" (1993), http://old.thing. net/html/trans.html, and the publication of a discussion among participants from New York, Hamburg, and Cologne on the way THE THING defined itself. ("Die Wahrheit existiert, aber sie ist beweglich," *Spuren: Zeitschrift für Kunst und Gesellschaft*, no. 41 (April 1993): 22–30.

independent nodes operating within an international BBS network, each of which developed its own individual character both in terms of content and technical solution. This development took place in an autonomous situation as unusual for the media as it was for the art world at the time; the frameworks were not only independent of any art institution, but also existed outside of state or commercial media control.

This degree of autonomy is rare in cultural production and is an important part of these projects' self-concepts, which were also intimately tied to their abilities to claim avant-garde status. Evidence of this can be found in Youngblood's statements from a decade earlier, when he declared autonomous "reality communities" the only remaining options for a new avant-garde. The same is true of Hakim Bey's *Temporary Autonomous Zone*, another oft-cited reference published the same year that THE THING New York was founded.[24]

24 Hakim Bey differentiated between the official "net" and the "unofficial or counter-net," which he was still calling the "web" in 1991, regarding it as a possible form of "temporary autonomous zone." He explicitly referred to the BBS forums, complaining that they had only been used by hackers and amateurs for "chitchat and techie-talk" up until then, but that they had a much greater potential. See: Hakim Bey, "T.A.Z. The Temporary Autonomous Zone, Ontological Anarchy, Poetic Terrorism, Autonomedia," (New York, 1991), http://www.hermetic.com/bey/taz3.html#labelTheNetAndTheWeb. It was precisely this situation with the BBS forums that motivated Wolfgang Staehle to found THE THING in 1991, which he also described as a possible form of T. A. Z. "I ran across a modem, and although I didn't know what it was, I just bought this modem spontaneously. And hooked it up and dialed into some local bulletin board systems and was very much amazed how friendly people were, because I didn't know what was going on, how to do it; and I always got a very nice answer, and people were very open to sharing information, and I found this rather refreshing." (Wolfgang Staehle, interviewed by Dieter Daniels, Berlin, January 5, 2009.) Patrick Lichty describes the non-institutional transmission of Net art in this sense as "cultural autonomous zones." See Patrick Lichty, "Reconfiguring Curation," in *New Media in the White Cube and Beyond*, ed. Christiane Paul (Berkeley: University of California Press, 2008), 183.

The histories of the two terms—"avant-garde" and "autonomy"—are closely linked. Both have their origins in non-art contexts (military and political, respectively), and because they can mean a number of different things, both are often misunderstood or used incorrectly. It is therefore crucial to clarify the type of autonomy these early networking projects sought to achieve. First and foremost, they sought institutional—and thus ultimately political—autonomy, or the project's ability to determine its own organization and to exist independent of subventions. The second priority—technological and infrastructural autonomy—arose out of the first. The BBS successfully satisfied both of these requirements, at least in the early phase, before the frameworks migrated to the Web and were forced to assume legal status and to observe technical standards and protocols. It soon became clear, however, that community contributions alone could not financially sustain the projects in the long run. This reinforces that which Bey would call the temporary (Pierre Bourdieu would call it relative) nature of this particular mix of sociocultural, political, artistic, and technological autonomies in the field of cultural production. This third kind of autonomy—unstable and ephemeral—contradicts the ideal put forth in the history of modernism: that of an absolute, individualist, artistic-aesthetic autonomy, a bid for eternity made the leitmotiv of modern art by Charles Baudelaire, Clement Greenberg, and the art-market boom of the 1980s. It was precisely this kind of "art for art's sake" autonomy that the early Net-based art sought to overthrow or discredit in favor of a supra-individual, discursive, processual, networked, collective art that, like the notions of "metadesign" or "social sculpture," was not representable in the form of a simple, stable "work of art."

The linking of technological progress, social change, and artistic innovation hearkens back to an avant-garde dream from the early twentieth century. The "absolute film" and radio art pioneers of the 1920s and video artists in the 1960s continued to develop existing media technology to their own

ends, designing utopias for the unrestricted artistic exploitation of these channels. Their work, however, was always subject to the realities of an existing media system whose technological, economic, and distribution parameters were beyond their control. While this kind of media art is limited to alternatives inside the niches of the system, early Net-based art sought to explore the limitless potential of an entirely new, still unformatted and unestablished medium—one whose future had yet to be prescribed or coded in commercial, political, or cultural terms. It is also this avant-garde dream, or the possibility of it coming true for the first time, that fed the strong fascination these artists felt for the Net—a fascination so seductive that they periodically abandoned all other art activities. For the rest of the art world, it was as if they had vanished into cyberspace.[25] With this disappearance from the art context, the frameworks assumed a new role in the media context and began acting as service providers. By the mid-1990s, the projects' experimental, artistic, and utopian character had settled into professionalism, suggesting that their relative, temporary autonomy always referred, if *ex negativo*, to the modernist, individualist, autonomous work of art. The consequence for a next generation of Net-artists was a partial return to the notion of an "artwork," and thus to "Net art" in the narrower sense, a phenomenon examined later in this essay.

25 Wolfgang Staehle, Helmut Mark, Konrad Becker, jodi.org, and Ingo Günther had successful artistic careers with videos and installations before they started their Net projects. According to Staehle, whose video works have once again found acclaim, the period in which he was working on THE THING remains a black hole in his official career as an artist: "I didn't do any exhibitions for ten years. And before that, I was a typical gallery artist; then for ten years, I wasn't, and for some reason, the dealers were mad at me: 'Oh, Staehle is lost out there in cyberspace.'" (Wolfgang Staehle, interviewed by Nina Fuchs, Berlin, August 21, 2008).

The problem is not a new one: the historic avant-garde movements and neo-avant-gardists of the 1960s—from the earliest examples to Beuys— had always been characterized on one hand by the conflict between the absolute artistic autonomy they continued to demand, and on the other hand by their aim of transposing art into life, an objective that could only be achieved through a relativization of this very autonomy. Net-based art has also been unable to solve this conflict.

Around 1997, Net-based art reached a dead end or turning point. Though its presentation at documenta X and Hybrid Workspace brought the phenomenon of Net art to the art world's attention, the era of the media-specific avant-garde faded as more and more commercial and cultural producers poured into the World Wide Web: "It's getting crowded," Marc Ries wrote in 1997.[26] Thus, the three factors mentioned as being responsible for Net-based avant-garde's leading edge were soon overtaken as:

• The technological infrastructure for access to the Net was commodified by commercial providers in the telecommunications industry
• Testing of a networking discourse and social model became part of private life and the working environment, thereby losing its voluntary character outside of self-determined communities
• In the art world, "offline" artworks successfully adopted several conceptual models of networking, participation, and interaction (so-called relational aesthetics is one example)[27]

Rather than detract from the frameworks avant-garde status or throw it into question, these developments actually reinforce it as having clearly an-

26 Marc Ries, in an assessment of the year 1997: "Netzkunst. Kunst der Netze," in *Medienkulturen*, ed. Marc Ries (Vienna: Sonderzahl Verlag, 2002), 261.

ticipated what was to come. In a techno-social context that included discursive, aesthetic, and political elements, the experiments and models propounded by these frameworks anticipated the potential of networking. Art as anticipation has been a leitmotif of the avant-garde movements throughout the twentieth century, and has been subject to controversial discussion since the neo-avant-gardes of the 1960s: for the most part, art does not translate into life as a result of what avant-garde artists actually *do*. Instead, these avant-garde movements delivered a premonition of social processes and possibilities later determined by political and economic factors. In this case, the avant-garde can only be recognized as having anticipated later developments after the fact, and cannot be seen as having caused these changes directly. Even still, differentiating between pure anticipation or prescience, an inspiring role model, and direct cause-and-effect can be difficult since it is impossible to gauge or even to prove which transfers might have occurred.

Thus, interestingly enough, this avant-garde principle of anticipation became a real driving force behind the New Economy of the late 1990s, a commercial but essentially utopian economic bubble that imploded as soon as

27 Nicolas Bourriaud's concept of relational aesthetics uses Internet-influenced terminology ("user-friendliness," "interactivity," "DIY" or "do-it-yourself") for the communicative, participatory, and service-oriented approaches of the 1990s operating within the classic context of art or the public space. He ignores, however, Net-based art and the potential for social and political activism on the Internet, which would go beyond the context of art, as Julian Stallabrass remarks: "(W)hat Bourriaud describes is merely another art-world assimilation of the moribund or the junked, the re-presentation as aesthetics of what was once social interaction, political discourse and even ordinary human relations." See: Nicolas Bourriaud, *Relational Aesthetics* (Paris: les presse du reel, 2002), and Julian Stallabrass, "The Aesthetics of Net.Art," *Qui Parle* 14, no. 1 (Fall / Winter 2003/04): 49–72.

profit expectations turned sour. Even more drastic is the way in which Net-based art communities in the early 1990s anticipated developments in Web 2.0. In this sense, the framework projects stand for a last moment of opportunity for an avant-garde movement in the late twentieth century— one, however, that was quickly subsumed or sublated (in Hegel's double sense of the word) by the reality of digital mass culture through a techno-social development beyond the art context. This notion of "sublating" art into life has also emerged with every avant-garde movement since the early twentieth century.[28] Rather than translate art into life, Net-based art was overtaken, so to speak, by techno-social innovations taking place in the lives of those in the Net-based society. As a matter of fact, the dot-com bubble of the late 1990s continued to employ the central motifs of Net-based art in a manner as perverted as it was exalted, though the general public was unaware of this. Evidence of the difference between the art world and the corporate environment can be found in the fact that, despite considerable symbolic capital and a distinguished community of early adopters (an enviable situation for any start-up company) none of the frameworks would become players in the New Economy. On the contrary, these pioneering projects were marginalized by the Internet boom. After Internet access was commodified in the second half of the 1990s, Net-based art no longer had to operate its own technological infrastructure, and with this the ideal of a self-determined community waned.

Some readers might begin to wonder if such heavyweight art historical concepts as "modernism" and the "avant-garde" are being trotted out all too easily for the sake of enhancing the theoretical value of a supposedly

28 For more on this, see Peter Bürger, *Theorie der Avantgarde* (Frankfurt am Main: Suhrkamp, 1974); and, in reference to Bürger and Hegel: Gene Youngblood, "Metadesign, Die neue Allianz und die Avantgarde," *Kunstforum International* 98 (January/February 1989): 81.

marginal phenomenon of early 1990s art.[29] In this case, one would have to point to the artists' self-perceptions and to the interviews conducted for the Net Pioneers project, where the possibility of being avant-garde was a frequent topic.[30] In principle, these doubts are not entirely unjustified, and warrant a deeper analysis and clarification of the terminology as it is used in critical writing on Net-based art. This will be addressed later in the essay, though it is possible (even without clarifying the terminology) to justify why these projects, some of which have all but disappeared from the public

[29] This is also seen in their value on the art market: video art from the 1990s can be worth five figures today, while there is hardly any money available for preserving and documenting Net-based art.

[30] Wolfgang Staehle: "To return once again to the early nineties, to the very early social networks or communities. This was an experience that no one had had before. Being involved in exchanges with people on another continent and carrying on a discussion with them—nowadays, that is very normal with today's technology, but in those days, we thought that we were a bit avant-garde, if there was still such a thing." (Staehle, interviewed by Nina Fuchs, Berlin, August 21, 2008.) "There was a feeling of being ahead of things, and we certainly also had this attitude that we knew where things were going. And we were realizing—and that also is reflected in some of the discussions, I believe—that this would have a big impact. This development would have a big impact; transactions would happen much faster, would have an impact socially, politically, in the financial world, in the military; everything would be accelerated; machines, basically, would make decisions for us, eventually. We knew this would change everything. Other artists did not care; the art discourse went on and on; this was a little bit antiquated. So yes, we felt a little bit *avant*." (Staehle, interviewed by Dieter Daniels, Berlin, January 5, 2009.) Helmut Mark: "In those days we were convinced—especially when THE THING was founded in Vienna—that this was new territory, and—if you want to put it like that—we were euphoric and wanted to be pioneers. Looking at it that way, we questioned the existing art system, in favor of a far more expanded concept of art and reception." (E-mail to the author, March 3, 2009.) "We were experimental, you cannot deny that „experimental" has been an ugly word, almost, in art, like, you know, you think, oh, experimental cinema, oh my God, experimental this or experimental that, you could call it avant-garde; it sounds a little bit better." (jodi.org, interviewed by Dieter Daniels, Berlin, January 30, 2009).

eye, deserve more attention. Unlike the later Web-based Net art, the frameworks projects have not been extensively examined by art critics and historians. They have attracted little to no field research either from an analytical-theoretical standpoint or with regard to its documentation and preservation. The fact that these projects have remained largely unexamined until now is due in part to the fact that their initiators and operators are often unsure as to whether or not they themselves have or can justifiably lay claim to the "artist" designation.[31] At times, however, they did have an enormous influence on the lives of the people in their communities, as the first to provide access to the electronic network, thereby triggering immediate feedback from the social micro-system of each scene.[32] Still, there

31 This ambivalence is obvious in the interviews and conversations conducted with the Net pioneers: Jörg Sasse, founder and operator of THE THING Düsseldorf, refuses to call the project art, because the act of transformation necessary for art does not occur. (Conversation with Jörg Sasse, Berlin, January 30, 2009.) Staehle gives an ambivalent answer to the question of whether THE THING is art: "The exact same question was also asked at that time. And I could never decide: is what we're making now art, or is it just all baloney or something, and at some point I just let it go; I didn't want to make that decision. At some point it was, for me, somehow, conceptual nitpicking: maybe it's art, maybe it isn't. Why not just keep going and keep talking about it." (Staehle, interviewed by Nina Fuchs, Berlin, August 21, 2008.) Helmut Mark: "THE THING Vienna actually began as an art project, pure and simple." (Mark, interviewed by Dieter Daniels, Linz, February 18, 2009.) Compare also: the comparative investigation of several of these community projects, carried out by Josephine Bosma, who came to the following conclusion: "It may seem irrelevant whether the initiators of these projects thought their work was art initially or not. The fact that they did, however, shows that the boundaries of an artwork are not just blurred; in the course of its development this particular type of artwork dissolves almost completely." Josephine Bosma, "Constructing Media Spaces" (2004), http://www. medienkunstnetz.de/themes/public_sphere_s/media_spaces/13/.
32 In the 1990s, the art scenes in Vienna, Berlin, and New York consistently maintained e-mail addresses through the projects active in each location: THE THING, Public Netbase, and International Stadt. This is also something that distinguishes them from museum network portals, such as Walker Art Center's äda'web.
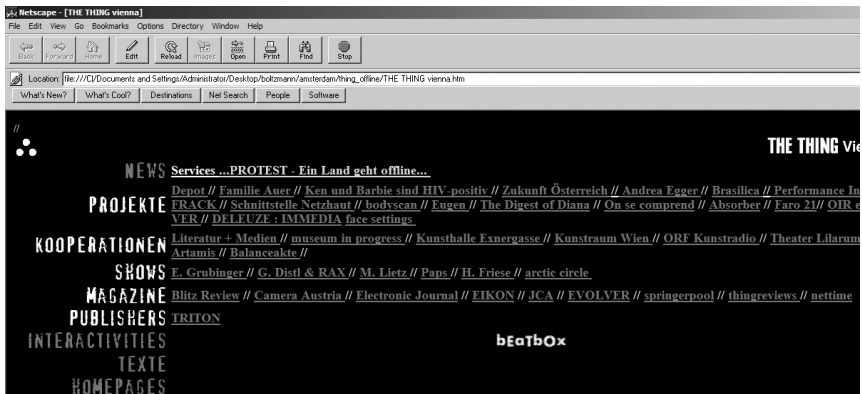
Screenshot of THE THING Vienna Website, 1996

were significant differences among the projects mentioned here, in terms of
conceptual orientation and practical realization as well as among the
people collaborating on individual projects. This directly affected the relation-
ship between individual autonomy and the collective utopia so much that
it left significant traces behind, even when it came to the technical structure
of this type of network node. Therefore, the fact that the frameworks'
overall designs seem very similar in retrospect should not distract us from
the fact that, for instance, THE THING New York wanted to remain more of
an internalized "club" for members' online debates, while German-language
Thing nodes in Cologne, Düsseldorf, Frankfurt, and Vienna actively linked
and shared their publics. Meanwhile the Public Netbase and nettime mailing
list actively addressed the general public, including classic mass media.
What is more, the content of these concepts changed over time, not only
because of the participants but also in reaction to the surrounding media.
Around 1994–95, text-based BBS discussions lost their intensity and, as
previously noted, some of THE THING's nodes turned to the Web while others
ceased activity altogether.[33] Media context changed with the emergence

of the Web, lending renewed vigor to these frameworks as they became not only more visible to a non-participating outside public, but also easier to address for print and broadcast media. Long-term, semi-commercial structures emerged in New York and Vienna, providing servers and services while maintaining technological and organizational independence. Internet mailing lists such as nettime and Rhizome took over the communicative, discursive function of the BBS systems as of 1995–96, but because of the larger number of participants , they tended to be forums for audiences with special interests rather than communities participating in dialogue. Writing on Rhizome founder Mark Tribe, Josephine Bosma commented: "Rhizome is definitely the most successful art platform on the Internet ever. It gets millions of hits a month and has thousands of members. One can wonder, however, whether one can still speak of a community and collaboration when there are probably 100 lurkers for every participant."[34] In establishing a new Thing platform a decade after its closing in Hamburg, its founders deliberately called for a return to "the basic ideas of THE THING … dialogue and writing about art and culture, initiated and operated by artists," in order "to develop our own information and communications infrastructure."[35] On the other hand, in the mid-1990s, the etoy group had already turned their backs on the fundamentally democratic community spirit to form a hermetically-sealed corporation closed to outside participants. They did, however, still want to address a mass audience with their Internet activities, even if it meant resorting to technological violence (e.g. *The Digital Hijack*).

33 For instance, Jörg Sasse was primarily interested in the potential for multiple narratives on the BBS, and so he shut down THE THING Düsseldorf, instead of switching to the Web. (Conversation with Jörg Sasse, Berlin, January 30, 2009).

34 Josephine Bosma, "Constructing Media Spaces" (2004), http://www.medienkunstnetz.de/themes/public_sphere_s/media_spaces/scroll/#ftn28.

35 See http://www.thing-hamburg.de/index.php?id=405.
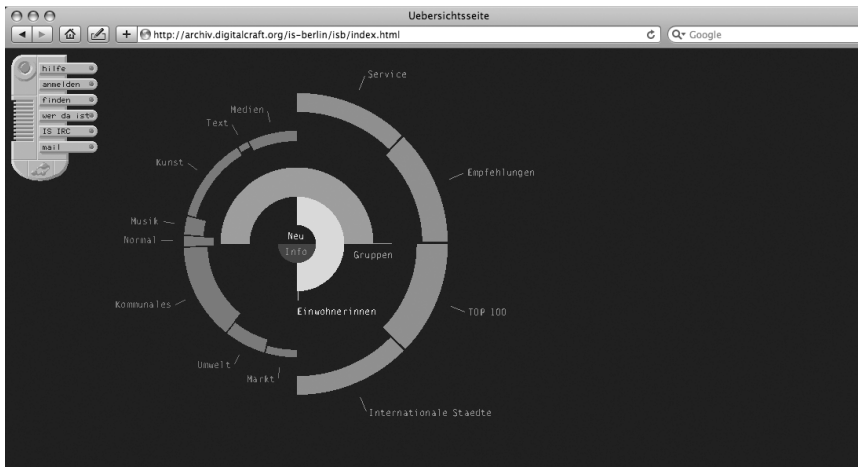
Internationale Stadt Berlin, 1994–1997, Web interface see: http://archiv.digitalcraft.org/is-berlin/
isb/index.html

FROM NETWORK TO ARTWORK

In the mid-1990s, the goal of building autonomous, artist-owned-and-operated communicative structures was gradually replaced by the so-called Net art in a narrower sense, thereby pushing the individual artistic concept or art-work to the fore. A prerequisite for this second step was the granting of access to the medium and the development of an artistic community within it by the frameworks, which also hosted most of the individual projects. Visual design became more and more important in the Web, thanks in part to the conceptual efforts and technical developments of frameworks such as the Internationale Stadt Berlin. This met the expectations for a visual art context better than the text-based, collective BBS discourse had in the past.

This shift from the process to the work goes hand in hand with the individualization of authorship, a phenomenon easily traced in case studies documented by the Net Pioneers project. The development moved from open collectives such as THE THING and the Public Netbase, to hermetic groups such as etoy, to individuals like the team of artists working under the pseudonym jodi.org. For the first time, prominent individual works by artists not primarily known as Net-based artists emerged in contexts such as THE THING or Internationale Stadt—for example, *Netzbikini* (1995), *Computer-aided Curating* (1993–95) by Eva Grubinger, and *Basic Japanese & Basic English* (1994) by Rainer Ganahl. In Grubinger's case, this form of Net-based art was dedicated to issues involving the art distribution system and its potential to change or expand through the Internet, while the work of etoy, jodi.org, and other members of the so-called Net.Art group was devoted to analyzing the radical transformation taking place in the Internet and its technological, formal, aesthetic, social, commercial, and political functions.[36] Here we see a clear shift in both interest and focus: it had less to do with an internal, collective, communicative process than with voicing an opinion on the establishment and commercialization of the Web as a medium of consumption rather than of participation. Joachim Blank summarized this very aptly in 1996 when he differentiated between "context systems" (described here as frameworks) and "researchers, troublemakers, individual perpetrators" as Net-based art in a narrower sense.[37] Critique of the art world and euphoria over what appeared to be an unlimited communicative and technical autonomy gave way to an analysis and critique of the Net in reaction to the changing media environment. According to Staehle, the starting

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36 A loosely connected group functions under the label Net.Art: it includes not only jodi.org, but also Vuk Cosić, Alexei Shulgin, Olia Lialina, and Heath Bunting, as well as Art Teleportacia Online Galerie (run by Olia Lialian), and associated art critics such as Josephine Bosma and Tilman Baumgärtel.

37 Joachim Blank, "What is Net Art," 1996, http://www.irational.org/cern/netart.txt.

point for The Thing was his critique of "institutional critique" and its gradual commodification by the art world—a commodification he sought to avoid by finding a new medium.[38] Just a few years later, etoy's and jodi's interventions, however, aimed at the commodification of the Internet as a future mass medium. As jodi.org aptly put it: "We're doing these things because we're furious."[39] In other words, artists active on the Net found themselves poised between two fronts: dissidents of the art scene on the one hand and opposers of the Internet's subsumption into mainstream media on the other hand.

The first generation of framework initiators (Wolfgang Staehle, Helmut Mark, and Konrad Becker) had no interest whatsoever in making "Net-based works of art" and are even somewhat skeptical of this development. By contrast, the second generation saw the server systems they were operating as exploiting the formal, technological potential of an innovative aesthetic. Examples of this can be found in the work of etoy or Blank & Jeron, an artist duo that emerged from the Internationale Stadt Berlin in the last year of its existence. Jodi.org, on the other hand, did not need any kind of server technology for what they refer to as their "browser art," and explicitly distanced themselves from the frameworks.

38 "In those days there was a movement—institutional critique… the ironic thing about that was that the institutions very rapidly caught up with it, framed it, and then re-institutionalized it themselves. And so I thought, someone needs to actually try to do that again outside of this institutional framework… So we did not at all intend to bring that back into art again. Rather, we chose very deliberately to take an outsider position, simply to create a discourse that might possibly be independent of the constraints that institutions always impose … to be able, for once, to talk freely about the whole phenomenon of art." (Staehle, interviewed by Nina Fuchs, Berlin, August 21, 2008).

39 Tilman Baumgärtel, *net.art: Materialien zur Netzkunst* (Nürnberg: Verlag für Moderne Kunst, 1999), 108.

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wwwwwwwww.jodi.org. The Sub-Domain wwwwwwwww was installed in 2001 and contains works from 1995 to 1998.

Interestingly, they even use the term "broadcasting" for their Web-based work, which was not set up for communication or participation, but which could be seen as a caricature of interactivity.[40] The artistic and discursive Net cultures, once linked by their integration into frameworks, split into two

40 "A new medium started … a distribution system, which is going world-wide directly in peoples' houses; this is what we have to pay attention to and to work on, and that was the statement of Net art. That's the core statement of Net art and that's really valuable." (jodi.org, interviewed by Dieter Daniels, Berlin, January 30, 2009). "Broadcasting the work … we were fascinated by the tool of the browser connected to all of the other browsers, repeated in all other places, peoples' computers … that would appear on your computer in the morning or the middle of the day." (jodi. org, in an unpublished interview conducted by Robert Sakrowski, Berlin, 2003).

halves in the late 1990s. Though the discourse continued to circulate in mailing lists such as nettime and Rhizome, nettime, for instance, no longer defined itself as an art project. The more narrowly defined artistic, creative, Net-based art could be found under domains dedicated to individual projects; it was no longer related to the context of a framework. These mailing lists did, however, play a crucial role in the discussion and promotion of Net-based art. Only a few interventions succeeded in linking back art and discourse, one example being when jodi.org or Netochka Nezvanova (an anonymous Net-identity, today known as Rebekah Wilson) flooded the mailing lists with what at first appeared to be cryptic spam, but which actually contained hidden auto-poetic code semantics. The action resulted in either censorship (disguised as moderation) or in the lists being shut down altogether.[41]

Unlike the frameworks, formally aesthetic, media-analytical Net-based art-works claim explicitly to be works of art. They are artifacts that come to life not during the communicative process but in their visual reception, requiring only symbolic participation from the user. Some of the projects are more like measuring instruments, gauging the context of the Internet and its trans-formation,[42] while others even refuse user participation, intentionally leaving

[41] Jodi.org describe this intervention as a work of art. (jodi.org, interviewed by Dieter Daniels, Berlin, January 30, 2009). An exemplary analysis can be found in Florian Cramer, "Exe.cut[up]able statements: Poetische Kalküle und Phantasmen des selbstausführenden Texts," dissertation (Freie Universität Berlin, 2006).

[42] For more on this, see Olia Lialina: "In 1998 Heath Bunting launched http://www.irational.org/_readme.html … by connecting every word of the article to the same word but with .com, Bunting made a tool that I use already [sic] for ten years to see how words on the Web change their meaning and owners. And the way WWW grows stagnate [sic] and is reshaped. In 1998 many words were still not registered as domain names; in 2000 each of them was; in 2001 many were free again; in 2003 they found new owners. From 2004 [sic] only rare free verbs and adverbs from this page are not subjects of domain auctions." See http://www.nettime.org/Lists-Archives/nettime-l-0711/msg00048.html.

him or her with a sense of powerlessness in the face of the medium (e.g., jodi.org, *OSS*, 1998—this manifested itself as uncontrollable chaos on the PC desktop or, in the case of etoy's *The Digital Hijack* (1996), in the user's virtual kidnapping via manipulated search engines). As the Internet became more commercial, analytical reflection of the Net context changed into a cultural critique associated with the methods of "hacking" and "culture jamming."[43] When the New Economy crashed, Net theory also turned into dystopia, a sentiment standing in sharp contrast to the euphoria predominant in the early 1990s.[44] In this sense, Net-based art and its change in attitude during the 1990s was like a model of the development of a networked society. Though its importance as an example expands far beyond the art context, it has remained largely unexamined in media studies until now. The Net Pioneers project therefore methodically reflects upon and documents this significance by digitizing contextual materials (such as correspondence, programmatic texts, artists' print material, and press clippings) and by making them available with the Net-based projects as online source material. These "snapshots" of the intellectual milieu might serve as kinds of replacements for what can no longer be documented: the way in which these projects are embedded in the contemporary context of the Internet.[45]

43 Even as Net-based art was coming into existence, the connection to hacker culture was important, inasmuch as many of the programmers came from this environment.

44 Some examples are the books published by Agentur Bilwet and one of its members, Geert Lovink; their titles already provide a short history of the relevant topics: *Bewegingsleer*, 1990 (published in English as *Cracking the Movement: Squatting beyond the Media*, 1994); *Media-Archif*, 1992 (published in English as *The Media Archive*, 1997); *Der Datendandy* (The Datadandy), 1994 and *Elektronische Einsamkeit* (Electronic Solitude), 1997. By Geert Lovink only: *My First Recession*, 2003; *Zero Comments: Blogging and Critical Internet Culture*, 2007.

45 See the text by Robert Sakrowski in this volume.

FRAGMENTS OF A MODERNIST TYPOLOGY

Despite the significant differences between the artistic approaches mentioned in this essay, there are also important similarities. Though it is possible to define a descriptive, technical, or formal typology of these similarities and differences, such a typology would say little about how Net-based art served as a model for the networked society. However, the possibility of being avant-garde can serve as a leitmotif for this essay, especially in terms of a revival of modernist motifs and their relations to media since the early twentieth century. Through the cases studies examined by the Net Pioneers and a few related projects, it is possible to summarize some of these modernist motifs and utopias as follows:

• A critique of the "bourgeois" concept of art, of the commercialization and institutionalization of art. (According to Wolfgang Staehle, THE THING was initially motivated by "institutional critique." Helmut Mark has noted its opposition to artistic, individualistic autonomy.[46])
• A kind of "art for all" that would reach its audience directly, bypassing the gatekeepers of the art context (this primarily applies to Web-based works by jodi.org and etoy)[47].
• Collective authorship, or anonymous works, as a critique of the idea of "genius" (e.g.The Thing as a collective discourse, etoy as a group of anonymous members, and jodi.org as a domain name that became a sort of pseudonym).
• The transition from art to life and politics (explicitly in the case of etoy and Public Netbase, as well as in the different attitudes about whether THE THING could be called art or not).

46 "In those days, at least as far as the discourse then was concerned, we wanted, in a certain way, to overcome precisely this concept of the autonomy of art." (Helmut Mark, interviewed by Dieter Daniels, Linz, February 18, 2009).

- Art that does not want to be recognized as art (in the case of jodi.org).[48]
- Art as an effect or shock of the real (e.g. etoy's *The Digital Hijack* (1996), *Toywar* (1999), and later projects by former etoy members such as vote-auction.com).[49]
- Internationalism or non-nationalism (explicitly, THE THING, and implicitly, jodi.org and other Net.Art artists).[50]

[47] "Certainly, we turned our back actually [sic] to the art world and had all the reaction through the Internet. But then, surprise, surprise, we got reactions from people who—from Russia and from Germany and from all over the world—who were also interested in making art on the Internet, and also, at that moment, had the same feeling of, 'This is the future, we turn our back on the gallery world. We are independent. We don't have to be in the white cube. We are doing our stuff online.'" (jodi.org, interviewed by Dieter Daniels, Berlin, January 30, 2009).
This idea inspired telecommunications art long before the World Wide Web: "The artists who began intervening in networks in the late 1970s initially did so in defiance of the art industry. 'In our view,' said Hank Bull and Patrick Ready, 'it was about art that did not have to go through the art business, but reached the listeners directly from the artists, the producers.'" Inke Arns, "Interaction, Participation, Networking: Art and Telecommunication," *Media Art Net 1: Survey of Media Art*, ed. Rudolf Frieling and Dieter Daniels (Vienna/New York: Springer, 2004), http://www. medienkunstnetz.de/themes/overview_of_media_art/communication/8/.

[48] "There's no 'art' label sticking to it." Jodi.org, on their work in Tilman Baumgärtel's *net.art: Materialien zur Netzkunst* (Nürnberg: Verlag für Moderne Kunst, 1999), 107. See also, Heath Bunting, interviewed in 1997 by Josephine Bosma: "So if you say: this is an artwork, you've blown the cover immediately." (http://www.heise.de/tp/r4/artikel/6/6176/1.html).

[49] Compare Julian Stallabrass on the "aesthetic instrumental switch" between real, political and artistic, aesthetic function. For instance, Pit Schulz describes Paul Garrin's project *namespace* as "maybe the best Net-art project I know, but only if it did not work." Julian Stallabrass, *Internet Art: The Online Clash of Culture and Commerce* (London: Tate Publishing, 2003), 103.

[50] "Because our site is anonymous, no one can judge us according to our nationality." Jodi.org, in: Tilman Baumgärtel, *net.art: Materialien zur Netzkunst* (Nürnberg: Verlag für Moderne Kunst, 1999), 113

- Reflection on the medium in the medium and the deconstruction of its materialism (etoy, jodi.org).
- The revision of formalist approaches, referring to the network medium (jodi.org, Blank & Jeron).

These are not consistent, overall concepts explicitly following the oversized footsteps of the modernist tradition, but rather scattered bits and pieces from the history of modernist ideas. They are examples of the imposing, yet never completed, modernist construction sites, some of which have long been abandoned to decay, whereas some of these ruins are now being re-visited and re-evaluated by Net-based art. To paraphrase one of the leit-motifs of documenta 12 in 2007: "Is modernity our antiquity?"

The strong influence that these motifs have on artistic self-awareness— particularly as unfullfilled utopias which, despite all of their contradictions can never be fully refuted—is evident in the manifesto *Introduction to net art* by Natalie Bookchin and Alexei Shulgin. Blank & Jeron chiseled it in stone and displayed it, like a tombstone or memorial to Net-based art, in the first and last large exhibition showing a panorama of Net art in 1999: *netcondition*.[51] Headlined as "The Ultimate Modernism," it includes an extensive typology that oscillates between emphasis and irony.

Using historical modernism rather than contemporary postmodernism as the methodological leitmotif in our examination of Net-based art might sound strange to some readers. In the 1990s, the theoretical discourse on the Net (not necessarily Net-based art) was profoundly permeated by postmodernism (the Net was thought to fulfill central elements of postmodern theory:

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[51] http://on1.zkm.de/netcondition/projects/project06/default_e and http://www.easylife.org/netart/catalogue.html.
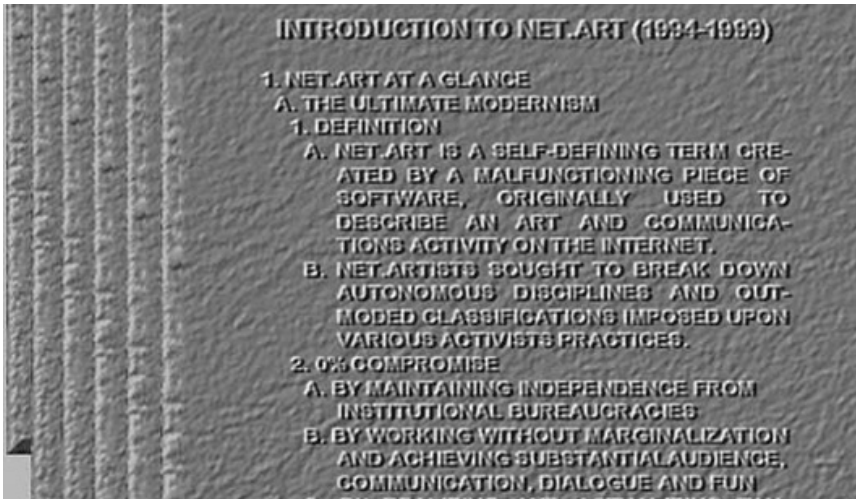
Introduction to net.art by Natalie Bookchin and Alexei Shulgin, chiselled in stone by Blank & Jeron, 1994–1999

non-linear, rhizomatic, hyper-textual, authorless), and this can be seen simply by looking at the titles of a few influential books. One often-overlooked fact, however, is that the Internet realized essential concepts that had accompanied modernism long since: ubiquitous and simultaneous information awakened a hope for the democratization of communications—exactly what was hoped for in the early days of the telegraph and radio.[52] At the same time, the Internet had a strong impact—comparable to the electric telegraph in the nineteenth century—on the economy's (neo-) liberal globalization. Contradictory to all media-immanent, postmodern theories, many aspects of Net-based society's ideology and practice might be called neo- or hyper-modern. Net-based society is fixated on innovation and

[52] See the chapter on "Zweihundert Jahre Medientechnologie und Demokratieutopie" in Dieter Daniels, *Kunst als Sendung: Von der Telegrafie zum Internet* (Munich: C. H. Beck, 2002), 28–32.

the future in complete opposition to the "there is nothing new under the sun" nostalgia characterizing the postmodern era, as particularly evidenced by the architecture and visual arts of the 1980s.

The question of the avant-garde status of Net-based art, and of its modernity or postmodernity, is common throughout all of the literature on Net-based art. In the literature it is possible to roughly differentiate between the following three positions:

a) A partial continuity of avant-garde motifs. According to Julian Stallabrass, Net-based art (although playfully fractured), is still oriented toward its original ideas.[53] This also corresponds to the ambivalence of the "ultimate modernism" in the manifesto by Bookchin and Shulgin.[54] In contrast, Peter Weibel postulates a purely affirmative, unhistorical logic of fulfillment, which in the end declares that technology itself will replace the old artistic utopias.[55] This "deliberate naivety" has been justifiably criticized.[56] Two master theses devoted exclusively to Net-based art as avant-garde do not take into consideration that these art works are self-reflectively dealing with the history of the avant-garde movements.[57]

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53 Stallabrass compares the avant-garde attitude of Young British Art, which was consumed by the art market, to that of Internet art: "In contrast, many of the actual conditions of avant-gardism are present in online art; its anti-art character; its continual probing of the borders of art and of art's separation from the rest of life; its challenge to the art institutions; its genuine group activity, manifestos and collective programs; and most of all an idea of forward movement (as opposed to one novelty merely succeeding another)." For him, early Internet art could be characterized as "a play with the condition of autonomy … a play with the idea of being avant-garde." Julian Stallabrass, *Internet Art: The Online Clash of Culture and Commerce* (London: Tate Publishing, 2003), 35ff.

54 *Introduction to net.art*, http://www.easylife.org/netart/catalogue.html.

b) A postmodernist reappropriation of modern and especially of formalist strategies. According to Brett Stalbaum, media-reflective Net-based art supplies an "oppositional and strategic pastiche of a modernist conceptual framework."[58] Josephine Berry defends Net-based art against criticism that it is non-political and "techno-formalist" by explaining that it works against the implicitness of the "commodity" of the Internet, and tries to keep the medium open and variable in terms of aesthetics and function.[59]

55 "Net.art—reaching from physical, local installations to the world-wide-linked computer games—has become the forum within which most of the emancipatory hopes of the avant-garde art have been formulated anew. … One condition and a principle reflection that feed the interest in the development of a global network is the belief that the social-revolutionary hopes of the historical avant-garde can be fulfilled technologically now." Peter Weibel, "net_condition Art in the Online Universe," exh. brochure and press release, ZKM Karlsruhe (1999), http://on1.zkm.de/news/artlog/stories/1999/08/netcondition.

56 Refering to Weibel's statement, Barbara Basting writes: "The artists, on the other hand, cannot be guilty of such deliberate naivety." Barbara Basting, "Salon für Cyberkünstler," *Frankfurter Allgemeine Zeitung* (October 18, 1999): 54.

57 Daniel Stringers approach is based only on the avant-garde theory of the 1970s; Guido Hirschsteiner operates with a systems theory approach, which overlooks the historical dimension. See Daniel Stringer, "How Does the Tradition of the Avant-Garde Continue on the Internet?" (January 2001), http://sparror.cubecinema.com/dan/diss.html. See also: Guido Hirschsteiner, "Netzkunst als Avantgarde," Master's thesis, Ludwig Maximilian University (Munich: September 2000), http://www.hirschsteiner.de/.

58 Brett Stalbaum, "Conjuring Post-Worthlessness: Contemporary Web Art and the Postmodern Context," *Switch Magazine* (January 1997), http://switch.sjsu.edu/web/art.online2/brett.links/conjuring.html. In particular, see two chapters: "Habitual Modernism as the Root of All Worthlessness" and "'Pastiching' the Modernist Avant-Garde: A Postmodern Strategy." See also Brett Stalbaum, "Aesthetic Conditions in Art on the Network: Beyond Representation to the Relative Speeds of Hypertextual and Conceptual Implementations" (Summer 1997), http://switch.sjsu.edu/web/v4n2/brett/.

59 Josephine Berry, "Human, All Too Posthuman? Net Art and its Critics," Tate Online Intermedia Art section (2000), http://www.tate.org.uk/intermediaart/entry15616.shtm.

In many respects this is a new, postmodern version of the modern formalism debates of the 1950s.

c) A rejection of the genealogy of the succession of avant-garde movements, in favor of postmodern continuum and an emphasis on the conceptual and contextual aspects instead of the formalist type (see Jacob Lillemose[60]). Calling the Net.Art group a parody of an avant-garde movement on Wikipedia is also a way to oppose any serious continuation of the historical avant-garde.[61]

All of the literature quoted above deals with "Net-based art" as a whole. However, this essay and the Net Pioneers project both distinguish between the various artistic strategies and technical methods that unfolded over the era of Net-based art. Moreover, the connection to contemporary scientific theory—as for example in Bruno Latour's critique of modernism and postmodernism—is almost entirely absent from the discussion of Net-based art and its relationship to modernism and the avant-garde. Only Timothy Druckrey examines this possible parallel of the artistic and theoretical confrontation with the history of modernism, although he does not discuss individual works of art in depth.[62]

60 Jacob Lillemose, "A Re-declaration of Dependence," (2004), http://www.artnode.org/art/lillemose/ readme2004.html, especially the section "Towards an Aesthetic of Contextual Software Not-Just-Art."

61 "Although this group was formed as a parody of avantgarde movements by writers such as Tilman Baumgärtel, Josephine Bosma, Hans Dieter Huber, and Pit Schultz, their individual works have little in common." (http://en.wikipedia.org/wiki/Net.art.)

62 Timothy Druckrey, "Initial Conditions," in *net_condition art and global media*, ed. Peter Weibel and Timothy Druckrey, (Cambridge, MA: MIT Press, 2001), 21ff.

AVANT-GARDE—MODERNISM—POSTMODERNISM

The terms "avant-garde" and "modernist" are often used interchangeably. In this text, however, it seems to be useful to differentiate between the two terms. Without referring to an extensive literature review, it is possible to derive a differentiation from an understanding of everyday language, similar to the way Peter Bürger did in 1974.[63] "Avant-garde" is always defined by temporal difference and artistic dissent to what already is or has already been established. It does not claim to be "contemporary art," but rather to be ahead of its time, and contains reflections on and criticism of the status quo in art and culture. It claims to be different from everything we know by using effects ranging from irritation to destruction. Throughout all avant-garde movements threads the motif of transfer from art into everyday life.

In answering the question "Is making art still necessary and possible?" the "new" media are assigned an important role, from Walter Benjamin's thesis on photography and film to Lev Manovich's question "Is Art after Web 2.0 Still Possible?".[64] It is precisely because of its temporary nature that the avant-garde has always carried within itself its own future dissolution and removal. One could say that its expiration date is also its trademark.[65]

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[63] In his "Theorie der Avantgarde" (1974), Peter Bürger examined the failure of avant-garde movements in the early twentieth century, as well as their revival by the neo-avant-garde artists of the 1960s. Adding to this in 1995, Bürger is differentiating between the avant-garde and modernism: "Modernism" aims "to establish a new style for the whole epoch," and, in the process, continues to focus on the autonomy of the work of art. The goal of the "avant-garde," on the other hand, is to "change the way people live together." Peter Bürger, "Ende der Avantgarde?," in *Das Altern der Moderne: Schriften zur Bildenden Kunst* (Frankfurt am Main: Suhrkamp, 2001), 187.

[64] Lev Manovich, "Art after Web 2.0," *The Art of Participation: 1950 to Now*, exh. cat., San Francisco Museum of Modern Art (London: Thames & Hudson, 2008), 77.

Postmodernism declared the avant-garde's claim to originality outdated. Taking up Benjamin's thesis on the work of art in the age of mechanical reproduction, in 1981 Rosalind Krauss wrote that "the critique of the original always has to be linked to a critique of the myth of originality."[66] Thomas Crow went so far as to say the avant-garde serves the cultural industry by appropriating oppositional practices.[67] The term "avant-garde" might also seem exhausted because it has spread throughout many social and commercial contexts and is now commonly applied to cars, fashion, domestic appliances, and new technologies.[68] However, in the context of Net-based art and its implicit critique of the modern cult of genius, the temporary interventionist character of the avant-garde represents an alternative to modernism's absolutist claims. The avant-garde avoids this tendency toward the absolute because it always has to define and differentiate itself from its contemporary context. In contrast to the temporary intervention of the avant-garde, modernism is founded on the belief in a lasting innovation. It marks the beginning of a new epoch, whose end is neither expected nor debated. While the principle of the avant-garde allows for context-related, temporary, new versions, modernism can never fall back behind itself. Situationism can therefore be understood as a kind of avant-garde critique of

65 Nevertheless, or precisely because of them, avant-garde movements have tended to historicize themselves. See Astrit Schmidt-Burckhardt, *Stammbäume der Kunst: Zur Genealogie der Avantgarde* (Berlin: Akademie Verlag, 2005).

66 Rosalind Krauss, "The Originality of the Avant-Garde and Other Modernist Myths," *October*, no. 18 (Fall 1981).

67 Thomas Crow, "Modernism and Mass Culture in the Visual Arts," in *Modernism and Modernity: The Vancouver Conference Papers*, ed. Benjamin H. D. Buchloh, et al. (Halifax: The Press of the Nova Scotia College of Art and Design, 1983), 215–64.

68 Just to mention a current example: "Twitter Medium der Avantgarde," *Süddeutsche Zeitung* (December 5, 2008), http://www.sueddeutsche.de/computer/741/450463/text/.

totalitarian modernism. An opposing example is provided in Clement Greenberg's transformation from a political revolutionary modernism to a formalist affirmative modernism. The conflict—acute since the 1980s—between postmodernism and the different varieties of modernism and neo-modernism has to be evaluated more from an ideological standpoint than from an historical one. The notion that its paradigms could be outdated is unacceptable to modernist thought. Postmodernist theories do not seem to be capable of going beyond a defensive attitude, because even though they are correct in questioning modernism's claim to absolutism, they have nothing of equal value to offer in its place. The powerlessness of post-modernism is founded in the fact that it does not object to "the modern world" as such, embodied in the progress of technology and science, be-cause otherwise it would be declared an anachronism. Instead, it objects to modernism as the kind of "modernité," as Charles Baudelaire called it, which is itself an artistic, aesthetic reaction to technological, scientific modernity and its consequences for society.[69]

Since modernism lays claim to totality, but has never achieved it and has always remained a utopia, Bruno Latour asserts that it never actually began: "We have never been modern," is his thesis. He proposes instead that we regard modernism neither as a radical break nor as a one-time revolution, but rather as a process; an iterative model of continual translation and the net-working of hybrid conditions. Latour sums this up as a "sociotechnological network" that is ignored and misunderstood by established science: "criticism itself has to face a crisis because of these networks it cannot swallow." These sociotechnological networks "are simultaneously real, like nature, narrated, like discourse, and collective, like society," meaning that

69 See the chapter on "Modernität und Medien," in *Kunst als Sendung: Von der Telegrafie zum Internet*, ed. Dieter Daniels (Munich: C. H. Beck, 2002), 162–76.

they contain an inherent contradiction that cannot be resolved in modernist thought.[70] The surprising proximity of this terminology to early Net-based art is evident. However, it should not lead to a simplified analogy; since Latour's concept of network is both metaphorical and concrete at the same time, it cannot be understood in terms of technology.[71] This is also true for Hakim Bey's "temporary autonomous zone." For both authors, the discursive hybridity of the networks in 1991 is an alternative to modernism's claims of universalism. Even if it is by pure coincidence, 1991 was also the year that THE THING New York went online, and started a discourse inside the electronic network as an alternative to the mainstream modernist art world.

REVERSE ENGINEERING MODERNISM

Having differentiated between the terminology, we may apply it to our case studies and claim that the frameworks are "avant-garde" in their practice. As independent, social "reality communities," as Youngblood would call them, the frameworks are ahead of their time compared to the existing art and media systems. But this advantage is quickly overtaken by commercial, technological reality. The frameworks represent a moment of autonomous innovation, which they do not successfully build upon to establish their own long-term paradigms, because the network context surrounding them changes too rapidly. They are in accordance with the temporary quality of the avant-garde movement that becomes part of life before it can establish

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70 Bruno Latour, *We Have Never Been Modern* (Cambridge, MA: Harvard University Press, 1993), 5 and 6. (First published in French: *Nous n'avons jamais été modernes: Essai d'anthropologie symétrique* [Paris: La Découverte, 1991])

71 Latour is referring to mechanical networks such as the railway or telephone, which are both local and global, and the paths of ideas, knowledge, and facts is comparable to these kinds of technological networks. He did not yet mention the Internet, but rather the distributed intelligence of computers: "Reason today has more in common with a cable television network than with Platonic ideas." Ibid., 119.

I LEFT THE FRIENDLY MUTANT, THANKING HIM FOR HIS INFORMATION, AND MADE MY WAY TOWARD MY HOUSE! ALONG THE STREETS, I SAW MANY MORE OF THEM...

THE THING is an international bulletin board service offering discussions on art and critical theory. a virtual gallery of on-line projects, database archives, Internet E-mail, and live conferencing.

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Promotional flyer for THE THING New York, 1994

itself as modern. This is different in the case of the following Net.Art move-
ment. Its formal, self-referential analyses demonstrate a typically modernist
repertoire, disclosing, reducing, or destroying structures of the network
medium. The corresponding vocabulary employed by art criticism then some-
times seems like a distant echo of Clement Greenberg's verdicts on modern-
ism. However, in their outside presentation, the core group of Net.Art
deliberately chose to use relics borrowed from the history of the avant-garde
movements.[72]

In the 1990s, all contemporary artists, critics, and theoreticians of Net-based
art agreed that it was impossible to simply continue the modernist tradition.
Yet the spirit of Net-based art is not postmodern either, because it is still
obsessed with the future: promises which could be opportunities to be
grasped, or hopes to be spoiled. It may be possible to call this "re-modern-
ist." Fully aware of the break with modern tradition and of the zeitgeist of
postmodernism, it re-considers or re-enacts some of the central modernist
paradigms, including: the process of integrating art into life; non-nationality;
anti-commercialism; critical formalism; and, most importantly, the possibility
of being avant-garde. With this re-modern attitude and practice, Net-based
art does not expect to succeed in the framework of postmodernist art;
rather, it sees the Net as a place for the fulfillment of that which modernism
sought, but never achieved.
Without building much of a theory around its practice, the huge variety of
Net-based art created within the short period of 1992 to 1997 and docu-
mented in the Net Pioneers case studies seemed to be re-visiting modernism

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72 See their description in Wikipedia "as a parody of avantgarde movements." (http://en.wikipedia.org/
   wiki/Net.art.) A typical example of this semi-serious, semi-parodic attitude is the book series
   classics of net.art, which exists simply as an announcement on the Vuk Cosić website: http://www.
   ljudmila.org/~vuk/books/.

with an awareness of the fact that "we have never been modern," to quote the phrase by Bruno Latour. However, how can we understand modernism without even trying to be modern? How can we say that modernism is over or never took place, without testing it? And if we want to test it, how can we discover its modus operandi? To the postmodern mind, the technical and commercial success of "the modern world" (as the antithesis of aesthetic modernism) sometimes appears as a machine running at high speed, without a plan detailing either where to go or how to stop.[73] In the mid-1990s, digital media, the Internet, and the World Wide Web seemed to be the most advanced part of this machinery and were offered, in the face of all cultural and postmodern skepticism, as the ultimate proof that innovation will continue. In this specific context, the activities of Net-based art are in a paradoxical situation: they are a hybrid of the cultural, postmodern attitude and technological, hyper-modern dynamics. They operate in the gap between theory and practice, where the practice is part of technological, hyper-modern dynamics, and where the theory belongs to cultural, postmodern attitudes. This unique position enables Net-based art to analyze the forces and functionalities of modernity, not so much in theory, but through a symbolic practice, taking place within the digital medium. Metaphorically speaking, we can call this "reverse engineering modernism." Why reverse engineering? In software technology, reverse engineering involves analyzing the functions of a program without any available documentation, in a process of trial and error, and then rebuilding its functions step by step. Reverse engineering is also applied to any kind of hardware objects that can be disassembled and turned back into a blueprint, for example as illegal "look-alike" products. The best comparison here is that of a defunct software program, whose

73 This links the postmodern to the pre-modern critique of progress, as Baudelaire's concept of "modernité" points directly to the difference between the arts and the natural sciences, and their impact on technology.

functions and operations are analyzed, and the program made operational again. After reverse engineering a program, it is possible to run it again.[74] In this case, deconstruction and reconstruction are no longer separate, but rather are simply two ways of looking at the same thing. From a humanities viewpoint, this seems to resemble research methods employed in history or archeology. However, in software development, which is one of the most forward-looking industries, history is not an end in itself but rather a research tool applied in determining the future operability of old programs. This is exactly the way in which Net-based art reworks the programs of modernism and their relations to modernity: the lost blueprint and the no-longer-intelligible dynamism of modern innovation is analyzed, commented, simultaneously deconstructed and reconstructed, tested, and then put back into operation. This does not happen at a safe distance, like in the 'white cube' of the art world, but inside the most advanced system of the day: the digital network. Here, the antagonism between the techno-social "modern world" and its artistic counterpart "modernity" (a leitmotif of all modern art since Baudelaire's time) is itself being questioned, since Net-based works of art exist in both of these fields, or rather in the above-mentioned gap between them. This is what makes early Net-based art a much more important part of the art of the 1990s; it deserves more attention than it receives, and this is one of the reason for initiating the Net Pioneers project.

74 This is called "re-engineering." The terminology is actually much more complex. See the taxonomy by James Cross and Elliot Chikofsky from 1990 at http://www2.informatik.hu-berlin.de/swt/projekt98/lehre/taxonomy.htm.

POSTSCRIPT: FROM "SOCIAL SCULPTURE" TO SOCIAL SOFTWARE

Once repressed in part, the avant-garde did return, and continues to return, but returns from the future: such is its paradoxical temporality.
Hal Foster, 1996[75]

This essay has so far presented historical arguments, but there are also contemporary reasons for the importance of Net-based art today. Net-based art also provides a prehistory of Web 2.0 and the significance of today's social software and communities. There is no direct genealogy that links today's communities back to Net-based art and the frameworks of the 1990s, most of which have long since disappeared from the Net. However, the avant-garde status of the Net-based art projects will perhaps become more obvious today than in the context of their own time, when they were rapidly overtaken by the commodification and commercialization of the Internet. At the same time it would be too easy to pretend that the success of companies such as Facebook or MySpace confirms the artistic concepts and visions of self-organized user communities. In the mid-1990s, it was too early for a broad acceptance of these ideas. The first major attempts to commercialize the Web in the late 1990s ignored the ideas of these pioneering projects and ignored the fact that the Internet has a logic of its own. These attempts failed because they wanted to turn the Web into a "push medium" for broadcasting corporate content; a symptom of this was the liaison between AOL and Time Warner.

Regarding Web 2.0 today, the question of possible autonomy has to be posed entirely anew. Through the hybridization and de-contextualization of information, the dividing lines between self-organized, commercial, and state-sponsored media are no longer as clear as they were in the 1990s.

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75 Hal Foster, *Return of the Real* (Cambridge, MA: MIT Press, 1996), 29.

Today, the communities are the main conveyors of viral marketing and the new hotspots in a fresh edition of the New Economy, where the "attention economy" becomes the most scarce resource in the flood of information.[76] Effective advertising now depends on the determination of user profiles, since classic so-called graphic advertising is meaningless in comparison to the guidance of search results and influence on user navigation behavior. This kind of metadata mining exploits the pseudo-autonomous media cultures of Web 2.0: "user-generated content," even if it is available for free, is ultimately sold back to the users through corporate structures.[77] Through their micro-work invested by creating this content and consuming it again, the communities finance the cash profits for the attention-based economy. Hence, the ideals of the self-organized artist communities of the early 1990s have been turned completely inside-out by companies like Facebook and Myspace, which offer a corporate-guided, fake independence.

[76] See the interview with public relations manager Martina Mekis: "Communities in general are, for advertising work, a gift from God. They make it easy for us, because the users there reveal a great deal about themselves. ... The users join different groups and practically turn themselves into cluster—no study could do it better." *Silver*, no. 17 (October 2008): 25, http://www.sil.at/aktuelles/magazin/magazin-nr-17/seite-25/.

[77] A comparable business model existed in the 1980s in the first prominent "virtual community," founded by Steward Brand: The WELL. "Brand argued ... that users should be allowed to create their own conversation topics ... Brand hoped to allow the system's users to converse with one another and to market that conversation back to its participants." (Fred Turner, "Where the Counterculture Met the New Economy: The WELL and the Origins of Virtual Community," *Technology and Culture* 46, no. 3 [July 2005]: 497.) The difference between this and the self-organized, non-commercial Net community in Europe can be seen in the attitude of the BIONIC Mailbox representative, Rena Tangens: "Besides, we are not selling information—we do not own it, after all—but charge for the utilization of resources." *On Line: Kunst im Netz*, ed. Helga Konrad (Graz: Steirische Kulturinitiative, 1993), 101.

On the other hand, the blogospheres in the social networks indisputably offer an alternative to "official" mass media—something dreamed of by the video activists in the 1970s, as well as by the Net activists of the 1990s. Also, advanced creative platforms are moving from commodification of access to the "customization" of self-designed environments for creative, collaborative use of the Net and digital tools. With today's "pro-ams," or professional amateurs, creating their own team-based work environments, Gene Youngblood's vision of the metadesign and the new generation of "Renaissance amateurs" is within reach.[78] Even Joseph Beuys's frequently misunderstood dictum "everyone is an artist" can be reinterpreted, shifting from "social sculpture" to "social software." Considering these phenomena, does it still make sense to operate with the concept of "Art" with a capital "A"? Lev Manovich assures us that his question "Is Art after Web 2.0 Still Possible?" is not a rhetorical one for him.[79]

To conclude: the anticipations of Net-based art in projects such as THE THING, Public Netbase, and Internationale Stadt did not materialize during the 1990s, but from today's perspective some of their concepts and visions have been confirmed, albeit under altered conditions.[80]

If we use the formula mentioned earlier—one year in the Internet equals seven years of life—to calculate how far ahead of the times the Net pioneers

78 Gene Youngblood, "Metadesign: Die neue Allianz und die Avant-Garde," *Kunstforum International* 98 (January/February 1989): 76–94.

79 "Is Art after Web 2.0 Still Possible?" was supposed to be the title of his essay, according to Lev Manovich. (Conversation with Lev Manovich on February 14, 2009). However, without consulting him, editors at the San Francisco Museum of Modern Art changed the title from an open question to an affirmative statement. See: Lev Manovich, "Art after Web 2.0," in *The Art of Participation: 1950 to Now,* exh. cat., San Francisco Museum of Modern Art (London: Thames & Hudson, 2008), 77.

were, then they would be more than one hundred years old and ready to enter into the museum of techno-social-artistic history, which has yet to be built!

80 When asked if THE THING in the 1990s anticipated the ideas of the Web 2.0, Wolfgang Staehle replied: "It was our ideal; we wanted to be the producer and the recipient and everything in one. That's something we aspired to, we tried to get away from this kind of dichotomy, somebody produces something, with some disposition, and then somebody else just buys it. Our idea was, everybody is a producer; everybody is an artist, everybody who wants to participate. That was kind of the credo." And on the commercialization of these ideals: "I never had illusions; this was a 'temporary autonomous zone'—Hakim Bey's term—it's temporary, I knew that." (Wolfgang Staehle, interviewed by Dieter Daniels, Berlin, January 5, 2009.)

RENDEZVOUS: THE DISCOVERY OF PURE SOCIALITY IN EARLY NET ART
Marc Ries

In talking about their work with telecommunications technologies, artists often refer to their projects as facilitating the production of a "new space," a "communication sculpture" that has affinities, for instance, to Beuys's "social sculpture."[01] I wish to explore these motifs—space, communication, sculpture—and so test my thesis of the *discovery of pure sociality in early Net art*.

It is well known that talk of space in the public perception of the Net experienced a boom in the mid-1990s. Hardly a comment on the Internet does not use the space metaphor, at its most conspicuous in the formula "virtual space." But is this space really only a figure of speech, a metaphor? Is the "picture" of space for the description, or goal, of technological and Net acts merely a useful projection of sense onto something in fact alien to the acts themselves? For Net experiences can hardly be said to embrace space as a geographical, architectural, or even geometrical phenomenon. On the contrary, space in these senses is supposed to dissolve in technological tele-perception, becoming superfluous and obsolete. Metaphor and reality seem to stand in a highly ambivalent relation to each other here. However, if one takes the concept of metaphor as such seriously, a reality emerges from the picture. For *meta-pherein* means "to transfer"—its structural principle is the overcoming of distance, the connection, in the spirit of a "postal" principle, of two separate elements: the decontextualization of elements in favor of their circulation.[02]

01 See Dieter Daniels, "Reverse engineering modernism (after the last avant-garde)," in this volume, 18.

02 These reflections owe much to Sybille Krämer's thought-provoking article "Medien, Boten, Spuren," in *Was ist ein Medium?*, ed. Stefan Münker and Alexander Roesler (Frankfurt am Main: Suhrkamp, 2008), 65–90. The linking of metaphor and post occurs in Jacques Derrida, *The Postcard: From Socrates to Freud and Beyond*, trans. Alan Bass (Chicago: Chicago University Press, 1987).

Space as metaphor corresponds to the metaphor qua space. For, in its other definition, space, too, must be understood as a *relation*, as producing a transfer, a connection, a set of interrelationships among often conflicting elements; it is closer, one might say, to the postal in the sense of a permanent, distributive production of social structures than to a closed box.[03] "The postal signifies mediation between that which is different; it realizes relations of exchange that establish a system of correspondences (in the dual sense of 'exchange of letters' and 'similarity')."[04]

The "postal principle" is also found in twentieth-century art—for instance, in the works of Marcel Duchamp. The work Rendez-vous du Dimanche 6 Février 1916 à 1h ¾ heures après midi (Rendez-vous of Sunday, February 6, 1916 [at 1:45 in the afternoon]) (1916) is a set of four postcards, onto which a sense-defying, initially handwritten text was typed by Duchamp using a newly acquired Underwood typewriter in early 1916—that is, the text was "fixed" and put into circulation. The work has two parts, with the rendezvous as link. First, there is the title on the front of one postcard. It is primarily programmatic, referring to a meeting, with a day and time, but without venue—a notice, that is, to the reader and public: modern art is to be encountered at a certain time, but without a venue or instituted venues. Art takes place placelessly, in time; it occurs in an act, not as a product. The traditional art space is dissolving. Henceforth, art takes place everywhere, anytime, with the aid of all the extra-artistic thing-worlds. The second part is the work itself, consisting of the postcard, mechanically written nonsense

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03 For this conception of space, which has its basis in Leibniz, see e.g. Martina Löw, *Raumsoziologie* (Frankfurt am Main: Suhrkamp, 2001), and Marc Ries, "Wohin kann ich werden? Porträt und Raum," in *Mediengeographie: Theorie—Analyse—Diskussion*, ed. Jörg Döring and Tristan Thielmann (Bielefeld: transcript, 2009), 203–18.

04 Krämer (see note 2), 77.

text, and a recipient. Media and addressee are interwoven—as in most of Duchamp's works—in the circular dissemination of their existence.[05] The connection to the title is effected by the postcard itself, which (in contrast to the letter) is the medium par excellence of the *rendezvous*. The word must be taken literally: betake yourself somewhere. Unlike the German "Verab-redung," which is the result of purely symbolic acts (place and time are *com-municated*), the *act* of moving, and of being moved, is important in the French term, for the postcard's assignation to its addressee is substantially influenced by the third party (namely, the post, the postal principle itself as principle of transfer). One can look on the rendezvous as the postal's call, its directive and appeal, to bring about encounters. A postcard signals, first and foremost, the presence of the other (the sender) for me at the non-place of the medium of the postcard. It testifies to his existence and his wish to maintain contact with me. The fact that Duchamp did not mention a venue in the title may be read as indicating its indefinability, its indefiniteness, its dissolution in media situations in modernity—somewhere, betwixt and between, mediated. The postal non-place is public and ex-territorial. A postcard can be read by everyone. It is the public signal of an announcement. It facilitates the gift of announcing that one desires an encounter—first and foremost *in* the medium of the card itself. The rendezvous is a spatial operation that sets two (or more) distinct individuals in relation to each other and has them come together at an indifferent place: the place of the postcard. While the letter presupposes a hermeneutic connection to its subject, the postcard is a purely *social index*—as card it is the trace of the other on his or her way to me. The second important medium for this

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05 "The asymmetrical public speech of dissemination follows the model of scattering, whereby its communicative fruitfulness is determined solely by the recipient's own activity." Krämer is working here with John Durham Peters's theses, see John Durham Peters, *Speaking into the Air: A History of the Idea of Communication* (Chicago: Chicago University Press, 1999).

work is the typewriter. It facilitates utilization of preformed, preexisting letters to produce writing as depersonalized and automatized as possible. Duchamp does not believe in the "magic of the hand." He wants to "discredit the idea of the handmade," "to wipe out the idea of the original," in order to get away from the "cult of the original."[06] That the writing is incomprehensible can also be read as a failure of language to forge a continuous, meaning-establishing bond among its bourgeois subjects. Whereas writing in early cultures was instrumental in the "invention of the state" and effected, as "figures of memory," the coherence of this universal, "canonical" community,[07] with the reproducibility and mechanization of writing, the growing literacy of large sections of society, and the introduction of the post as a channel of communication, the differentiated *individualization* of social bonds becomes possible. The addressees of the postcards are Walter and Louise Arensberg, patrons of Duchamp, who one can view as stand-ins for the—modern—art public. Duchamp addresses his public by postcard. There is no need for the intermediary of a gallery. He establishes direct contact with an indefinite number of viewers (and buyers). I would say that these mechanically produced readymades, using desemanticized language on the placeless medium of the postcard, a Dadaist conceptual gesture in New York during the Great War, articulate an early code for the undertaking that the first telecommunications projects addressed in extrapolating three media at the end of the 1970s: writing, the typewriter, and the postcard.[08] These projects both play with the postal principle of dissemination and also

06 Marcel Duchamp, quoted from Sandro Zanetti, "Techniken des Einfalls und der Niederschrift: Schreibkonzepte und Schreibpraktiken im Dadaismus und Surrealismus," in *"Schreibkugel ist ein Ding gleich mir: von Eisen: Schreibszenen im Zeitalter der Typoskripte"*, ed. Davide Giuriato et al. (Munich: Wilhelm Fink, 2005), 210.

07 See Jan Assmann, *Das kulturelle Gedächtnis: Schrift, Erinnerung und politische Identität in frühen Hochkulturen* (Munich: C.H. Beck, 1992).

play the post in the sense of reversing an authoritarian-discursive address structure in favor of self-elected forms of discourse production and the production of social space—"mailings that are not sent," as Derrida puts it.

FROM APPEARANCE TO WRITING

"When people come together, they engender the social and organize places."[09] For Marc Augé, the coming together of individuals in this tripartite movement is an initiation. The establishing of relations is the effect of a spatial practice. It facilitates the perception and constitution of community, and it shapes a place. Transferring this model to the elaboration of a Net culture, this place has a wide range of forms. I wish to discuss this with reference to two early examples of telecommunications art.

Kit Galloway, Sherrie Rabinowitz—*Hole-In-Space, 1980*
   Hole-In-Space was a Public Communication Sculpture. On a November evening in 1980, the unsuspecting public walking past the Lincoln Center for the Performing Arts in New York City, and "The Broadway" department store located in the open-air shopping center in Century City (in Los Angeles), had surprising encounters with each other. Suddenly, head-to-toe, life-sized, television images of the people on the opposite coast appeared. They could see, hear, and speak with each other as if encountering each other on the same sidewalk. No signs, sponsor logos, or credits were posted, and no explanation at all was offered. No self-view video monitors were there to distract from the phenomena of this life-size en-

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08 Mail art does not entirely espouse Duchamp's proposal to constitutively posit the postal in the aesthetic process, for the postcard itself receives a work-like value that makes it suitable for presentation in conventional exhibitions.

09 Marc Augé, *Non-Places: Introduction to an Anthropology of Supermodernity*, trans. John Howe (London: Verso, 1995), 111.

counter. Self-view video monitors would have degraded the situation into a self-conscious video conference. ... Hole-In-Space suddenly severed the distance between both cities and created an outrageous pedestrian inter-section. There was the evening of discovery, followed by the evening of in-tentional word-of-mouth rendezvous, followed by a mass migration of fam-ilies and trans-continental loved ones, some of whom had not seen each other for over twenty years.[10]

No new technology was involved in what happened in the two cities on those evenings, but the use made of the technology was surprising. Live hook-ups already existed, but the television station broadcasts were subject to selection and control by media representatives. But now the transmission was "free," on both sides. No power dispositive or institution controlled it. Anyone could become part of the transmission. An interesting aspect was the decision to transmit without control monitors—passersby could not see themselves during transmission or at the receiving end. Both sides were there and they *knew* that. Thus the project also formulated a *discourse* on transmission. The space taking shape here is the audiovisual space of satellite-based television broadcasting that links two places. This pure trans-mission space is an enabler, enabling relationships without itself being visible. One cannot do anything at the other place except appear there with others and contribute to creating a para-social situation. There is no "third" space or place, but only two physical places that are mutually con-nected. It is the same in a phone call, and with the webcams of modern PC terminals.

10 http://www.ecafe.com/getty/HIS/.

Conference: Artists Use of Telecommunications, San Francisco Museum
of Modern Art, 1980.

> *The conference brings together internationally known artists working with*
> *telecommunications to discuss and explore ideas pertaining to satellites*
> *and slow-scan video. The conference will be presented in "telecommu-*
> *nication space" with participants located in San Francisco, New York, To-*
> *ronto, Vancouver, Vienna, and Tokyo. Participants include, among others,*
> *Bob Adrian, Bill Bartlett, Liza Bear, Douglas Davis, Sharon Grace, Carl*
> *Loeffler, David Hoss, Aldo Tambellini, Norman White, and Gene Young-*
> *blood. Organized by La Mamelle Inc.*[11]

In these and other partly temporary projects,[12] news material was composed
within precise time limits and images scanned. The news was read, and
one saw drawings in ASCII code as well as slow-scan video images on the
monitor or as print-outs. There was no location, no place in electronic space,
where these things existed. They were only "there" at the time of their
transmission, ready to be rematerialized as print-outs. They were thus only
exchange media and not end products or gelled works for storage or
hanging up. The aim here was not to produce "contents," but to develop and
make available the platform itself, the *structure as sculpture*. This was an art
being released for self-service. The space created was not simply a trans-
mission space involving appearance at another place, but one being perma-
nently changed and extended primarily by the production and exchange of
technically generated script-images. The artists' *conference* served to
transcend *difference*, particularly geographical, nation-state differences.
The theme and primary material of the artistic process here was the sociality

[11] See *Art Telecommunication*, ed. Heidi Grundmann (Vancouver: Western Front/Vienna: BLIX,1984), 82.

[12] e.g. in *The World in 24 Hours* (September 27–28, 1982) and *La plissure du texte* (1983) (see note
11, Grundmann).

of exchange. Telephone concerts gave more radical expression than anything else perhaps to the time-bound, the semantically indifferent, and the socially constitutive. Music produced—composed—in technically automated transmission from different places at precise times engendered a purely aesthetic collective in time.[13]

Much of contemporary art has been moving away from the object. If the object is removed completely, then what is left are relationships between participants. An object is not necessary in order to benefit from the establishment of these relationships. Telecommunications art involves the creation of relationships without the production of concrete artworks.[14]

Rejection of the object has taken place in three forms. Firstly, some have turned to the pure concept, to "Idea Art," which amounts to art's enshrinement in language and thus its complete detachment from social practice. Then there have been performative acts, bodily enacted messages that crystallize out in performance and that only exist afterwards as documentations. Finally, there is social and political intervention, participation understood as concrete, programmatic work on a practice addressing everyone—albeit with certain undisguised tendencies toward art's self-abolition.

The first phase of an "art of communication" (Robert Adrian X) must be seen primarily from the third position. The community of artists who used telecommunications did so to testify to their community as such. It expressed a (perhaps diffuse) political will to create the conditions for a social space embracing the *equality*, *participation,* and *accessibility* of and for potentially

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13 e.g. *Telefonmusik Wien–Berlin–Budapest BLIX Telefonkonzert*, Friday, April 15, 1983–19 Uhr (see note 11, Grundmann).

14 Eric Gidney (see note 11, Grundmann, p. 17).

everyone via technology that genuinely incorporated this communitary ideal. No artist group collective was being envisaged via an aesthetic manifesto or material. Instead, what these artists promoted was the universalization of technologically generated script as the dominant aesthetic medium in its postal form—electronically and digitally translated into transmission signals—for the purpose of community address.[15] A new conception of relationship, of coexistence, was being elaborated. Roy Ascott called it "planetary fellowship."

When, at the start of the 1990s, artists established bulletin boards as a kind of preliminary form of the later providers, this idea of the early days received a new impetus: communication with strangers, contingency. The telephone and the letter entail an intentionally addressed recipient. One must know in advance who one wants to call, and to whom one wants to write. The bulletin board system (BBS) enables one to mail, to send *electronic postcards*, to an open-ended number of addressees without actually knowing them. For now, there is a forum. Signing into a forum means being prepared to participate in that which others think and communicate. The common denominator may be a topic, affiliation to a community, or simply the idea of the forum itself. That which is important is that familiarity with and control over the addressee's identity is renounced. This consent to take part in an "open whole" (Gilles Deleuze)—to coexist with an undifferentiated, technologically generated community for the time of the link-up—this encounter with the unknown can also be read as a *social readymade*.

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15 It would doubtless be interesting to extensively research the shift from image to script, to "technological script images," and to music as constituent media forms of early net usage. One would presumably also detect a direct relation of Net-based art to developments in Minimal art and Conceptual art, which early on articulated a scriptural and auditory turn for twenty-first-century culture: hearing and reading, rather than seeing.

Artex, a collective "art exchange program" in the first phase of Net-based art that had a mailbox-like function, already embodied the idea of an automated rendezvous. But because the participants were limited in number and all knew each other, no disseminative experience occurred. That the Internet protocols in their civilian applications were first used by scientific communities to facilitate communication among scientists working on the same subject but unknown to each other confirms the thesis: the construction of forums, newsgroups, and mailing lists links up all those with a common interest in favor of an added value—a gain in knowledge, but above all in the social, in "pure sociality."[16] "Pure sociality" refers to a certain self-referential, self-reinforcing perception of others: the social for its own sake, unembedded in goals and actions.

Parallel to the first attempts in art, albeit far more comprehensive, gambling community networks developed practice systems using the innovations in telecommunications, setting up in potential competition to the visual arts.[17] Grasping the Net as play, as game, seems to bring together the aesthetic and the social in a way that opens completely new perspectives for the experimental work on the self, the bourgeois ego, and identity as practiced by twentieth-century artists.[18] Among the Net pioneers' early art practices,

16 These reflections could be further elaborated with another basic Net idea articulated in the concept of *hypertext*. "Pure sociality" for me is the counterpart to "pure knowledge," which I have developed elsewhere for an ontology of the Internet. See "Knowledge Sharing: Verräumlichungs-strategien von Wissen in Netzwerken," in *SciencePop: Wissenschaftsjournalismus zwischen PR und Forschungskritik*, ed. Christian Müller (Graz: Nausner & Nausner, 2004), 241–46.

17 Why not also grasp Nets as "anthropotechnologies," a concept proposed by Peter Sloterdijk, who, in *Du mußt dein Leben ändern* (Frankfurt am Main: Suhrkamp, 2009), sees the latter as technologies with which "practice" liberates twentieth-century man from the normativities and standardizations of bourgeois life and work.

there were doubtless some parallels to the sublime "I" and "we" exercises of early MUDs (multi-user dungeons) and MOOs (MUD, object-oriented), or paraverses such as Second Life, but it was the gamblers, who were always both the producers and users in one, who responded to the challenge most radically.

BEING SINGULAR PLURAL

I wish to pursue the issue of communication as it appears in the early Net projects being discussed here with a line of thought that gives a certain foundation to the "origin" of people's readiness to become involved with ex-tra-artistic information technology in art. One possible point of access to communication for art lies in the observation that—in our time—"something is exposed or laid bare: … the bare and 'content'-less web of 'communica-tion.' One could say it is the bare web of the *com-* (of the *telecom-*, said with an acknowledgment of its independence); that is, it is *our* web or 'us' as web or network, an *us* that is reticulated and spread out, with its exten-sion for an essence and its spacing for a structure."[19] Jean-Luc Nancy works with the formula "being singular plural," where all three members—being, singular, and plural—are wholly equal in value. Communication is imparting and partaking as a formal principle based on parting/ dividing/ sharing—that is, on a more as well as a less: nothing but voices, but many different voices. Hitherto—I shall apply Nancy's thinking exclusively to art now—the actor in art ideally spanned both poles: he was always unique, and his position in society and on the art market also had to invoke this oneness and uniqueness. The avant-garde, to which he considers himself as belong-

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18 Sherry Turkle's *Life on the Screen: Identity in the Age of the Internet* (New York: Simon & Schuster, 1995) remains one of the most thoughtful explorations of the association of play and the social.

19 Jean-Luc Nancy, *Being Singular Plural*, trans. R.D. Richardson and A.E. O'Byrne (Stanford, CA Stanford University Press, 2000), 28.

ing, is a programmatically defined sum of positions that articulate themselves dissensually vis-à-vis social normality and normativity. But there is no position, as Nancy puts it, that is not also a *dis*-position, no appearance that is not also a co-appearance, no singular that is not also a plural. I wish to grasp *disposition* as a self-opening, as a movement "from oneself to everyone else," as the abandonment of unitary, self-admiring oneness, and as entry to, or finding a route into, a form of the social that actually introduces the unknown of a plural. I understand the development of Net-based art as follows: until the end of the BBS period, that which the initiators of these forms of artwork/Net-work demanded for art was essentially and primarily disposition, the plural, the we/us, and that as the processual result of a technological infrastructure that facilitates being-singular-plural as a sine qua non of its immanent logic [*Eigenlogik*].[20] That is, communication in this sense is not the exchange of contents, but the exchange of *I* and *we/us*. Considering that the French word *sens* means both *sense/meaning* and *direction*, then one might say, playfully, that at a time when modern art had already run through most of the variants of its self-image as autocratic authority regarding sense (*art alone knows what art should be*), a wish emerges on the periphery of art practices to part/divide its sense and extend it in another direction, in *all possible directions*, so as to experimentally map among each other a new concept of community.

[20] I distinguish between the "immanent logic" of a medium, based on its materiality or techno-ontology, the "power logic" of the systems that control the medium, and the "desire logic" of the users. Of course, these logics mutually influence each other. I have examined immanent-logical division/sharing [*Teilen*] as a fundamental property of the Internet, with its dual figure of *dividere* and *participere*, in "Zeigt mir, wen ich begehren soll," in *dating.21: Liebesorganisation und Verabredungskulturen*, ed. Marc Ries, Hildegard Fraueneder, and Karin Mairitsch (Bielefeld: transcript, 2007), 11–24.

The BBS forums constitutively posit the "co-," the open we/us, as a process of division (of the I and Is), as an "assembly," as "the bringing to light of being-in-common *as the dis-position* (dispersal and disparity) of the community"—thus the ancient polis, according to Nancy, meant nothing less.[21] "Dispersal" is the distribution, the "parting/dividing of oneself" and "imparting oneself to others" which "disparity"—that is, differentness— institutes as the new paradigm in place of the unique and particular of the "old" conception of art. And precisely the notion of "sculpture" as being "in the round," and its conceptual extension as social or virtual sculpture, suggests itself here as precisely describing this movement of disposition: It breaks with an idea of substance and materiality from which one extracts or into which one injects a—true—form; it upvalues the multiperspectival weave that facilitates co-being, being singular plural.[22] Sculpture is thus that act with which a lived space becomes experienceable, a space of exchange between one and many.[23]

CONTINUATION
The start of the Internet's institutionalization is marked by a curious regress. The advent of e-mail correspondence involves a reindividualizing of the addressee: the old postal (letter) principle of one-to-one communication becomes increasingly widespread. The establishment of personal pages on

21 Nancy (see note 19), 23.

22 Regarding this social perspectivism, see G.W. Leibniz, "Monadology," in *Monadology and Other Philosophical Essays*, trans. P. & A.M. Schrecker (New York: Bobbs-Merrill, 1965), §57. Thanks to Gunther Reisinger for the fine-tuning of the term "sculpture."

23 This point of view also brings out the Net pioneers' relationship to performance art. In the first Internet phase of THE THING Vienna a Swiss initiative already presented a platform PERFOR-MANCE INDEX. For "lived space," see also the definition of the research project *perform space*, the follow-up model to the INDEX project: http://www.perform-space.net/frameset_d.html.

the Net, so-called home pages or Web sites, also marks a return to the work or project, which, while it is now a Net art project often utilizing media resources to optimal effect, yet exchange is no longer the paramount goal. A re-territorialization is thus observable in the first graphic World Wide Web phase. THE THING Vienna operates more as an administrator and distributor of server-based art projects than as a producer of discursive exchange or social space. "Interactivities," such as newsgroups (the continuation of the BBS forums) or the chat system named The Palace, are mere further options now.[24]

Simultaneously, the metaphor of the "city" as expressing what is going on on the Internet is diversely applied in the general perception of the Net. According to the metaphorical discourse of the mid-1990s, the Net was destined to transcend the physical and social fabric of the old, increasingly devastated, and uncontrollable "city bodies" in the virtual body of a "Telepolis." This discourse appeared in popular Net projects such as the "Digital City" (Amsterdam), the "International City" (Berlin), or the "Cleveland Free-Net." Activists involved in these projects—such as Geert Lovink ("The city metaphor emerges in cyberspace at a time when the city of Amsterdam as administrative unit is finally a thing of the past and the city is being absorbed in the region"[25]) or Joachim Blank ("The fundamental premise of our project is the transformation of lost functionalities of real

24 For this shift from collective discourse in BBS to the "actual" net artwork in the WWW with its classical authorship, see Dieter Daniels (see note 1). There were no more messaging boards as early as THE THING Vienna's second WWW phase. "Pure sociality" had rapidly thinned out to product- or commodity-like substitutes, surrendering the stage to a more technologically attention-seeking work concept.

25 Quoted by Florian Rötzer, *Die Telepolis: Urbanität im digitalen Zeitalter* (Cologne: Bollmann Verlag, 1995), 143.

cities into electronic networks"[26]), both of whom, by their own accounts, position themselves close to art, and Net theorists, such as Florian Rötzer ("Telepolis"), William J. Mitchell ("City of Bits"), and Christine Boyer ("Cyber-cities") strive to define the Net analogically as a real metaphor or real utopia for the city and urban living.[27]

But a decade later, such talk had become meaningless. For, with the advent of so-called social software, it was clear that the social ousted geographical entities and metaphors, and that space, understood relationally, was now entering a sui generis socio-media practice. It became clear, too, that the aesthetic media-act as a "self-imparting-partaking," as tested out by the first Net-based art projects, was a fundamental experience of Net presence and Net manifestation. A being-singular-plural inspires the alternative distribution forms of the Internet, such as peer-to-peer (P2P) and open-source applications, and also the communitary production and presentation platforms such as blogs, MySpace, YouTube, Flickr, etc. A form of "pure sociality" found only in the "inner circle" of Net communities in the 1990s became a mass media phenomenon and an unpredictably and highly productive force for community.

26 Ibid.

27 Florian Rötzer (see note 25); William J. Mitchell, *City of Bits: Space, Place, and the Infobahn* (Cambridge, MA: MIT Press, 1995); M. Christine Boyer, *CyberCities: Visual Perception in the Age of Electronic Communication* (New York: Princeton Architectural Press, 1996).

PART 2: ARCHIVING AND PRESERVATION

UNDERWAY TO THE DUAL SYSTEM
CLASSICAL ARCHIVES AND / OR DIGITAL MEMORY
Wolfgang Ernst

THE DIGITAL ARCHIVE AND ITS GENERATIVE ALGORITHM
Converting old media art stock into digital backup formats is technically feasible but highly labor and cost intensive. Instead of archiving the entire stock en bloc, digitization on demand suggests itself as a model. Rather than being a purely "read-only memory," new archives are successively generated according to current needs. The method involves using networked digital computers to link up existing local digital archives online into intersections such as Europeana, a portal for the written and audiovisual cultural heritage of Europe. Europeana's motto, "Search through the cultural collections of Europe, connect to other user pathways,"[01] however, indicates a certain transformation. Although in "advanced search" mode one can access, for instance, a manuscript page from Mozart's *Requiem* in JPEG format from http://www.bildarchivaustria.at, classificatory archival criteria no longer prevail, but the collection's (library's, mediatheque's, musée imaginaire's) information aesthetic does. Dynamic information rasters and new search methods that go beyond the rigid indexes of traditional finding aids come into play. An exemplary archive pool with selected attractors provides the requisite basis. Through their queries, users then create further archive elements to be digitized and stored. With the aid of agents and filters, the object-oriented archive thus takes shape cumulatively. This entails a shift from read-only paradigms to a generative, participative form of archival reading. Source-oriented stock and classical file-oriented archive practices yield to the use-oriented ("to be completed") "dynarchive."

01 http//www.europeana.eu/portal.

The digitization of mono-media art forms (analog video, for instance, or classical electronic music or tape) for archival purposes is one thing. Born-digital media art is another. An art-and-archival language has yet to be developed for digitized networked artworks.[02] At the moment, only the technological dispositives exist. There are few forms of archiving processual works since the art museum has nothing to offer in the way of a model here.

A processual memory concept already inheres in the computer's so-called von Neumann architecture: namely, a principle of memory programming (also present in a rudimentary form in Charles Babbage's concept of the Analytical Engine) that facilitates self-accessing of temporarily stored data during computation itself (archival cybernetics [internal feedback])—a dynamic memory culture in contrast to resident archive memory, which is updateable but not permanently and dynamically regroupable. Digital archives are closer to the computer's memory aesthetic than are the traditional (and medium-of-tradition) emphatic coupling of archive and cultural memory (Aleida and Jan Assmann). The classical archive is preserved time. But the digital "archive" has no intrinsic macro-temporal index, as the "year 2000" problem made clear. It operates at a micro-temporal level instead.

How does dynamic art archive itself?[03] Algorithmic objects are objects that always come into being anew and processually; they do not exist as fixed data blocks. It is a question of archiving the source codes with which, as in

02 See the texts by Gunther Reisinger and Robert Sakrowski in this volume.

03 See the online publication *Permanence Through Change: The Variable Media Approach*, ed. Alain Depocas, Jon Ippolito, and Caitlin Jones (New York: Solomon R. Guggenheim Museum; Montréal: Daniel Langlois Foundation, 2003), http://www.variablemedia.net/e/preserving/html/var_pub_index.html.

fractal picture and sound compression processes, a new whole can be regenerated — a latent archive.

MATHEMATIZING THE ARCHIVE

So what does "digital archive" mean when the most rudimentary compo-nents of classical (state) archives since ancient times[04] have been tied to written texts — that is, to the letters of the vocalic alphabet in discrete symbol groups? It is not the digitality of the so-called digital archive that is new, but the fact that what is involved is the binary code, the smallest information unit being the "bit," through whose duality words, images, sounds, and times are archivally encodable. Archivalia that happen to be media art thus forfeit their exclusivity (apart from their format) vis-à-vis other forms of data object.

In this sense, digital archives can be said to be at the peak of information-theory-informed art itself. At the International Congress of Mathematicians in Bologna 1928, George David Birkhoff presented a mathematical equation for aesthetics, the so-called aesthetic measure, as a ratio of order and complexity. The following statements are particularly true for the operative basis of media art: "[T]he semantic aspects of communication are irrelevant to the engineering aspect," and "*information* must not be confused with meaning."[05] If art can be defined information-theoretically as a relation of order and entropy — as Max Bense, drawing on Abraham Moles, proceeded to do for information theory and aesthetics (function of the archive, as of

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04 See Georges Didi-Huberman and Knut Ebeling, *Das Archiv brennt* (Berlin: Kulturverlag Kadmos, 2007).

05 Warren Weaver, "Some Recent Contributions to the Mathematical Theory of Communication," in Claude E. Shannon, *The Mathematical Theory of Communication* (Champaign, IL: University of Illinois Press, 1963), 8.

art, is to hold unlikely things—they alone constitute information)—then media art discovers its essential feature in the digital archive. For the digital, "calculating space" (Konrad Zuse) is accessible to mathematical operations, whether as search options, for analytical purposes, or for data migration in long-term archiving.

Operative mathematics (in other words the world of computers) has less to do with concrete numbers than with relations, and is thus structurally related to the essence of the vectorially linked digital archive. Hyperlinks to other documents in the Web are no longer external references as in traditional procedures, but are literally embedded in the document itself: the reference becomes self-operant and self-aware.

The research project[06] underlying this publication draws attention to the structure of an archive whose essence, the closer one looks, is less the archived material per se than a dynamic conception of the idea of the archive. Conceptual art is on the side of the archive that becomes an object of aesthetic exploration. The group Art & Language, for instance, primarily develop tables, lists, and text-and-photo series.

The new archive's task is to meaningfully link up different information nodes—a veritable archive art. In the case of antiquated Net-based art, these nodes themselves will be the primary object of archiving and re-construction. It is no longer a question of reactivating objects here, but of relations.

The primary operations of the archive are no longer the contents of its files,

06 "Netpioneers 1.0: archiving, contextualising and re-presenting netbased art." See the texts by Robert Sakrowski, Dieter Daniels, and Gunther Reisinger in this volume.

but rather their logistical interlinking, just as the Web is not primarily defined by its contents but by its protocols (HTTP). The Internet "archive" is on precisely this level, at once non-metaphorical because it is non-conceptual, and metaphorical, because it is "transferent."[07] In 1991 Tim Berners Lee defined the new medium for communicating scientific information as no longer the static accumulation of dossiers but (directly in line with Ted Nelson's hypertext vision) as the dynamic connection of documents and links. While their indexes are primarily search-oriented, unlike traditional archive repertoires they are not passive but themselves constitute a logistical document containing links to the pertinent data records—a finding aid in the documents themselves, a self-referent archive.

THE INTERNET: AN ARCHIVE OR ITS METAPHOR?

If we disregard the metaphorical use of the word "archive" for all possible forms of memory and cultural memory, and use it to mean the specific agency of a memory technology, then the Internet is not an archive. Yet the Internet constitutes a new type of trans-archive already present in Ted Nelson's conception of hypertext and hypermedia: a dynamic archive, the essence of which is permanent updating, and which can translate moving images and gramophone records from the classical realm of the alphabet in addition to archive, real-time, life itself (webcam culture). But in fact all this takes place in digital space—a radical discretization of the world. The offerings of the Semantic Web and search-engine options are on a par. Net archives are a function of their software and transmission protocols rather than of content, to which technology is indifferent. Beyond the archival principle of provenance, the Internet's cybernetic dispositive itself operates as a command system (*arché*) far more time-critical than

07 Moritz Baßler talks of "archive-immanent structuralism." See his *Die kulturpoetische Funktion und das Archiv: Eine literaturwissenschaftliche Text-Kontext-Theorie* (Tübingen: Francke, 2005).

classical archives ever were. The sound of the archive is the ping signal of data transmission testing. Here is the place for an information-theoretical plea for well regulated disorder, for grasping the cultural and technological opportunity for a new type of generative archive.

On the one hand, the Internet extends the classical space of the archive, library, and museum by an extra dimension. On the other, its technological organization and more (graphical) mathematical than classificatory topology undermine this tripartite division, since digital code commensurabilizes texts, images, and sounds. Through physical modeling it can even resolve physical objects into numbers and then re-synthesize them.

The archival infrastructure in the case of the Internet is only ever temporary, in response to its permanent dynamic rewriting. Ultimate knowledge (the old encyclopedia model) gives way to the principle of permanent rewriting or addition (Wikipedia). The memory spaces geared to eternity are replaced by series of temporally limited entries with internal expiry dates that are as reconfigurable as the rhetorical mechanisms of the *ars memoriae* once were.

The Viennese art project HILUS (1991–1996), described as "the intermedia information system art + New Technologies,"[08] consisted of three sections: "*ARCHIVE*/Library, *ARCHIVE*/Videotheque, *ARCHIVE*/CD-ROM Collection." Every form of signal store and database (analog or digital) is declared an archive here. Mnemotechnically, however, nothing more is meant than the permanent availability of a latent media memory. The inflationary use of the

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[08] HILUS was hosted by THE THING Vienna. The early Net-art framework THE THING Vienna will be restored and put to art-historical scrutiny in the context of the LBI research project netpioneers 1.0. See http://www.thing.at.

term "archive" for all conceivable forms of memory has long since distorted it beyond recognition. And the equation of Internet and archive leads to the ultimate dissolution—liquidation—of the concept, immersively, like ink written on water.

Ostensibly the largest digital archive, the Internet is in fact a collection/ assembly. Primary material—classical "sources" in the sense of archival documents—are increasingly found on the Net. But, like every other database, they are there for immediate information consumption. The real "archive" in the Internet (in the sense of *arché*) is its system of technological protocols.[09] The archive only becomes a memory at the moment of its standardization. The codes involved can be stored according to the rules of the archive. But the things actually realized on this basis can only be documented, and not archived. A videotape by Nam June Paik and the accompanying technical equipment can be archived under considerable outlay of information technology and restoration. But the actual video installation on site can only be documented—analogous to the classical linguistic distinction between language as a set of rules and as physically (phonetically) realized speech (*langue, parole*).

When closed data blocks migrate according to well defined rules from production site to storage site, and are stored in their original context, then the archival principle of provenance (the Prussian archive tradition) prevails. The media-art legacy of two decades of Ars Electronica in Linz in this sense constitutes an archive of material that has been quasi-officially generated by a well defined selection system. If the data blocks in question are divided and rearranged according to subject, then the principle of pertinence (ac-

09 See Alexander R.Galloway, *Protocol: How Control Exits after Decentralization* (Cambridge, MA: MIT Press, 2004).

cording to subject matter, the French tradition since the revolution of 1789) is involved. Contrary to the general assumption, the real work in archival science and practice is a process of selecting out, and not of accumulation: "Le travail en archives oblige forcément à des opérations de tri, de séparation des documents." Archival work inevitably necessitates acts of sorting, of separating documents.) [10] This is the fundamental difference between a classical official archive in the strict legal-administrative sense and the Internet as a database. The archive is defined as a given, preselected quantity of documents evaluated according to their worth for being handed down. The Internet, on the other hand, is an aggregate of unpredictable texts, sounds, images, data, and programs.

Once a digital basis archive has been compiled, newly accruing sets of data—which in the case of media art make huge demands on computer space—can be memory-economically aligned purely on the basis of differences, in the (post-cinematographic) sense of image-data compression: "In future passes through the Web, we will be able to update only the information that has changed since our last perusal."[11] But given access limitations, even the Internet archive as envisaged by Brewster Kahle is, at best, only a representative image of the Internet.

"DIGITAL ARCHIVES" AS SUBJECT AND OBJECT OF A NEW MEMORY
Does the media character of art(ificial) objects only come into play when it is recognized by media rather than people? The digital archives—trivial as it may sound—are compiled alphanumerically, so that unlike traditional archives they no longer primarily take place in the medium of the vocalic alphabet but have a genuinely mathematical component. Conversely, this

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10 Arlette Farge, *Le goût de l'archive* (Paris: Seuil, 1989), 87.

11 Brewster Kahle, "Preserving the Internet," *Scientific American* 276/3 (1997): 83.

means that through algorithms they are accessible to mathematical operations, something unprecedentedly new compared to the silence of the classical archive. The digitization of archives concerns, on the one hand, the textuality of the classical archive by developing new forms of "finding aid" (access via intelligent search algorithms). It is true that the alphabet constitutes a literally discrete form of storage. But when "digital," in its well defined sense, refers to the computer and its operations, rigid text is replaced by an operative mathematics. Archives as the traditional bases for legal, cultural, and historical research of the past can, in turn, be temporalized and accelerated as streaming archives. The micro-temporality of the data-processing operations (synchronization) is thus superimposed on the "historical" archive's macro-time.

The really new archives are micro-archives, both temporally and spatially, where data processing takes place in real-time in the minutest space, so that ultra-short-term fast memory comes into play. However, owing to ultra-fast computer and signal-processing clock rates, these time frames are experienced as the present. With the radical digitization of the classical division of analog live broadcasting media, such as radio and television, and analog storage media, such as the disc, tape, and video recorder, fast memory in the form of data caches comes into play. By digitizing video signals, the quality of both sound and image can be improved, although in order to eliminate the surface flicker of analog media times by raising the raster frequency from fifty to 100 Hz, the processing calls for vast memory space that can take up entire rasters at critical moments.[12] But an image memory is not yet an archive. What makes the difference between a memory and an archive is an organized archive barrier. There is no harm in talking of digital (binary) memories. But an archive is an organizational form on the next, higher level.

[12] See "Ein erster Schritt auf dem Wege zum Hifi-Fernsehen," *Funk-Technik* 39/1 (1984): 15.

It would be a brave decision of principle to engage with the transitive level of memory systems in the mathematically and physically real (and to leave all symbolic connections open), rather than with the emphatic archive as symbolic meta-level.

Computers themselves represent "storage and retrieval" systems — for people as users, and as an essential part of memory programmability. Apart from sequential access (the old magnetic computer tapes) there is immediate random access (matrix memory). Every computer is already a digital archive. The archiving occurs in the RAM of the familiar computer, not in the emphatic sense, but rather as the precondition for any calculating process taking place at all.

IM/MATERIALITY OF THE DIGITAL
Archiving with analog storage media (for instance photographed texts on microfilm) has distinct advantages over digitization as far as quality and shelf-life are concerned. The strength of digitized archivalia lies not in their (highly vulnerable) migrability into the technological future, but in their substantially potentized present online accessibility. Longevity is rooted in the materiality of archivalia — discourse in their immaterial circulation as information.

Does the power of archives lie primarily in their securing the materiality of their documents (a juridical or cultural heritage), or is it chiefly a matter of their storing information to make it available for present use? The testimonial function of archival records was once firmly rooted in their material authenticity. The same holds in media-art archives with respect to originals. Archival science speaks of the intrinsic value of archivalia when their materiality and form is also conceived as playing a determining role. A medieval document

on/of parchment indissolubly fuses materiality and message. This holds for the realm of alphabet-based archivalia. The situation is different with those "analog" technologies that depend on recording, and hence storage, on wax cylinders, film, or magnetic tape (instead of the alphabet of a fluid electromagnetic field). With the digital, physical signals become information. The intrinsic value of the documents yields to their media-technological nature, consisting of alphanumerics and hardware. Logocentrism is replaced by the alphanumeric.

The relation of writing (vocalic alphabet) and archive is reversed. For writing dominates online, too; but it is a different kind of writing, an operative command script (*archéographie*), that facilitates storage and transmission, and that is both fundamental and foundational. Archival script thus becomes more universal than ever, as every image and software component shows, transmitted in BinHex or gzip mode or read as code.[13] It is the unexpected return of writing in the form of the most minimal alphabet conceivable (0/1). The message of the Internet is thus still primarily archive and library. The HTML Internet generates "Web pages" and "documents" as if paper formats were still fundamental. The whole approach to indexing and automated web crawlers remains text-oriented. "One-nil … to the power of print as archived relic of the search," is the verdict of one analysis of the search engine Google.[14]

Does the classical concept of the archive stand or fall by its literal textuality—namely, paper and the vocalic alphabet? As Trudy H. Peterson pointed out at the XI International Archive Congress in Paris in 1988, the following

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13 Peter Krapp, e-mail from January 24, 1997.

14 John Battelle, *Die Suche: Geschäftsleben und Kultur im Banne von Google & Co.* (Kulmbach: Börsenmedien AG, 2006), 360 (n. 89).

holds true still even for computer-generated documents/records: "The traditional archival principles—evidential and informational values, provenance, levels of arrangement and description—continue."[15] It is not the data here, however, but their meta-data that are the archival element. The Commission on Preservation and Access in Washington, D.C., and the Internet Engineering Task Force, for instance, develop technological standards for the permanent identification of digital documents (URNs—uniform resource names) in addition to the familiar URL Web-document addresses.

ARCHIVING MEDIA ART

A digital archiving of media art that aims to do the media justice and engender a new "art of the archive" will lay bare the algorithms—the *arché*—of the archive. Boris Groys calls this level the sub-media space behind the archive's surface, for as media carriers the media apparatuses are as good as inaccessible to the viewer[16]—open source. The concept of media art is particularly meaningful when, technologically and aesthetically, it makes the most of its various media qualities, hence of its archival opportunities. The background here is the common origin of media theory and media-conscious art theory.[17]

Let us turn Marshall McLuhan's eye for the non-contentual aspects of media science[18] on the media-archival level. Does this also hold for the contents of audio-visual archives that are permanently being translated (technically: "migrated") onto new media for backup purposes, such as Edison cylinders

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15 Trudy H. Peterson, "Machine readable records as archival material," *Archivum* 35 (1989): 88.

16 Boris Groys, *Unter Verdacht: Eine Phänomenologie der Medien* (Munich: Hanser, 2000), 21.

17 On the connection of art and media theory see the text by Gunther Reisinger in this volume, and Dieter Daniels, *Kunst als Sendung: Von der Telegrafie zum Internet* (Munich: Beck, 2002).

18 Marshall McLuhan, *Die magischen Kanäle: Understanding Media* (Düsseldorf/Vienna: Econ, 1968), 24.

to CD-ROM? The whole distinction between analog and digital media art for the new archives rests in the fact that, in the techno-mathematical mono-medium of the computer, it is no longer the material medium but rather the format that is the message. Fluxus art of the 1960s (Nam June Paik's and Wolf Vostell's TV and video interventions) aimed at de-semanticizing the works. Form and content are no longer hierarchically distinct, but rather equi-original elements of media-artistic information. Points of light are constellated at once figuratively, then abstractly on the monitors—optical sirens' songs. Bill Viola's thirty-minute video aptly titled *Information* (USA, 1973) takes this to extremes. Hiss is experienced here "not as a mischance but as an aesthetic windfall,"[19] as information in the spirit of the mathe-matical theory of communication. Let us dream, then, of search engines that can pick a video out of a media-art archive by classical word/title search, but which is also at home in the statistical likelihoods of individual image elements.

When it comes to the archiving of media art, there is no reason not to draw on the achievements of archival science, particularly for the evaluation and selection of relevant contents amid waves of information growing to tsunami-like proportions. The question as to the archivability, and the need for archiving, of fleeting media art is more problematic. With Fluxus and Performance art, art forms forms entered the world that, by definition, resisted archiving. The transience of electronic culture was already materially anticipated on pre-media terrain. With code-based artworks the situation escalates into the algorithmic.

The exhibition *Deep Storage* (1997) once addressed the archiving practices

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19 Wulf Herzogenrath, "Der Fernseher als Objekt: Videokunst und Videoskulptur in vier Jahrzehnten,"
in *TV-Kultur: Das Fernsehen in der Kunst seit 1879 ed. Wulf Herzogenrath, Peter Hoenisch* (Dresden:
Verlag der Kunst, 1997), 113.

in contemporary art. Its approach was characterized by a digital-nostalgic double bind. For, while the archive in its digital state was robbed of a physical location and of material archivalia, the focus of the exhibition was on objects, pictures, and artifacts. But electronic communication "is based on time. It leaves no traces apart from the result, which lies outside this process, unless traces are deliberately laid. But even when the process is saved to make it reproducible, there are many problems—copies and faxes fade, data become illegible because operating systems are no longer recognized. Entire generations of data carriers are made obsolete by hardware developments."[20]

Audio-visual media art is by its nature transient and un-archivable. In April 1956, Ampex in the USA presented a magnetic-tape technology that facilitated trouble-free erasure of recorded television images, thus anticipating a culture of video images "destined from the start for erasure."[21] Analog chemical-based photography as the direct, crystallized result of the action of light was, for the most part, an irreversible, negentropic process. That which, in the sequel, could be more easily erased was the subject in the real world (Oliver Wendell Holmes's notorious argument around 1850). However, digital photography is no longer geared to emphatic memory but to instantaneous Photoshop processing, "the transformation of the moment into computable information" (Maria Weiße). Does instantaneous art of this kind need archiving?

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20 Volker Kahl, "Interrelation und Disparität: Probleme eines Archivs der Künste," in *Archivistica docet: Beiträge zur Archivwissenschaft und ihres interdisziplinären Umfelds, ed. Friedrich Beck, et al.* (Potsdam: Verlag für Berlin-Brandenburg, 1999), 254.

21 Jens Schröter, "Einige Bemerkungen über löschbare Bilder," in *Videokunstfest Bochum 2000*, cat., 116.

GENUINELY FORMAT-BASED ARCHIVES

More than any other art hitherto, media art requires archiving that is literally attuned to the media, to the specific technological options of the formats (image-based image search, sound-based tone search, time-series-based search of process-oriented works).

Digital computing architectures are not so much involved with different media—in the sense of analog technologies such as film, gramophone, TV, radio—as they are with formats.[22] "Marshall McLuhan once claimed that the medium is the message. Replace medium with format. How far does it hold true? And how much may we permissibly change the message in order to give access to it, in a newer format?"[23] The altogether paradoxical price to be paid for the option of a variety of sorting functions (for instance image-based image search) is a rigorously standardized system. Precisely this formalization and formatting is what art dislikes. Yet media art, insofar as it operates with technologically standardized recording and playback systems in the analog sphere (classical video art) or with standardized coding (in the digital sphere), stands or falls by this.

The object of a genuine aesthetic of knowledge for digital formats is alternative forms of organizing knowledge that facilitate bibliothecarial as well as a-classificatory collections. The so-called ImageSorter, developed at the Zentrum für Mensch Maschine Kommunikation at the Fachhochschule für Technik und Wirtschaft Berlin, is an example of a genuinely sound- and

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22 See Stefan Heidenreich, *FlipFlop: Digitale Datenströme und die Kultur des 21. Jahrhunderts* (Munich: Hanser, 2004).

23 Ray Edmondson (National Film & Sound Archive, Australia), "AV Archiving Philosophy: The Technical Dimension," *Papers of the IAMI-IASA Joint Annual Conference*, Perugia 1996, No. 8 (November 1996): 29.

image-based database. Here, image sorting in digital space takes place according to color-gradient similarities of images. Images that are "similar" from the computer's point of view (that make sense according to its criteria of similarity, but that do not according to the human iconological point of view) are arranged in clusters on a map or on a kind of visual globe.[24] The Kohonen algorithm, used among others by George Legrady for his interactive installation *Pockets Full of Memories* (2001), facilitates the matching not just of identical objects but of merely similar (scanned) objects, using a combination of cognitive arrangement and purely external-shape recognition that generates a third, new element. Content-based image-search processes are not used for search purposes here, but for the automatic sorting of large image batches. Here we see the supremacy of sorting machines, of the generative over the static archive.

ARCHIVING SOFTWARE

Provenance for electronic audio-visual stock is no longer solely archival in nature (the paper archives of broadcasting stations, for instance), but genuinely audio-visual—a "fluid," frequency-based aggregate that, media-epistemologically, is fundamentally different from the alphabet-based system. The audio-visual archives are thus the real interplay of traditional and digital archives. Analog technological storage devices (such as magnetic tape) operate, anarchivally, in the material sphere of magnet spots and electromagnetic induction (the symbolic ordering, for instance the counter on a video recorder, is extrinsic and has to be mechanically added). Computer matrix memories, in comparison, are closer to the symbolic ordering of the classical archive, having a clear address structure: micro-archives; similarly the "digital library," where phonograph and film were the previous alternatives to the alphabetical library. Alphanumerics heralds the advent of a new

24 Version 1.0 downloadable at http://mmk.f4.fhtw-berlin.de

kind of library expressed in the informatic concept of program libraries. The distinction lies in the difference between audiovisuality and mathematics. In the case of Net art, in particular, this means the emergence of a new work concept (the software source code itself).

The digital commensurability of text, image, and sound means that the "digital archive" (as a component of operatively linked electronic data networks) is accessible to mathematical operations down to the last detail — with prodigious consequences compared to the hitherto static, classificatory concept of the archive. In a memo of April 23, 1942, George R. Stibitz defined the essence of the digital computer as "the ordering of computation steps in time" (he is referring here to the number train of zeroes and ones). "Digital computation is dynamic in character."[25]

Compared to the virtualization of information, an analog-technological AV artwork (monument to the Muses, a literal musealium) is like a monument of material resistance. Is it a question of reflecting, at sites (such as a media-art archive) one might term cultural laboratories, the substance loss that has befallen THE THING-world in virtual space?[26] The Deutsche Denkmälerarchiv (German Cultural Heritage Archive) founded by Albrecht Meydenbauer around 1900, a photographic (or rather photogrammetric) collection of historical buildings, already anticipated the potential war losses, the past future of the originals. The name is the address (freely adapting from Beuys):

25 George R. Stibitz, "Digital Computation for A. A. Directors," memo of a conference on electronic anti-aircraft fire control (typescript), quoted in a lecture by Robert Dennhardt, "Die Flipflop-Legende und das Digitale," at the congress Kulturtechniken der Synchronisation: Adressieren Speichern Takten, Helmholtz-Zentrum für Kulturtechnik der Humboldt-Universität Berlin, February 1–3, 2007.

26 Freely formulated after Renate Flagmeier (Werbund-Archiv Berlin).

To name art or cultural and historical objects in archives by name means to name (keep addressable) the potential complicity of cultural memory media in the symbolic exchange of presence and disappearance. Digital storage media are potentially involved in the erasure of data. On the other hand, it is the official task of an archive to preserve documents for an indefinite time, or even to bar present access, conserving them for later, unexpected, and hence truly informational use.

A digital archive has two embodiments: "In contrast to traditional archivalia, the logical and the physical structure of digital documents are not indissolubly linked, but are stored independently of each other. The forms in which data are stored and in which they are presented are distinct."[27] Characteristic for digital archives is the fact that they can be instantaneously erased—faster than any fire in the library at Alexandria. In the computer "cette possibilité d´écrire et d´effacer sur un support électromagnétique permettra, *comme calcul*, le traitement de l´information à une vitesse approchant celle de la lumière." ([T]he possibility to write and erase on an electromagnetic back-up enables one to process information, like computation, at a speed approaching that of light.)[28]

A genuinely digital, software-generated media object only develops in the algorithmic process. In a state of standstill, its software documentation fails to show this. New technologies are constantly required to keep it up

27 Michael Wettengel, "Technische Infrastruktur für die Archivierung von digitalen Datenbeständen: Anforderungen und Verfahrensweisen," in *Europäische Archivnachrichten INSAR*, Supplement II (1997): 190–98.

28 Bernard Stiegler, *La technique et le temps, Vol. 2: La désorientation* (Paris: Galilée, 1996), 143, referring to Martin Heidegger (on "la retransmission *en direct* par *Telstar*," in *Langue de tradition, langue technique* [Brussels: Lebeer-Hossmann, 1980], 20).

to date. But the classical art of archiving fails when it comes to the medium shaping contemporary culture more profoundly than anything else, the signal-processing machine we call the computer. Media-operative devices are no longer simply bearers of meaning ("semiophors"), they also generate it. As a curator at the National Museum of Science and Industry London has put it, software, while a cultural artifact, is no longer an object, for it only develops in the course of its execution. The computer can be exhibited, but, except in the frequency-based medium of acoustics, its time-critical and "bit-critical" processes cannot. Software, insofar as the computer hardware for playing it is available at all, is one of the generic objects (media) where "one bit wrong and the system crashes." "In archaeological terms the operational continuity of contemporary culture cannot be assured."[29] The solution lies in translating the material side of computer culture itself into software by digitally emulating past hardware. This holds especially for media-art production media. Contemporary culture is suddenly confronted with things (operational devices, media) that conduct their own de-reification—"logical replication as distinct from physical replication."[30] Digital archives no longer involve mnemic energy in the spirit of cultural studies, but rather a present, whose decisive novelty is an information economy. In *Cybernetics* (1948) Norbert Wiener formulated the distinguishing feature of this economy: information is neither matter nor energy. The new archive is this cybernetic being gifted with feedback.

29 Doron Swade, "Collecting Software: Preserving Information in an Object-Centred Culture," *History and Computing* 4/3 (1992): 206–10.

30 Ibid.

CONTEXT AND ARCHIVE:
PRESENTING AND PRESERVING NET-BASED ART
Christiane Paul

As a form of artistic practice, Net art began to develop with the advent of the World Wide Web in the early 1990s, and is now in its teenage years. From the very beginning, Net art posed challenges with regard to its presentation and contextualization within the traditional, established art system. Given how rapidly the World Wide Web as a platform has changed over the past fifteen years, the issues of archiving, documenting, and preserving Net art continue to become more pressing. Preserving the work of the Net pioneers is now a major concern for the institutions and parts of the new-media art world that started supporting and archiving Net art in its early years. This text will outline some of the basic challenges in the online presentation and contextualization of Net art; institutional collection and archiving policies that have been developed for the art form; so have preservation strategies and initiatives, including the case studies done at the Whitney Museum of American Art as part of the "Forging the Future" initiative. The challenges of presenting Net art will be discussed here with regard to online exhibitions only; the exhibition of Net art in the gallery space and the changes it has brought about for the curatorial role have been discussed in other publications and won't be a focus of this essay.[01]

Net art gained momentum when a core group of European artists—among them Russian artists Olia Lialina and Alexei Shulgin, British artist and activist Heath Bunting, Slovenian Vuk Cosić, and the Barcelona-based team jodi.org (Dirk Paesmans and Joan Hemskeerk)—drew attention to the genre and formed the "Net.art" (Net art with a dot) movement. The term was officially used for the first time when Vuk Cosić organized a small gathering, "Net. art per se," in Trieste in 1996. The Net.art group connected through the

mailing list Nettime—founded by media theorists and critics Geert Lovink and Pit Schultz—while discussions about the Net art genre also took place on Rhizome, a New York-based mailing list for new-media art founded by Mark Tribe.

An online art world—consisting of artists, critics, curators, theorists, and other practitioners—immediately developed in tandem with Internet art and outside of the institutional art world. Among the early online galleries was Benjamin Weil's äda'web, a digital foundry that featured work by Net artists as well as established artists, such as instance Jenny Holzer and Julia Scher, who expanded their practice with the new medium. In the early years, funding strategies for Net art and online galleries were as experimental as the art itself. The Machida City Museum of Graphic Arts in Tokyo started sponsoring a competition for "Art on the Net" in 1995, but recognition for Net art in the art world at large would remain scarce until the end of the century.

As an art form that exists within a (virtual) public space and has been created to be seen by anyone, anywhere, at any time (provided one has access to

01 Christiane Paul, "Challenges for a Ubiquitous Museum: Interfacing New Media: From the White Cube to the Black Box and Beyond," in *New Media in The White Cube and Beyond:Curatorial Models for Digital Art*, ed. Christiane Paul (Berkeley, CA: University of California Press, 2008); Christiane Paul, "The Myth of Immateriality: Presenting & Preserving New Media," in *MediaArtHistories*, ed. Oliver Grau (Cambridge, MA: MIT Press, 2006); "Flexible Contexts, Democratic Filtering, and Computer Aided Curating Models for Online Curatorial Practice," in *Curating, Immateriality, Systems: On Curating Digital Media*, ed. Joasia Krysa, Data Browser Series Vol. 3 (New York: Autonomedia Press, 2006); Anne-Marie Schleiner, "Fluidities and Oppositions among Curators, Filter Feeders, and Future Artists," *Intelligent Agent* magazine 3, no. 1 (2003), http://www.intelligentagent.com/archive/Vol3_No1_curation_schleiner.html.

the Internet), Net art does not necessarily need the physical space of an art institution to be presented or introduced to the public. Net art promises new ways of distributing and accessing art that can function independently of the institutional art world and its structures of validation and commodi- fication. While some Net artists have explicitly opposed "institutionalization" and resisted being shown by a museum, many others felt that their work should be seen in the context of "art in general" and be represented in the gallery space and on museum websites. As other art forms before it, new-media art has shifted the focus from object to process; as an inherently time-based, interactive, participatory and collaborative, customizable, and variable art form, new-media art resists "objectification" and challenges traditional notions of the art object. The characteristics of Net art lead to an increased openness of the production and presentation process, require increased awareness of process, and make the outcome of the work less predictable. Net art reconfigures the roles of the artist / author, curator, in- stitution, and audience.

While some aspects of the institutional and curatorial role—such as the organization of exhibits and their art-historical framing—still apply to the process of presenting Net art, transformations occur in the process of contextualization, in the filtering and classifying within the online environment. The Internet is a network where a different context is always only one click away, and everyone is engaged in a continuous process of (re)context- ualizing. Linking to and commenting on other websites creates information filters, portals, and new contexts.

As opposed to art in the gallery space, online commissions or an exhibition of online art are seen by a trans-local community and continue to be archived indefinitely (until some party fails in sustaining it). The art exists within a network of related exhibitions and projects that can be accessed directly

in the adjacent browser window, becoming part of the continuous evolution of the art form. Depending on their openness, the artworks featured online may continue to evolve over time, beyond the duration of a show. Ongoing discussions of an exhibition on mailing lists and in forums may include alternative versions of the exhibition, for example, through posts that feature links to additional artworks that would fit the exhibition context. Over time, the external links included in an artwork or online discussion may have become obsolete—a decay referred to as "link rot"—leading to a loss of the original context. From its very beginning, an online project or exhibition is not bound by the framework of one institution but exists in a larger network where institutional control tends to be more distributed.

All of the above conditions pose a crucial question when it comes to the archiving (and preservation) of Net art: if Net art is intrinsically contextual—since it often makes context its content through a process of linking—do institutions need to preserve and archive its constantly fluctuating context? Recording and archiving the context of art (e.g. through catalogues, art-historical writings, collection of ancillary materials) has always been one of the tasks fulfilled by museums, art historians, research institutions, etc. More than any other art form, Net art entails shifts in context, since it is potentially mutable and can evolve through different versions due to contributions by the public and changes in its habitat, the Internet. (Traditional artworks can also go through different versions, but these are mostly the result of a more controlled reinterpretation of the work by the artist or an art institution).

In its traditional, limited meaning, the archive is understood as a depository containing historical records and documents, which typically are static rather than mutable entities. Archives typically have "keys" and systems for cataloguing and classifying, and the development of a vocabulary for

archiving Net art has been a major part of preservation efforts. The archiving of the context of Net art requires a new understanding of the archive as a "living" environment that can itself adapt to the changing requirements of the mutable "records" it contains. This type of archive would need to document the different versions of a work that develops through user contributions—for example, by keeping copies of the project in its different states; and it could potentially document aspects of the "environment" in which the work existed at different points in time, such as discussions of the piece on blogs, mailing lists, etc. The contextualization and archiving of Net art require new models and criteria for documenting and preserving the process and instability of works that are often created by multiple authors and constantly develop over time. While the amount of online tools for creating and distributing content has mushroomed over the past decade—and particularly within the context of Web 2.0 technologies—there are few tools for preserving the ephemera produced in the online environment. An example would be The Pool,[02] a project developed at the University of Maine's Still Water Lab. The Pool was specifically designed as an architecture for asynchronous and distributed creativity and documents different stages of the creative process: the "Intent," a description of what the artwork might be; an "Approach" to how it could be implemented; and a "Release" of the artwork online. The architecture also includes a scaling system that allows visitors to the site to rate any given project. The Pool supplies descriptions of projects' versions, reviews of the projects, and relationships to other works in the database. Tags to contributors make it possible to credit all the artists who have worked on a project at any given stage. The early works created by the Net art pioneers are particularly vulnerable to decay and erasure—since they were often conceptual and driven by a sense of community and a spirit of spontaneous

02 http://pool.newmedia.umaine.edu/index.php.

interventions in network architecture—and require preservation strategies that at least to some extent document their context.

INSTITUTIONAL ARCHIVING AND COLLECTION POLICIES
In the late 1990s, traditional institutions began to pay attention to Net art as part of contemporary artistic practice, and slowly incorporated it into their programming. The following brief outline of models and policies for online archiving and collection focuses on the efforts undertaken by US art museums—the Walker Art Center's Gallery 9, SFMOMA's e-space, the Whitney Museum of American Art's artport, and the Solomon R. Guggenheim Museum—which still follow a fairly traditional model in that their online archives are overseen by a single curator/institution rather than open to a multiplicity of curatorial or institutional voices. These institutional archives find their counterpart in the ones organized by smaller organizations or independent teams not affiliated with an institution, which sometimes take more experimental formats.[03] As opposed to smaller nonprofit organizations such as turbulence, which continue to commission Net art, most museums have stepped back from making a continuing commitment to the art form.

[03] The British website *low-fi net art locator*, run by a collaborative team, used an open curatorial model by regularly inviting guests to "curate" a selection of online projects within a theme of the guest's choice. A range of contextual perspectives can also be found at *turbulence*—a project of New Radio and Performing Arts and its co-directors Helen Thorington and Jo-Anne Green—which, in addition to commissioned projects, features curated exhibitions (often organized by artists) as well as "Artist Studios" that present artists' works and provide context for them through writings and interviews. The idea of "automated curation" and software-based filtering becomes more pronounced in the *runme* software art repository, an open, moderated database that emerged out of the *Readme* software art festival (first held in Moscow in 2002) and launched in January 2003. The site is an open database to which anyone can submit a project, accompanied by commentary and contextual information.

One reason for this development may have been that museums too hastily started to incorporate Net art into their programming—following a trend—without having an infrastructure (both technologically and conceptually) to accommodate it; once they recognized the inherent challenges of the art form, they became more hesitant to invest into it. Another reason is that Net art as a "pure" form or genre to a large extent has ceased to exist. Networked art has considerably hybridized over the years, and it is very common today to encounter a new media work that has a Net component, exists on mobile devices, and has an installation component that can be shown in a gallery space.

In the context of Net art, it is debatable what exactly the process of collecting entails. One can argue that the (virtual) object being collected is the source of the work, which would be hosted on the respective museum's server. Domain names are a form of virtual real estate and if works that were originally hosted by the artists themselves are transferred to and become accessible under a museum's domain, this certainly signifies a form of ownership. It would be more problematic to make a claim for ownership if a work of Net art is only linked to but not hosted on the institution's server. While there are no established rules for collecting Net art, the examples mentioned in the following show that institutions commonly host Net art that officially enters their collection, but tend to be more open when it comes to exclusivity (a work of Net art might be in more than one collection or artists might retain a right to also host a copy of the work).

Typical museum sites originally tended to be more focused on the singularity of the institution than the context of the art world that surrounds it, but museums are now increasingly making efforts to turn their online assets into more comprehensive resources and study collections with educational initiatives, blogs, forums, YouTube channels, etc. The predominantly

centralized model proves to be largely insufficient for institutional websites devoted to online art, which by nature inhabits a discursive environment with multiple perspectives beyond the institution that need to be considered.

The Walker Art Center's online exhibition space Gallery 9,[04] developed from 1997 until 2003 under the direction of its founding director Steve Dietz,[05] acknowledged this need from its inception and was created as an online venue for both the exhibition and contextualization of Internet-based art. As Dietz explains in his introduction to the site, the space features "artist commissions, interface experiments, exhibitions, community discussion, a study collection, hyperessays, filtered links, lectures and other guerilla raids into real space, and collaborations with other entities (both internal and external)." Gallery 9 also became a permanent home for content that was developed externally, such as Benjamin Weil's äda'web, which was permanently archived at the Walker after losing its financial support. Gallery 9 quickly became one of the most recognized online venues for Net art worldwide and the leading initiative of its kind in the United States.

Gallery 9 provides access to featured Net art projects (which are linked to), works commissioned by the Walker Art Center (hosted on the museum's server), and previously existing "archives," such as the äda'web gallery and G.H. Hovagimyan's online radio program Art Dirt (also hosted by the museum). The Walker acquired the right to display and archive all the works in perpetuity, but only the commissioned works and previously existing archives (äda'web, Art Dirt) officially entered the Walker's collection. The

04 http://gallery9.walkerart.org/

05 To the shock and surprise of the online community, the Walker Art Center abandoned its new media initiative and laid off Steve Dietz in 2003—presumably unaware of the fact that it was the most important program of its kind in the US (and probably worldwide).

museum changed its formal collection policy so that Gallery 9 and the Digital Art Study Collections formally became part of its collection.

The San Francisco Museum of Modern Art's (SFMOMA) online gallery, e.space,[06] was created in 2001 by the museum's Curator of Media Arts at the time, Benjamin Weil, to explore new art forms existing only on the Web. The seven projects commissioned for e.space are hosted and permanently archived by the museum, but were not acquired for the collection. SFMOMA's current media arts curator, Rudolf Frieling, accepted two works of Net art into the collection as gifts in 2008, which initiated new research in preservation strategies at the museum.

Gallery 9 was a model for the Whitney Museum of American Art's (WMAA) artport, a portal to Internet art and online gallery space that I launched in 2001 and have curated since then. In the case of artport, contextualization took the form of a "resources" directory (links to new-media organizations, Net art galleries, and exhibitions, etc.) and a "gatepages" section that archives splash pages specifically created by artists for the artport site and provides an entry point into the respective artist's projects. Filtering and contextualization also were at the core of the first project commissioned for artport: Idea Line by Martin Wattenberg, which is itself an archive and visualization designed to show the variety of themes and technologies at the basis of Net art, as well as the relation of each artwork to the larger tapestry of all these diverse approaches. Part of the Idea Line interface was the development of meta-tags to classify categories of Net art. The Whitney Museum also co-commissioned a series of three Net art projects with Tate Modern, which are accompanied by a contextual framework of video interviews with the artists and texts about the projects written by media

06 http://www.sfmoma.org/exhibitions/espace.

theorists. None of the gatepages or larger projects commissioned for artport officially entered the Whitney Museum's collection, but the museum has a non-exclusive license to archive the works in perpetuity, meaning that artists retain the right to host their own copies of the work. A new commissioning contract was developed to accommodate the conditions and requirements of a Net art commission. The decision to not make the commissions part of the collection was driven by the argument that artists should receive more money for an acquisition—as opposed to a commission—and the belief that, due to a lack of concrete preservation policies at the time, the existence of multiple copies of the work (in the artist's and institution's possession) was a crucial step in guaranteeing its survival—an approach referred to as "distribute or die."

The only Net artwork currently in the WMAA's collection is Douglas Davis' *The World's First Collaborative Sentence*, which was commissioned by the Lehman College Art Gallery, Bronx, New York, in conjunction with its 1994 survey exhibition of the artist's work. The project was donated to the museum by Barbara Schwartz who, together with her husband Eugene M. Schwartz, had purchased the concept and a signed disk with recordings of the first days of *The Sentence*. The project allows visitors to the website to type in text and contribute to an endlessly continuing sentence that takes the form of a series of HTML pages. A few years ago, the Whitney Museum started work-ing with the Variable Media Network (VMN) to develop preservation strategies. As part of the VMN's Forging the Future initiative, the museum has conducted case studies for defining preservation approaches, which will be further discussed in the following section.

As Associate Curator of Media Arts, Jon Ippolito worked with the Guggenheim Museum from 2000–2001 to commission and acquire into the permanent collection two works of Internet art by Mark Napier and John F. Simon, Jr.

In collaboration with the Guggenheim's legal counsel Maria Pallante, he created a new acquisition contract for Net artworks that explicitly required the museum to follow the variable media guidelines for preservation (developed by the Variable Media Network and discussed in the following section). The contracts also stated that a percentage of the commission would be set aside for future preservation. In the case of Mark Napier's project *net.flag*, which is a "public artwork" created by online contributions by visitors to the site, the contract contains a clause to the effect that he has the right to host the project himself if the Guggenheim Museum ever fails to do so for financial or technical reasons.

PRESERVATION STRATEGIES AND INITIATIVES
The process of collecting and archiving Net art should entail the responsibility of maintaining it, which may be one of the biggest challenges the art form poses. Net art is often referred to as ephemeral and unstable media, a label that is only partly accurate. Any time-based art piece, such as a performance, is essentially ephemeral and often continues to exist only in its documentation. Digital technologies allow for enhanced possibilities of recording and the process of a time-based digital artwork can potentially be recorded as an archive. One could argue that bits and bytes are in fact more stable than paint, film, or videotape. As long as one has the instructions to compile the code—for example as a print-out on paper—the work itself is never completely lost. What makes digital art unstable are the rapid changes and developments in hardware and software, from changes in operating systems to increasing screen resolution and upgrades of Web browsers. Hardware deteriorates and replacement parts are not infinitely available.

Net art requires new models and criteria for documenting and preserving process, context, and instability. These initiatives must develop a vocabulary for catalogue records, standards that allow for the exchange by institutions

of the metadata gathered for catalogue records, and tools (such as database systems) for the cataloguing of unstable and process-oriented art. Both in Europe and in the United States, numerous preservation initiatives are setting out standards for preserving media works. Among them is the Variable Media Network,[07] a consortium project that was founded by the Solomon R. Guggenheim Museum and the Daniel Langlois Foundation for Art, Science, and Technology, and that has included the Berkeley Art Museum and Pacific Film Archive, the Cleveland Performance Art Festival and Archive, the Walker Art Center, the Franklin Furnace Archive, Rhizome.org, and the Whitney Museum of American Art. The Variable Media Network brought forth a series of working groups, such as Archiving the Avant-Garde[08] and the Forging the Future initiative.[09] European preservation initiatives include the International Network for the Preservation of Contemporary Art (INCCA); Media Matters,[10] created in 2003 by a consortium of curators, conservators, registrars, and media technical managers from New Art Trust, MoMA, SF-MOMA, and Tate; and the V2 organization's Unstable Media project.

As a framework for investigating and documenting strategies for preserving ephemeral works, the variable media approach strives to define medium-independent behaviors of artwork and to identify artist-approved strategies for preservation with the help of several tools, among them the Variable Media Questionnaire (VMQ). What distinguishes the variable media paradigm from other preservation concepts is the focus on the behaviors and creator of a work rather than its material. The initiative defined several medium-independent behaviors—installed, performed, reproduced, duplicable,

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07 http://variablemedia.net/.

08 http://www.bampfa.berkeley.edu/about/avantgarde.

09 http://www.forging-the-future.net/.

10 http://www.tate.org.uk/research/tateresearch/majorprojects/mediamatters/.

interactive, encoded, contained, networked[11]—and four main approaches to preservation:

- Storage (collecting software and hardware as it continues to be developed)
- Emulation ("recreating" software, hardware, and operating systems through emulators—programs that simulate the original environment and its conditions)
- Migration (upgrading the work to the next version of hardware/software)
- Reinterpretation ("restaging" a work in a contemporary context and environment)

There is no silver bullet approach to the preservation of Net art or new-media art in general, and the preferable strategy for preservation would ideally be defined in collaboration with the artist. Any of the above methods can be ideal or problematic depending on the specifics of a work. For example, storing hardware may be impractical but can be the only solution if a work is based on a hardware modification; migration or re-creation at worst can make a work look dated, since the artist might have chosen to create an entirely different project if the latest technology had been available to him/her the time of the project's creation.

The challenges of documenting and preserving new-media art most poignantly illustrate the concept of the ephemeral and immaterial as links between materialities—the connections between hardware and software components and processes initiated by humans and machines that form an immaterial system of their own. The success of preservation strategies will

11 For detailed explanation see Jon Ippolito, "Death by Wall Label," in *New Media in the White Cube and Beyond: Curatorial Models for Digital Art,* ed. Christiane Paul (Berkeley, CA: University of California Press, 2008).

depend largely on standardization, which requires a continuous dialogue between all of the organizations and institutions involved in these initiatives.

FORGING THE FUTURE
The initiative Forging the Future: New Tools for Variable Media Preservation—supported by a grant from the National Endowment for the Humanities and based upon the preservation standards and strategies developed in previous years by its members as part of the Variable Media Network (VMN) and Archiving the Avant-Garde working groups—is focused on building tools written to those standards, and is designed to help organizations choose among those strategies. Forging the Future proposes a consortium of museums and cultural heritage organizations dedicated to exploring, developing, and sharing new vocabularies and tools for cultural preservation.

The main tools developed in this project are the Franklin Furnace Database (FFDB) for cataloging the archives of arts organizations; the Digital Asset Management database (DAM), which manages digital objects or documentation files and related metadata; the VocabWiki, which defines descriptive vocabulary; and the Variable Media Questionnaire (VMQ), which contains interviews with artists and metadata necessary to migrate, re-create, and preserve variable media objects.

Forging the Future Toolset

Individuals and organizations can use the ensemble of tools produced by the Forging the Future consortium alone or together to meet different preservation needs.
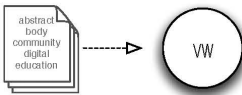
Individual Applications
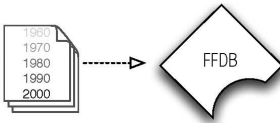
Smaller museums and archives can use the **Franklin Furnace database (FFDB)** to document past incidences of performance, installation, and other ephemeral cultural events.
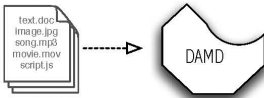
Museums, libraries, and archives with digital assets can use the **Digital Assets Management database (DAMD)** to keep track of digitized images, documents, and code.

Museums, libraries, and archives can use the **VocabWiki (VW)** to add, define, or link to descriptive vocabulary terms when cataloguing new media works.
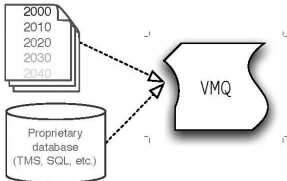
Creators and their representatives can use the **Variable Media Questionnaire (VMQ)** to document how their work has changed and should change in the future. As a Web service, the VMQ can be used alone or dovetail with proprietary databases via secure hyperlinks.

Combined Application

Institutions that need to document ephemeral works, maintain digital assets, and plan for the future preservation of these works can use all four tools in tandem. The tools communicate with each other via the **Media Art Notation (MANS)** standard.

v1.5
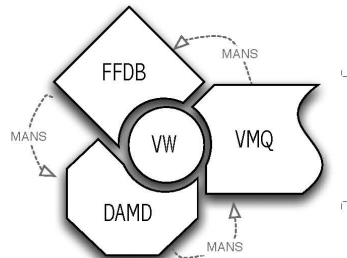
WHITNEY MUSEUM OF AMERICAN ART CASE STUDIES.
As part of the Forging the Future initiative, the Whitney Museum is testing
the latest version of the VMQ by conducting interviews with the following
artists: Cory Arcangel (*Super Mario Clouds*, 2002–03), Jennifer Crowe and
Scott Paterson (*Follow Through*, 2005), as well as Douglas Davis (*The World's
First Collaborative Sentence*, 2004). At the time of this writing, the first two
interviews had been conducted. While Arcangel's and Davis's projects are
officially in the WMAA's collection, *Follow Through*, a performative mobile
media project, was commissioned by the museum and both project docu-
mentation and the underlying software are archived online.

The Whitney's case studies are testing the VMQ with regard to its categories
of behaviors and their applicability in view of necessary modifications of
works over time. The questionnaire is not a sociological survey, but an in-
strument for determining creators' intent as to how their work should be
(if at all) re-created in the future. Compared to previous versions, the third
generation of the VMQ[12] uses a component-based structure for artworks:
interviewers can pick from a list of components, choose the ones applicable
to the artwork, and associate them with it (each component in turn comes
with a set of questions). The main components are:

- Material (such as Media Display, Computer Hardware, Live Material,
  Interchangeable Inert Natural or Manufactured Material, Locative Sensors,
  Robot, Mechanism, Reproducible Inert Manufactured Material)
- Source (Interchangeable or Reproducible Video Source, Generic Software,
  Custom Software, Reproducible Video Source, Key Concept)
- Environment (External Physical or Virtual Reference, Gallery)
- Interaction (Participant, Performer, Viewer)

12 http://www.variablemediaquestionnaire.net/.
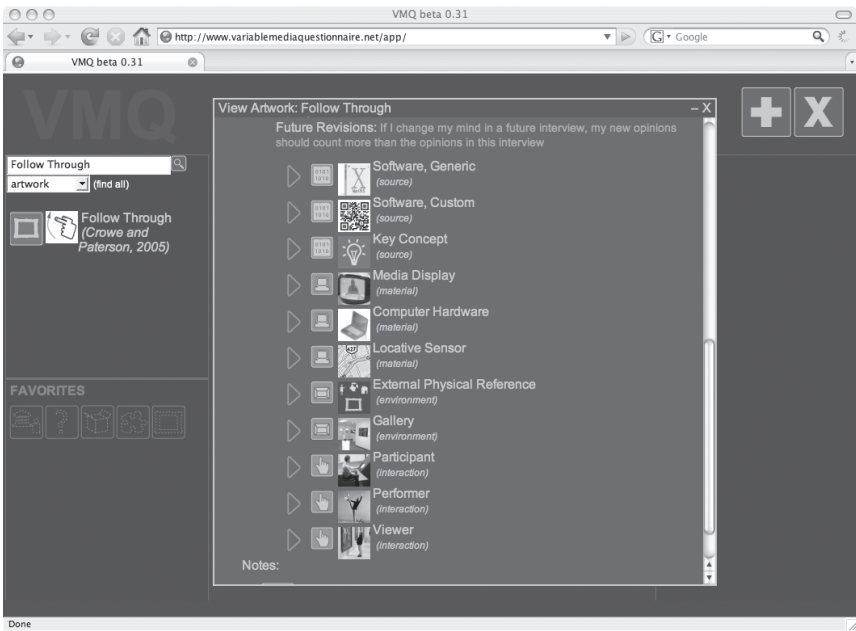
Screenshot of the VMQ, showing the components of *Follow Through*

Follow Through[13] represents an interesting case since it originally was a mobile, audio-visual artwork that was created specifically for the Whitney's fifth-floor permanent-collection galleries and that was accessible to visitors on portable media players. The project is inspired by the discrepancy the artists found between the art on view in the galleries and the rather passive and languid body language of museum visitors looking at that art. Museum visitors would use the portable media players to access the existing audio

13 The project's title has its roots in sports terminology, in which the term "follow-through" describes
     the act of carrying a motion—such as hitting a ball—to its natural completion.

tour for the fifth-floor galleries but, in addition to the audio for a specific work, would receive visual instructions to engage in a set of exercises designed to bring well established behavioral codes of museum attendance into relief. In the case of Follow Through, preservation strategies have to be developed both for the performative work itself and for its Web documentation on the artport site.[14]
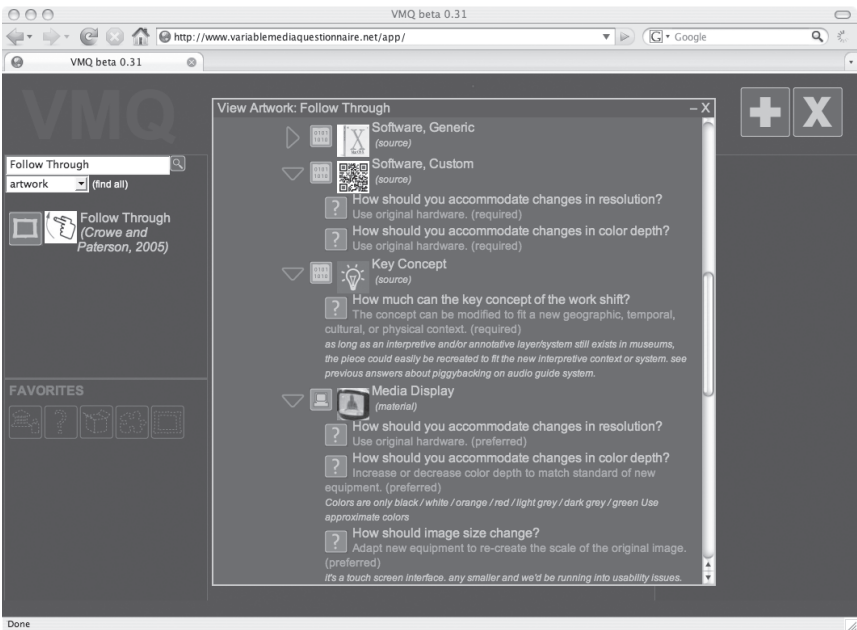
Screenshot of the VMQ, showing questions relating to components of *Follow Through*

14 http://artport.whitney.org/commissions/followthrough/.

An interview with Douglas Davis on his continuously evolving Web project *The World's First Collaborative Sentence* (1994) still needs to be done. At first sight, the piece does not seem to pose major challenges when it comes to its preservation since it is a series of linked HTML pages (user input is made via a form field). At a closer look, however, the project raises interesting questions:

- Since the Web site was created in HTML in 1994, it looks rather unformatted, with uneven layout and fonts/font sizes varying throughout the document. Should cosmetic changes be made or should the pages retain their "dirt-style" aesthetics?
- At a certain point, large sections of *The Sentence* appear garbled, displaying illegible character sets. The project had been included in exhibitions in Asia, so that an increased quantity of contributions was made in foreign-language characters. Should appropriate software be installed to make these sections legible? Should they be translated? Or should illegibility be preserved as a testament to the restrictions and boundaries that language creates on the supposedly global network? Should contextual information on the exhibitions in which the project was included be made available?
- *The Sentence* allows contributors to embed links to external sites or images. After fifteen years, the project is suffering from a severe case of link rot. Should the dead links be left alone, pointing to the ephemeral nature of the Web as a habitat for art? Or should one search the Internet Archive[15] to try to retrieve the pages or images to which *The Sentence* originally linked?

All of the above questions are deeply conceptual and ideally require answering by the artist himself since decisions on how to proceed will fundamentally

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15 http://www.archive.org/index.php.

change the work. As recorded in the VMQ, the case study of *The Sentence* might provide helpful models for preservation approaches to the works of the Net pioneers. Feedback from the Whitney's and other case studies would cycle back into the refinement process for the databases and vocabularies under development at partner institutions. In addition, the case studies will be used as a basis for a development of vocabulary for institutional agreements with artists to ensure the long-term preservation of works.

DIGITAL SOURCE CRITICISM:
NET ART AS A METHODOLOGICAL CASE STUDY
Gunther Reisinger

INTRODUCTION

Sources contain no authentic factual content but only facts as reported, selected, and handed down—often one-sided, unreliable, and manipulated, at all events, already interpreted.[01] Hans Jürgen Goertz

Unlike disciplines in the natural and social sciences, the historical disciplines, as a rule, generate no new data, rather they analyze the phenomena of interest retrospectively and are thus source-based.[02] Even current approaches to processing the digital output of a society with a view to cultural and scientific gains in knowledge[03] are ultimately based on defined source pools selected, analyzed, and related to each other according to defined criteria. In other words, the source (regardless of type) underlies every method (e.g. textualization, visualization, or processing) of generating new knowledge, and must hence be handled with appropriate methodological care. This necessity is recognized with respect to traditional analog sources (artifactual archives). But, since the advent of digital source stock in the form of textual, image, or multimedia databases, "an almost prostitutive indulgence of source and form of data"[04] has asserted itself. Even if the handling of

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01 Hans-Jürgen Goertz, *Umgang mit Geschichte: Eine Einführung in die Geschichtstheorie* (Reinbek: Rowohlt, 1995), 87.

02 The same applies to the "oral history" increasingly practiced today.

03 Lev Manovich is at present working on a knowledge acquisition method for the realms of art and the cultural sciences based on the informatic processing of digitalia.

04 *Konfigurationen: Zwischen Kunst und Medien*, ed. Sigrid Schade and Georg-Christoph Tholen (Munich: Fink, 1999), 19.

the digital and the digitized may seem more sensitive now,[05] critical, method-ologically formative measures, in the sense of source criticisms specifically designed for digital source types, are still outstanding. As will be explained later in more detail, whether the image on a screen is a digitized representation of an analog artwork or a digitally produced work located in the Net is of particular importance in the art-historical field. What is important here, however, is not the distinction between art on the Net and Net art, but rather a more general elucidation of the situation of the media-art genre of Net art as a media-specific testing ground for the development and application of methods of restoring, archiving, and re-presenting that are faithful to works and sources. As we will see, it is by no means always the case that the artwork can be produced as source in, for instance, art-scholarly work. Art historians in many cases work increasingly, or have done so for a long time, with reproductions. The practice has its pros and cons,[06] but one thing is for sure: the advent of ubiquitous digitized data in art-historical research and teaching has obscured the fact that, more than ever, it is necessary to see the "original," and, given the present level of media enslavement, has encouraged the unthinking use of any digital source whatever. A source found on the Internet is generally believed, without further examination and without any particular critical training in digital source types. This makes it all the easier for un-validated and false sources to enter scholarly, cura-torial, and art-historical source pools and circuits.[07]

05 See, for instance, the various university courses offered on researching and using digital sources in research and teaching.

06 See Friedrich Tietjen, *Bilder einer Wissenschaft: Kunstreproduktion und Kunstgeschichte*, dissertation, Vienna-Trier, 2006.

07 See also John Fritch and Robert Cromwell, "Evaluating Internet Resources: Identity, Affiliation, and Cognitive Authority in a Networked World," *Journal of the American Society for Information Science and Technology* 52/6 (2001): 499–507.

Traditional "copies" (such as photographs or reproductions of paintings in books), no less than textual or audiovisual source types, have hitherto been subject to historically conditioned selection processes.[08] Even within such chains of validation, discontinuities have appeared since digital sources entered research and teaching. Generally speaking, it is true that, in the context of the archiving and re-presentation options made available by digital storage media, the whole treatment of sources is being rethought.[09] Yet the growing "power of society over memory and future"[10] is giving rise to big online audiovisual archives[11] which, while they may offer historians new opportunities for objective and critical source work, are mostly only of quantitative value due to deficient source validation.

Within the netpioneers 1.0 research project the attempt is made to create methodological foundations at the source-critical level, using exemplary studies of early Net-based art, of the "digital heritage" made necessary by "digital rot," and of scholarly source criticism.

Within this research project, the media-art genre of Net art will also, and for these very reasons, be analyzed not only as a Net-immanent and hence digital art form, but also as a source-critical case study. Restoration, archiving, and re-presentation in the medium of the work itself is a media-constitutive exception in the realm of art history. As artistic exception it can thus corroborate art-scholarly practice in the handling of digital source types. Paintings, graphic art forms, and photographs can neither be archived nor

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08 e.g. author, publisher, library.

09 See the texts by Wolfgang Ernst and Marc Ries in this volume.

10 Cordula Meier, *Kunst und Gedächtnis: Zugänge zur aktuellen Kunstrezeption im Licht digitaler Speicher* (Munich: Fink, 2002), 17.

11 e.g. Visual History Archive, http://college.usc.edu/vhi/.

represented in their own media. Born-analog art forms may run through numerous transformation processes before arriving in online digital storage, where they are then accessible in digital form via online databases. Net artworks, on the other hand, being born digital, are experienced by the recipient in the work's own medium. Hence they must be archived and re-presented not by means of source-analytical but by work-analytical methods.

The following discussion will thus be conducted at the source level, at the work level, and at the methodological level of adapting existing art-scholarly source typologies. Analysis of Web-based art forms provides a valid approach for digital source types in general. In a spirit of "applied basic research," this methodological cycle of theory and practice will be utilized to restore and archive in their own medium the case studies selected here—THE THING New York, THE THING Vienna, Public Netbase, jodi.org, and unendlich, fast … by Holger Friese—and to contextualize them on the basis of a valid digital source pool.

SOURCE LEVEL
Generally, in the historical sciences, those data are referred to as sources that display the maximum degree of congruence between event and representation in terms both of time and content.[12] The concept of source can include "texts, objects, or facts from which knowledge of the past can be gained."[13] "Authenticity" is the overall concept that has been introduced into historical source work here: sources should be genuine and reliable. Besides being vouched for and trustworthy, historical sources must

12 Hans-Jürgen Pandel, *Quelleninterpretation: Die schriftliche Quelle im Geschichtsunterricht (Methoden historischen Lernens)* (Schwalbach: Wochenschau Verlag, 2000), 10.

13 Paul Kirn, *Einführung in die Geschichtswissenschaft* (Berlin: Gruyter, 1969), 29.

be "true." The minimal truth requirement in this context is not that what an author pronounces be right, but that there must be evidence of his having pronounced it.

Defining "source studies" as "the science of using information to elucidate an object,"[14] Hermann Bauer arrives at the following objective for applied art-scholarly source research: source criticism is the examination of sources with respect to their value and expressive power. Taking these premises as its starting point, the present essay will attempt to effect a transition from traditional source studies to digital source criticism. Net-based born-digital art activities with their special media constitution will serve as case studies. In the context of the project, this also includes certain pre-World Wide Web art-based bulletin board systems.[15]

If one shares the view that "source criticism originated in the Enlightenment and was developed into a method in historism"[16] and concludes that, over the years, "the 'certainty of the fact' … has become the historian's prime task to the culpable neglect of interpretation,"[17] then it is clear that the inter-pretation of Web-based art and its digital source types within the factually still uncertain digital medium necessitates methodological adaptation.[18] In the sense, then, of a pragmatic further development of existing structures, validated art-historical methods of source criticism[19] will be adopted here,

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14 Hermann Bauer, *Kunsthistorik: Eine kritische Einführung in das Studium der Kunstgeschichte* (Munich: Beck, 1989), 118.

15 See the text by Dieter Daniels in this volume.

16 Goertz 1995 (see note 1), 82.

17 Ibid., 83

18 See the texts by Wolfgang Ernst and Anna Bentkowska-Kafel in this volume.

19 Which in turn is itself based on the general methods of historical science.

and adapted, in matters of detail, to current requirements of digital sources and their constitutions.[20]

TRADITIONS

Reception, transmission, and processing are the reasons why history cannot be written using sources alone. We must do both: investigate transmission (not only in the sense of source criticism but also hermeneutic criticism) and process the sources.[21] (Hans Jürgen Goertz)

In setting tradition and the contemporary assessment of sources on an equal footing, Goertz also introduces the triangular relationship of work, source, and liberal arts into the discourse. "Thus, the task of historical criticism can only be to determine in what relation the material at hand, which we intend to use historically, stands to the acts of will about which it informs us,"[22] Johann Gustav Droysen noted as early as 1883. What he means here is that not only are the artists themselves, their patrons, or relevant secondary sources to be exploited as potential sources of information. The works of art themselves can and must also be objects of historical source studies. This implies that "already for Droysen the 'work of art' is nothing less than a universal historical source"[23] and hence that it "can be used as a source in art literature."[24] It is an important point in relation to Web-based art, which, born digital, digitally archived, digitally re-presented, is yet susceptible to the

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20 See e.g. the Library of Congress initiative "Teaching with Primary Sources" at http://www.loc.gov/teachers/tps/about/.

21 Goertz 1995 (see note 1), 98.

22 Johann Gustav Droysen, *Historik: Vorlesungen über Enzyklopädie und Methodologie der Geschichte* (Leipzig, 1883), 98f.

23 Bauer 1989 (see note 14), 119.

24 Ibid., 125.

above typology. Unlike the original of a digitized painting, Net art is per se performant and thus receivable on a user's monitor screen. This ubiquity of access might seem to increase the formal source-suitability of Net-based art forms. However, given the media self-referentiality of digital art forms, while it is important to critically address the new challenges posed by the digital uniformity of work, source, storage, and re-presentation, this should be done without reinventing the methodological wheel and by building on existing and proven methods.[25]

"Like everything real the object is in the medium of reflection."[26] This notion has been applied to analog sources and their forms of representation for a long time now. Since work and representation have merged in digital media (born-digital artifacts), and works of art have started being transformed into new media forms of representation (digitized artifacts), issues of location, original, and copy have all become increasingly important. The object under investigation (the Net-based artwork) is now literally present in the medium of reflection (online digital storage); without clear restoration and archiving strategies, and their documentation, it becomes almost impossible to distinguish between a "real-time" work of Net art (in the sense of the desired closeness of source and event) and a latent copy (digitized artifact). There is a real danger of analytical and terminological lack of clarity in dealing with born-analog art and works that are born digital. If scientific source validity is to be attained, then works of art that are located in online digital storage systems, and hence in their work-immanent mediality (Web), are in need of clear labeling/provision with metadata.

25 See the text by Anna Bentkowska-Kafel in this volume.

26 Goertz 1995 (see note 1), 92.

To be and to remain viewable/receivable, Net art—like traditional art forms—requires certain "practical performance" parameters.[27] However, in the case of Net art, these are not the usual necessities of the art/cultural world, but rather are primarily technological frame conditions.[28] The increasing non-receivability of Net artworks has less to do (as in traditional art) with the disfavor of curators than with something comparable to the "craquelure" of paintings. Like faultily stored paintings, Net artworks insidiously become unreceivable/unviewable, departing—mostly unintentionally—from their original appearance. Outdated versions of browsers or inadequate maintenance of servers are often responsible.

RESTORATION

Accordingly, parallels will be drawn to issues in traditional work restoration. Here, too, the netpioneers 1.0 research project supports the adaptation of already-existing methods, applying general art-restoration principles to Net art as a special case.[29] Since being offline is a selection criterion for the case studies (the works were either entirely offline or only accessible in a documented state) this means that the new old status of the works that have left the Net or decayed, and that have been restored for scholarly purposes and re-presented in their own medium, must be made recognizable as such.

Net-immanent solutions consonant with the media parity of work and source levels have been developed. One variant, which comes close to retaining primary-source authenticity as already mentioned, is an upstream,

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27 e.g. curating, hanging, maintenance.

28 See the text by Robert Sakrowski in this volume.

29 See e.g. Julia Feldtkeller, *Wandmalereirestaurierung: Eine Geschichte ihrer Motive und Methoden* (Graz: Lit Verlag, 2008).

server-side access diversion.[30] This in no way interferes with the source code of the restored work, so it does not affect its suitability as a source. Rather it informs the person seeking access, before reception, of the restored and re-presented status of the requested artwork. Given its conservative connotations, the term "musealization" may seem unsuited to new-media art forms, but it is vital that the "musealized status" be made patent. To prevent the analytical confusion of secondary and primary sources, "deep links" (for instance, Google search queries addressed to an artwork's deeper levels) are also first diverted to this inter-level (which then automatically references the work). Net- and hence work-specific solutions thus handle Web-based artwork sources in ways that support the historical sciences. Through them, digital, process-oriented art forms in a restored and re-presented source state can be distinguished from media-transformed sources (digitized artifacts), and thus can be assigned to a work-analytical methodology.

SOURCE CRITICISM
The gain in knowledge can depend on very different conditions. To determine these for each particular case and for the different sources is the task of source criticism.[31] (Ahavser von Brandt)

The deliberate application of historical, still-valid standards in source studies to the special case of "Net art" will be discussed on the basis of the distinction already found in Droysen between source criticism and source interpretation.[32]

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30 A "rewrite" using the address given as a referrer.

31 Ahasver von Brandt, *Werkzeug des Historikers: Eine Einführung in die historischen Hilfswissenschaften*, 15th ed. (Stuttgart: Kohlhammer, 1998), 51.

32 After Droysen 1883 (see note 22), 99.

Droysen's critique of genuineness describes the validation of the digital source according to formal content parameters: Is the source still what it is held to be, or professes to be? Applied to digital source criticism, this analytical step corresponds to an exact examination of the origin of the source. The critique of the earlier and later endeavors to determine what alterations have taken place in or been performed on the transmitted material. Careful documentation of any interventions in the source code is particularly important in the case of restored and re-presented Net-based art forms. The necessity of disclosing different versions of works is also clear. It is a question here of analyzing the source according to its chronological layers. The complete spectrum of possibilities for digital manipulation with respect to digital production and storage media must also be analyzed and incorporated in the assessment of authenticity.

Analogous to the critique of tradition and copies in art history, the critique of correctness endeavors to determine whether a source, at its origin, provided or could have provided what it vouches for or professes to vouch for. It thus examines the quality of "truth," as mentioned at the outset, from the viewpoint of the time of its origination.[33]

The analytical method discussed by Droysen under the heading of the critical ordering of the verified material holds for all collecting and structuring measures (databases and classifications): Does the sum total of the ordered material still contain everything in the way of testimony and information demanded by research? Or, if it is incomplete, then to what extent?

33 See e.g. Lambert Wiesing, *Die Sichtbarkeit des Bildes: Geschichte und Perspektiven der formalen Ästhetik* (Reinbek: Rowohlt,1997).

Consequently, just as Droysen's critique of genuineness can serve as a basis for digital source studies, so too could his critique of the earlier and later in its original form almost have been written for digital art and source types. In particular, his critical ordering of the verified material can be applied to online databases for art-scholarly research. Digital source and work types, then, can clearly be approached, and the methodological integration of both work and source levels effected, using the proven tools of historical and art-historical work and source research. Pictorial pragmatism, widely discussed in connection with scholarly research into pictures, is methodologically close to Droysen's pragmatic source interpretation. Now and then it also deals with the "interpretation of conditions," which will be examined more closely in what follows.

SOURCE INTERPRETATION
The establishing of relevant conditions within which the source (and in the case of Net art also the "work") both originated and has been handed down applies to traditional historical sources as well as to binary-code reproductions of works of art. The second phase of source analysis, therefore, includes the level of contents.

a. Pragmatic interpretation
Its procedure consists in completing the connections and affinities whose traces it detects in its materials according to those traces, extrapolating the motifs foreshadowed in them … .[34]

The quality of the traditional source often suffers from the disparity between event and research, or from the material decay of the source. Especially in the realm of Net art, the phenomenon of digital rot is increasing.

34 Droysen 1883 (see note 22), 99.

Exaggerating, one might refer to this as "digital craquelure" which can part-
ly affect in particular the early days of this genre (1993–96), or sometimes
even make works completely un-receivable.

Because works are often no longer available online, Net art is often described
on the basis of reproductions and documentations. Generally speaking,
the source types used have been media transformed (digitized) or extracted
from the production medium (e.g. printed screenshots). Similarly, analogized
sources (printouts) may be back-transformed (re-digitized) and returned
to the production medium. This digital standardization of different source
types calls for the interpretation of their media genesis and the inclusion
of the source history of each in accrediting the source (metadata).

b. Interpreting (media) conditions
… [W]e recover a significant part of the original process when, and to the
extent that, we can still demonstrate, on the basis of the material, the con-
ditions that shaped or contributed to shaping the process.[35]

The documentation of digital and digitized sources is specifically derived from
Doysen's argumentation. Because it is process-oriented, his dictum of the
"shaping of the process" can likewise be applied to Net-based art forms.
Documenting the origin and, if applicable, the media transformation of the
source is indispensable for any further art-historical research. The archival
and descriptive metadata necessary here in relation to Net-based art forms
are still being developed.[36] This set of problems is approached in the net-
pioneers 1.0 research project in the spirit of a terminological bottom-up
strategy using IT-based semantic text analysis of the primary and secondary

35 Ibid.
36 e.g. Dublin Core, METS oder mpeg7.

sources under survey.[37] Making systematic use of the media parity of works and sources, including both those that are born digital and also digitized born-analog secondary sources, the sum total of source types is combined in the digital medium of analysis, indexed at the semantic level, and, together with qualitative and quantitative factors and their visualization, made available to scholarship.

Regarding this source-synthetic[38] combination of the three levels of the work, its representation, and its source, a source tradition—albeit a very short one—does also exist for digital sources and must be included in reflections on, for instance, terminological issues. A distinction must be made between a monitor screen phenomenon that is the performative representation of an ulterior digital code (in the sense of a digital cultural artifact) and a visible screen event that derives from a genuinely born-analog artwork (a digitized painting, for instance). The latter would be a source in the traditional sense—a digitized, media-transformed cultural artifact originally belonging to the world of objects. This source type needs to be approached by means of secondary material analysis, whereas work-analytical methods must be applied in the case of restored Net artworks.

37 See netpioneers.info.

38 See Gerhard Theuerkauf, *Einführung in die Interpretation historischer Quellen: Schwerpunkt Mittelalter* (Paderborn: Schöningh, 1991), 18. Source synthesis attempts to embed the source as a whole in its social context and investigates possible traditions and interdependencies. The question of author (communicator or provider) and receiver (recipient or user) is also part of this phase of source interpretation.

WORK LEVEL
CULTURAL SUPPLEMENTATIONS

In order to adapt work-analytical methods to the genre of Net art, the concept of a "cultural supplementation" must be introduced.[39] This concept also refers to the interpretation and extrapolation of lines implied in a source (in this case, however, the supplementations are not formal but contentual). Without a wealth of background knowledge, it would hardly be possible to identify the screen phenomenon as a work of art. Precisely in the case of Net art, the work of art's thoroughgoing displacement means that the individual recipient's contributions are foregrounded. Learned cultural supplementations become operant. For this reason, too, or precisely on account of it, Net art is treated here not only as a Net-immanent art form but also as a source-critical control group.

Until they are finally located in digital storage, born-analog sources undergo media transformations that are in turn subject to technology-immanent processes. The term "cultural supplementation" here covers several aspects of the different source types combined in online storage: on the one hand, existing knowledge of various art subjects, and on the other, the requisite media competences for the production, indexing, validation, search, and transmission/dissemination (all archival criteria) of digital cultural artifacts. Peter Halley's work in the case study THE THING New York can serve here as an empirical control. In 1993, Halley offered the digital copy of a digitally produced "easel picture" as a download via THE THING New York's bulletin board system, but only sent it to the owner as a signed disk for later analog printing out after it had been paid for.[40]

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39 See Gunther Reisinger, *Die digitale Quelle: Ihre Rolle zwischen der Konstitution des Mediums und kunstwissenschaftlicher Methodik*, dissertation, Graz 2006, 43.

40 See netpioneers.info.

With an eye to the reflections on Paul Feyerabend's "counterinduction" at the end of this essay, pertinent here, Web-based art and its source-critical handling can be conceived as the exception that proves the following digital-source rule: Net art is digitally produced—it understands the systemic immanences of the Internet as its art content, and thus can only be performed and received there. However, it appears phenomenologically, albeit digitally sourced, at a level (the monitor screen) of original analog art. Given this paradox, the analytic, archival, and re-presentative methodologies of Net art must be distinguished from those of traditional art forms; it is up to art scholarship with its source- and work-related competences to involve itself in the necessary task of establishing the distinguishing features.

Differentiating source and work levels by means of the source criticism discussed above is a first step; a critical consideration of the work level is the next. Without differentiated metadata it would be impossible to differentiate work from copy, but also non-work from work. Applied to archival procedures, this means that the different levels must first be inserted and that, while a "frame" (not unlike that demarcating paintings from their physical surroundings) is digitally present, it is, however, neutralized by the standardization that the digitization of born-analog cultural artifacts entails.[41] In particular, archives and re-presenting institutions (museums or research institutes) can tackle this challenge, introducing the distinctions on the basis of metadata labeling and access modalities in the work and archive medium itself. Renaissance artists executed special models to enable their re-producers, the engravers, to achieve the requisite faithfulness to the original. Similarly here, it is necessary to develop binding policies for adopting and transforming the source (digitization),

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41 See Gottfried Boehm, "Die Wiederkehr der Bilder," in *Was ist ein Bild?*, ed. Gottfried Boehm (Munich: Fink, 1994), 11–38.

as well as for the archiving and representing (screen) of Web-based works (storage).

METHOD

Methods have a future only in a process, and such a process is at present only indistinctly visible in the historiography of art.[42] (Hermann Bauer)

Advanced art-scholarly work research tries to approach Net art by undertaking multidisciplinary analytical steps and methodological adaptations. In matters of informatics, the symposium series "Hyperkult," held in Lüneburg since 1993, has already left basic research behind and pragmatically entered applied realms.[43] The project Variable Media Network, successfully run in the USA from 2001–2004 by a consortium of institutions,[44] also presented real-space realizations of archival issues concerning media artworks. What these strategies have in common is their interest both in the work level and, increasingly, in the source level, which, in view of the media specifics of work, documentation, and source, is both justified and a methodological prerequisite.[45]

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[42] Bauer 1989 (see note 14), 157.

[43] e.g. PETAL–PicturE Text Annotation Language, Lüneburg University. The system, among others, found application in connection with an exhibition of works by the artist Anna Oppermann at the Hamburger Kunsthalle. See http://www.uni-lueneburg.de/hyperimage/hyperimage/content/petal_projekte.htm; see also the conference "HyperImage" at the Humboldt University Berlin http://hyperimage.hu-berlin.de/?q=node/6.

[44] Berkeley Art Museum/Pacific Film Archives, Berkeley; Franklin Furnace, New York; Guggenheim Museum, New York; Daniel Langlois Foundation for Art; Science, and Technology, Montreal; Performance Art Festival + Archives, Cleveland; Rhizome.org, New York; Walker Art Center, Minneapolis.

[45] This holds for the realm of media art in general. See Christiane Paul, *New Media in the White Cube and Beyond: Curatorial Models for Digital Art* (Berkeley: University of California Press, 2008).

Critical correction of hitherto practiced methods and research strategies is also common to the aforementioned endeavors. Interdisciplinary settings are increasingly breaking down methodological constraints. "Applied informatics" (a combination of art history and informatics) is also becoming increasingly important in art-historical affairs.[46] The formulation of new terminological levels of art-historical work description closes the discursive circle to the reflections articulated here on the necessity of adapting art-scholarly source research. In the future, work-adequate metadata will be defined, on the one hand, in terms of the adaptation of source interpretation already described, and on the other, in terms of the inclusion of technological (system-immanent) terminologies pertaining to the presenting medium (Web).

In a book on the theory of science published in 2001, Hans Poser writes: "The main danger proceeding from unsharp concepts is that, in the course of their use in an argument, use is made of different variants … ."[47] As far as imprecise concepts in art-historical descriptions of digital art and its sources are concerned: in the absence of conventions, different terms are used remarkably often for one and the same phenomenon. "But as long as these central concepts … are used in ways that are blurred or unsharp, although they are of paramount importance, they are of little use for theoretical or scientific investigations."[48] Jon Ippolito's justly predicted "Death by Wall Label"[49] is countered, in some places, for instance, with a mixture of work description and museum metadata—the wall label is absorbed into the re-presentation method as a real-space metadatum, and, for the first

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46 e.g. at the Zentrum für Informationsmodellierung in den Geisteswissenschaften, Karl-Franzens-Universität Graz.

47 Hans Poser, *Wissenschaftstheorie: Eine philosophische Einführung* (Stuttgart: Reclam, 2001), 37.

48 Ibid.

49 "Jon Ippolito, Death by Wall Label," in Christiane Paul 2008 (see note 44), 106–135.

time ever, issues of terminology and source in ephemeral media art forms are taken into account.

The quality, then, of online Net art archiving and re-presentation systems (e.g. in museums or scientific institutions) should define itself via the work-adequate application of interdisciplinarily developed processes (applied art-scholarly informatics). Due to the continuing non-development of a descriptive terminology for technologically innovative Net art usages, there is at present a critical mass of documents and Net artworks that are, from the scholarly viewpoint, inadequately marked up and accredited. Even when a work can be viewed, adequate descriptive terminologies for the work are still lacking. The methodological ambit, therefore, of the netpioneers 1.0 research project will comprise the terminological inclusion of the relevant media constellation (hardware, software, Web), source-critical features (authenticity), and art-historical methodology (work description), and will be used to generate forms of documentation, archiving, and re-presentation[50] appropriate to the works.

COUNTERINDUCTION

Particularly since the informatic analysis of cultural data[51] (from data acquisition and processing to textual semanticization and assessment theory construction) has become possible, methodological research as applied theory of science has moved into the realm of the "performative sciences."[52] Given that the quality of the sources invoked within the entire processual operation (digitization, visualization) is receding, while any gain in knowledge

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[50] See the text by Robert Sakrowski in this volume.

[51] See Lev Manovich's theses at http://culturevis.com/.

[52] Hans H.Diebner, *Performative Science and Beyond: Involving the Process in Research* (Vienna/New York: Springer, 2006).

is based upon precisely these sources (not on the visualization itself), a provocative recourse to traditional source methodologies is justified. Here, too, on the other hand, Net art understood as a born-digital art form is the rule-confirming exception: adequate analysis of works and sources in the case of performative art forms and their sources is only possible using performative methodologies, and processual art forms can only be archived and re-presented in processual systems.

"The framework of science in many cases is only determined by questions that are digitizable and by solutions arrived at on this basis,"[53] is Hans Poser's characteristic diagnosis in the chapter "Neue Perspektiven" (New Perspectives) in the aforementioned work. Particularly disciplines with a humanities bias, and their theoretical foundations, are susceptible to heightened forms of media enslavement, and the advantage of most technological sciences is founded on their discipline-immanent, critical approach to the media they employ. Here, too, Net art's exceptional position is evident in that it is the only art form among current digital cultural artifacts existing as a primary source that has undergone no media transformation. Were work and source levels to be inadvertently mingled, the analytical result would be scientifically unsound.

To end on a methodologically critical note with Paul Feyerabend: scientific procedures are not to be understood as closed systems. Rather than only developing hypotheses inductively, it is in certain cases advantageous to proceed counterinductively by developing hypotheses that contradict accredited theories and even confirmed facts.[54] A confirmatory thesis of this kind in the case of art-historically new Net art would mean developing a completely new method from discussion of this special case. The approach

53 Poser 2001 (see note 46), 282.

developed within the netpioneers 1.0 research project toward a digital source criticism, however, understands itself as developing already existing methods and thus contradicts the popular call for novelty. Moreover, Net art as a media-art hybrid of applied media technology and individual will-to-art confirms justified demands, according to which "a mode must be sought within historical systematics which turns the artwork neither into a mere document, nor only into art."[55] Despite new media sources, high standards in transmission criticism must be upheld. In spite, or precisely on account of, the supply of digital sources, traditional work research methods become by no means obsolete, but are to be adapted to current media configurations.

54 Paul Feyerabend, *Wider den Methodenzwang: Skizze einer anarchistischen Erkenntnistheorie* (Frankfurt am Main: Suhrkamp, 1976), 47; English edition: *Against Method: Outline of an Anarchistic Theory of Knowledge* (London, New York: Verso, 1993 reprint; orig. pub. 1975), 20.

55 Bauer 1989 (see note 14), 108.

PART 3: ART-HISTORICAL METHODOLOGY

THE FIX VS. THE FLUX
WHICH DIGITAL HERITAGE?
Anna Bentkowska-Kafel

"The unique computer tools available to the artist—such as those of image processing, visualization, simulation, and network communication—are tools for *changing, moving, and transforming*, not *fixing*, digital information."[01] If the flux, and not the fix, is the critical quality of a digital artwork, can we seriously talk about digital cultural heritage of which computer art is such a critical part? How can we reconcile the liquid nature of altermodern culture with the needs of the historiographer and the epistemologist? Altermodern culture is portrayed as complex, global, dislocated, chaotic, and constituted of multiple temporalities.[02] The conditions that are normally required to produce a historical critique of a culture include a relative stability of evidence and reliable, transparent research tools. The Web epitomizes today's culture of global communication and provides a significant platform for the arts; it enables practice and research in this area to flourish, but its stability is more than problematic. "The Web is like foam, its pages almost

01 Roger F. Malina, "Digital Image-Digital Cinema: The Work of Art in the Age of Post-Mechanical Reproduction," *Leonardo: Supplemental Issue* 3, Digital Image, Digital Cinema: SIGGRAPH'90 Art Show Catalog (1990): 33.

02 The term "altermodern" has been proposed by Nicolas Bourriaud to denote culture that fills "the void beyond the postmodern"; it is too early to say whether this is a lasting proposition. See Nicolas Bourriaud, *Altermodern: Tate Triennial*, (London: Tate Publishing, 2009), 12f. Bourriaud has been criticized by Josephine Bosma for being "largely unaware of art in new media," and the Tate Triennial might be his response to this criticism. See her "Art as Experience: Meet the Active Audience," in *Network Art: Practices and Positions*, ed. Tom Corby (London and New York: Routledge, 2006), 31. Bosma, however, notes the relevance of Bourriaud's *Relational Aesthetics*, trans. Simon Pleasance et al. (Dijon: les presses du réel, 2008).

as transient as bubbles," states Julian Stallabrass in his seminal text on Internet art; and in "Network Fever" Mark Wigley deplores the "dramatic rise of new forms of inaccessibility."[03] The familiar error message that appears on the screen reads like a metaphor for digital heritage futures: "The page cannot be found. The page you are looking for might have been removed, had its name changed, or is temporarily unavailable." Much of the material once posted online is now inaccessible and invisible to a Google search; research indicates that the content of this deep Web by far exceeds the visible content.[04] With the possible exception of art whose purpose is self-destruction, this invisibility is a cause for concern for cultural phenomena whose longevity depends on the preservation of their original content and digital forms.

The liquid nature of contemporary life and culture, as opposed to the perceived solidity of the past—noted by Zygmunt Bauman, a leading critic of postmodernity—may be all that is needed to frame digital culture conceptually.[05] The social solution to liquid modernity requires the individual to constantly adapt to changing circumstances and to switch tactics at short notice. This flexibility offers a strategy for the future, but how about the past? The reference to liquidity of all things offers an old philosophical fix, at

03   Julian Stallabrass, *Internet Art: The Online Clash of Culture and Commerce* (London: Tate Publishing, 2003), 14; Mark Wigley, "Network Fever," in *New Media, Old Media: A History and Theory Reader*, ed. Wendy Hui Kyong Chun and Thomas Keenan (New York and London: Routledge, 2006), 375.

04   Kat Hagedorn and Joshua Santelli, "Google Still Not Indexing Hidden Web URLs," *D-Lib Magazine* 14, no. 7/8 (July/August 2008) http://www.dlib.org/dlib/july08/hagedorn/07hagedorn.html.

05   Zygmunt Bauman published a series of books on the subject, starting with *Liquid Modernity* (Cambridge: Polity, 2000). He has not yet authored *Liquid Culture*. See also Dennis Smith, *Zygmunt Bauman: Prophet of Postmodernity*, Key Contemporary Thinkers Series (Cambridge: Polity, 2000) and *The Contemporary Bauman*, ed. Anthony Elliott (London: Routledge, 2005).

least as old as Heraclitus' *panta rei*, and is particularly fitting for process-related, social, and behavioral tele-products of the digital culture. However, this perspective is of little help in the endeavor to make the digital culture of yesterday more visible. Solutions are also needed at a practical level. The discussion about how to ensure access and enable analyses of the digital culture of the past must continue even at the cost of spoiling the appealing conceptual setting of the scene, whether postmodern or altermodern. Can solutions found in related fields, as well as failures, offer guidance on how to preserve this important heritage? Being a manifestation of global communication enabled by the Internet and other networks, the condition of Net heritage depends on socio-cultural, political, economic, and technological developments. They all impact the past, present, and future of the Net heritage. This essay is concerned with digital preservation of computer arts encompassing the digital artifact and its critique. It discusses select examples in relevant fields, in the hope that such a widening of the discussion may offer some useful insights.

DIGITAL ARCHAEOLOGY

Digital culture ages less gracefully than other cultures. Although it keeps changing and reinventing itself, the risk of losing its past is very real. The problems involved in recovering early computer art have been clearly demonstrated by recent research. The CACHe Project (Computer Arts, Contexts, Histories, etc.), conducted in the UK between 2002 and 2005, uncovered the history of early British and international computer art. It involved interviews and archival research based on documentation assembled by the Computer Arts Society (CAS), consisting of personal papers, exhibition catalogues and ephemera, and examination of the surviving, mostly obsolete, hardware and software.[06] This archive was deposited in the Victoria and Albert Museum (V&A) in London at the end of the project. "Although all the CAS artworks were processed by computers, they survive

mainly because they were output to a very durable medium: paper,"
commented Douglas Dodds, Senior Curator of Computer Art at the V&A.[07]
The V&A collection has since been augmented by the material assembled
by American art historian Patric Prince. It will be documented by the Com-
puter Art and Technolcutures Project (2007–2010), and made available in the
form of a catalogue and online database of images, in addition to a display
at the V&A. The latter will be a welcome addition to the currently standard
archival model relying predominantly on paper and digitized documents.

The documentation of past digital culture assembled by CHArt (Computers
and the History of Art, est. 1985) over the twenty-five years of this inter-
national group's existence is a treasure trove for any historian interested in
the subject. However, much of the material from the 1980s and 1990s is
confined to ephemeral documents such as conference programs and paper
abstracts, as well as publications produced in-house and in small print runs.
The journal *Computers and the History of Art* was started in 1990, and online
conference proceedings have been made available since 1999. Yet the
publication of papers online does not resolve the lack of direct access to the
innovative software used to create or analyze art as demonstrated and
discussed in live presentations. Among these was a computer program
written by Richard Hiley, which performed geometrical transformations
based on Renaissance perspective paintings; the program, now inaccessible,
is described at length in an article published in 1989. Only shreds of infor-
mation are available about an online virtual museum created in 1997 by the

06 Catherine Mason, *A Computer in the Art Room. The Origins of British Computer Arts 1950–80*
(Norfolk: JJG Publishing, 2008). The CACHe Project's website is at www.e-x-p.org/cache/index.htm.
The Computer Art and Technocultures Project's website is at www.technocultures.org.uk/.

07 Douglas Dodd, "CAS Archives Transferred to V&A," *Page 63: Bulletin of the Computer Arts Society*
(June 2007), 2.

Networked Virtual Reality Resource Centres for Art and Design at Teesside University, UK, which aimed "to assist Art and Design colleges to come to grips with Internet technologies such as Java and VRML."[08] This position is shared by many communities of practice, demonstrating that lessons from the past are difficult to learn. "The specter stalking film history is that of its own obsolescence," is the concern expressed by Thomas Elsaesser.[09]

This problem is not new. "I wish that someone in 1895, 1897, or at least 1903, had realized the fundamental significance of the new medium of cinema and produced a comprehensive record," regrets Lev Manovich in *The Language of New Media*. Instead, we are left with "a set of random and unevenly distributed historical samples. … I am afraid that future theorists and historians of computer media will be left with not much more than the equivalents of the newspaper reports and film programs from cinema's first decades. They will find that analytical texts from our era recognize the significance of the computer's takeover of culture yet, by and large, contain speculations about the future rather than a record and theory of the present. Future researchers will wonder why the theoreticians who had plenty of experience analyzing older cultural forms, did not try to describe computer media's semiotic codes, modes of address, and audience reception patterns."[10]

08 Richard Hiley, "Absolute perspective," *CHArt Newsletter*, 12 (1989), 5–54. Rachael Edgar, "Made for TV, made for the World Wide Web," *Computers and the History of Art—1997 Conference Paper Abstract*, http://www.chart.ac.uk/chart97/edgar.html.

09 Thomas Elsaesser, "Early Film History and Multi-Media: An Archaeology of Possible Futures?," in *New Media, Old Media: A History and Theory Reader*, ed. Wendy Hui Kyong Chun and Thomas Keenan (New York and London: Routledge, 2006), 13.

10 Lev Manovich, *The Language of New Media* (Cambridge, MA: MIT Press, 2001), 6–7.

Within the broader context of arts computing, the problem of obsolescence is particularly acute for those early projects which employed computer graphics and three-dimensional modeling. A computer model of the Anglo-Saxon cathedral in Winchester, created by the IBM UK Scientific Centre in 1984–1986 in collaboration with archeologists from the site, is believed to be the earliest application of this kind in Britain. A two-minute animation of the "fly-through" model was presented at an exhibition held at the British Museum. Today the model can only be judged on the basis of scientific papers illustrated in black and white and a color photograph in a brochure produced jointly by the British Library and the British Academy to celebrate "British achievements, prospects and barriers" in arts and humanities scholarship.[11]

The computer-based *Domesday Project* carried out by the BBC in 1986 at a cost of £2.5 million, only to become obsolete a few years later, continues to be referred to as a classic example of the vulnerability and brevity of digital media. To make this argument sound even stronger, some authors remind us that the original, eleventh-century *Domesday Book* can be found today in good condition in the Public Record Office in Kew, London.[12] A frequently suggested conclusion to be drawn from this project is that digitization efforts are futile.[13] However, the project was not concerned with digitization of a medieval manuscript, but was a survey of life in modern Britain and in-volved contribution from school children. The principal investigator on

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[11] "Old Minster, Winchester, Hampshire, UK," *3DVisA Index of 3D Projects*, ed. A. Bentkowska-Kafel (2006), http://3dvisa.cch.kcl.ac.uk/project12.html.

[12] Robin McKie and Vanessa Thorpe, "Digital Domesday Book lasts 15 years not 1000," *The Observer* (March 3, 2002) http://www.guardian.co.uk/uk/2002/mar/03/research.elearning.

[13] Paul Rubens, "No home for digital pictures?," BBC News: *In Depth: Dot Life* (Monday, July 22, 2002), http://news.bbc.co.uk/1/hi/in_depth/sci_tech/2000/dot_life/2143979.stm.

the project battled for years to have this resource maintained, but to no avail.[14]

The prediction of "a looming digital dark age" differs from the doom and gloom typically espoused when an established technology risks being replaced by a new invention.[15] A digital document or artwork cannot be left unattended for long. Its long-term survival requires constant proactive conservation. A digital equivalent to the Dead Sea scrolls—rediscovered, untouched, and in readable condition (at least in part) after thousands of years—seems inconceivable. Net art in particular is battling against its own prolificacy and simultaneous instability. The relationship between virtual art and other cultural phenomena and objects—material and immaterial, past and present—is becoming ever more complex. The richness of this platform for creativity requires a flexible approach to its preservation to enable access and research now and in the future. As other global forms of virtual collaborative environments are now available for artistic exploration, Net art is no longer confined to the Internet. "E-science," a convenient umbrella term denoting high-performance, distributed computing and grid technologies, is increasingly used by artists and humanities researchers. It is not rare for e-science to provide a means to bridge old and new art forms.

14 Mike Tibbetts, "BBC Domesday Project," *The Risks Digest: Forum on Risks to the Public in Computers and Related Systems* 25, issue 44 (8 November 2008), http://catless.ncl.ac.uk/Risks/25.44.html#subj7.

15 "'Digital Dark Age' may doom some data," Phil Ciciora's interview with Jerome P. McDonough, assistant professor in the Graduate School of Library and Information Science at the University of Illinois at Urbana-Champaign, *News Bureau*, University of Illinois at Urbana-Champaign (October 27, 2008), http://news.illinois.edu/news/08/1027data.html. Worth noting are non-technological reasons for the loss or restricted access to digital material, such as a human error, confidentiality, and copyright.

Daria Tsoupikova's networked installation *Rutopia 2* (2005–2007) is a good example: the artistic concept and means of expression, as well as execution are deeply rooted in Russian folk art, yet the installation is typical of digital remediation in Bolter and Grusin's sense; the simultaneous presentation of this artwork in remote venues relies on the immersive environment of a C-Wall virtual reality system and Ygdrasil networked technology.[16] This is cutting-edge technology developed at the Electronic Visualization Laboratory of the University of Illinois at Chicago. But how long before this technology becomes archaic?

DIGITAL PRESERVATION
Digital preservation has established itself as an important discipline in its own right. A number of initiatives on national and international levels, such as the US National Initiative for a Networked Cultural Heritage (http://www. ninch.org/about/) and the UK Digital Preservation Coalition (http://www. dpconline.org/) for the arts and humanities were followed by the *UNESCO Charter on the Preservation of the Digital Heritage* in 2003. The *Charter* recognizes the significance of digital heritage and states that its disappearance would constitute an impoverishment of the heritage of all nations.[17] The agenda for the future has therefore been set firmly. Building upon the experience of numerous digitization projects and extensive practice in digital curatorship and digital assets management, digital preservation specialists are now offering considerable guidance to other disciplines.

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16 "Rutopia 2," *3DVisA Index of 3D Projects*, ed. A. Bentkowska-Kafel (2006), http://3dvisa.cch.kcl. ac.uk/project7.html. Jay David Bolter and Richard Grusin, *Remediation Understanding New Media* (Cambridge, MA: MIT Press, 1999). The authors consider remediation as an ahistoric phenomenon that is characteristic of all media, not just digital ones.

17 The *UNESCO Charter on the Preservation of the Digital Heritage* is available at http://portal.unesco. org/ci/en/files/13367/10700115911Charter_en.pdf/Charter_en.pdf.

Although this guidance is provided mainly for institutions and with their specific concerns in mind, no discussion of digital cultural heritage may ignore this critical area.[18]

While considering the technological, economic, cultural, and legal problems with archiving the Web, Peter Lyman sees "the most urgent task at this point [is the creation of] an organization capable of managing the process of building a Web archive, including negotiating to solve these problems. Inevitably, a Web archive will be a new kind of organization, one that responds to the problems and interests surrounding the Web. It may not be a place at all—it may be a function distributed among institutions over many locations on a global network."[19] Although such a solution is eagerly anticipated (and, one may argue, foreseen by Derrida[20]), Lyman's vision seems a long way away. The Internet Archive (http://www.archive.org) is already claiming "universal access to human knowledge." This non-profit organization, based in San Francisco, has been building a digital library of Internet sites and other electronic material since 1996. Despite offering a "wayback machine" to some eighty-five billion archived Web pages, the Internet Archive is unlikely to make a critical difference if not supported by similar initiatives on a massive scale.

The first impression when looking at a site such as *The Portal to Net Art* at the Whitney Museum of American Art (http://artport.whitney.org/) is that

18 An extensive bibliography on the preservation and sustainability of digital materials is available at http://www.digitalscholarship.org.

19 Peter Lyman, *Archiving the World Wide Web* (Washington, D.C.: US Council on Library and Information Resources and Library of Congress, 2002), 46, http://www.clir.org/pubs/reports/pub106/pub106.pdf.

20 Jacques Derrida, *Ethics, Institutions, and the Right to Philosophy*, trans. and ed. Peter Pericles Trifonas (Lanham, MD: Rowman and Littlefield Publishers, 2002), 1–17.

Net art is in safe hands. The Rhizome ArtBase is another good example of an organization which not only enables access to Net art but also makes new commissions, with a broad remit of archiving "projects by artists all over the world that employ materials such as software, code, websites, moving images, games and browsers to aesthetic and critical ends" (http://rhizome.org/art/). Some 2,470 works of art have been added since 1999. The variety of the material is impressive, yet it must constitute no more than a tiny fraction of what Net artists have produced over the years.

Not much Net art currently benefits from institutional patronage; indeed, a great deal of Net art thrives because it is free from institutionalization. The preservation of Net art and computer art in general is mainly in the artists' own hands. Artists provide access to current work and archive past projects on their personal websites, according to their own criteria. They arrange projects chronologically (http://bookchin.net/projects.html), adding a timeline (www.takeo.org), or group artworks by genres and media (www.paul-brown.com). Such individual online exhibition of art is not synonymous with long-term preservation according to a prescribed strategy. It is difficult to imagine an artist consulting textbooks on digital preservation and following recommended ISO standards while embarking on an act of creation, or adhering strictly to such guidance once the work is released on the Web. Alexander R. Galloway is not alone in his skepticism when arguing that generally "most users are not interested in details of Internet protocols and standards which are established by well-meaning, but self-selected techno-elite peers."[21] The specialist language of digital preservation may look confusing, with numerous familiar art terms (such as object, authenticity, and

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[21] Alexander R. Galloway, "Protocol vs. Institutionalization," in *New Media, Old Media: A History and Theory Reader*, ed. Wendy Hui Kyong Chun and Thomas Keenan (New York and London: Routledge, 2006), 187.

provenance) being ascribed a new meaning. This generally critical approach to formal structures facilitating the documentation of digital cultural material is likely to soften with the greater prominence of Semantic Web applications, already strongly relying on the CIDOC Conceptual Reference Model.[22] Ontologies based on this model of semantic relationships derive from classifications established within museums and archives, and are akin to natural language, yet unlikely to offer a real alternative to technical standards.

Literature on digital preservation advises "meaningful preservation," and this implies selection. What do we want to preserve? Who decides? Many forms of digital creativity have already been lost, but should all be recovered? This points toward evaluation criteria. Is the current generation able to make the right choices for the future? The recovery of the BBC Domesday Project data from an original obsolete videodisc, after sixteen years, through emulation of software and hardware, is one of many cases demonstrating that technology may be both a problem and a solution.[23] It might be technically possible to reconstruct obsolete digital artifacts and resources, but there may no longer be interest in doing so. What is the use of the original IBM model of the Winchester Minster when it has been superseded in every respect by current methods and approaches to archaeological surveying and visualization? Should it be preserved as a historic record of the subject

22 CIDOC is the International Committee for documentation of the International Council of Museums (ICOM); CIDOC Conceptual Reference Model is an international standard ISO21127:2006, see http://cidoc.mediahost.org/standard_crm%28en%29%28E1%29.xml.

23 "Digital Domesday book unlocked," *BBC News. Technology* (2 December, 2002), , http://news.bbc. co.uk/1/hi/technology/2534391.stm. On migration and emulation of computer arts, and the importance of collaborative efforts in this field, see Richard Rinehart, *Preserving the Rhizome ArtBase* (2002), http://rhizome.org/artbase/report.htm.

knowledge and computer science in the 1980s that made future developments possible? This seems to be the rationale for a compact disc of the model envisaged to accompany a book study on the old minster, forthcoming from the Oxford University Press.

Writing on issues involved in the preservation of Net art by museums, Anne Laforet draws on earlier research in this area, and in particular on a study commissioned by the French Ministry of Culture in 1996, which rejects an art museum as a model for archiving Net art.[24] The archaeological museum is proposed instead as an alternative model worth pursuing. Unlike the art museum, which houses unique objects, the archaeological museum also houses identical pieces in different states. Some may be broken and no longer usable, exactly like some works by pioneers of computer arts.

ART HISTORY

Art of the past is the subject of art history.[25] How prepared is this discipline for dealing with digital heritage as successfully as it has dealt with an old master painting, historic building, or garden? Has it adapted its tools and methods accordingly?

Roger Malina's words of 1990, quoted in the first paragraph of this essay, helped me in 2000 to conclude my own thoughts on the ambiguity of

24 Anne Laforet, "Preservation of Net Art in Museums," in *Digital Visual Culture: Theory and Practice*, CHArt Yearbook, vol. III, ed. Anna Bentkowska-Kafel et al. (Bristol and Chicago: Intellect, 2009), 113.

25 This discussion ignores the distinction, peculiar to British historiography, between two terms used to name the discipline: "the history of art" (concerned mainly with the history of collecting art and the commitment to its recording) and "art history" (denoting primarily an enquiry into the history of ideas). This distinction was famously proposed by John Onians in "Art History, *Kunstgeschichte* and *Historia*," *Art History* 1, no. 1 (June 1978), 131–133.

digital iconography, and on the insecurity of evidence that relies on computer graphics.[26] Drawing on Henri Focillon's concept of the life of the artistic form, I considered a life cycle of digital artwork and criteria used for its authentication and validation in art practice and research. Nearly ten years on, this essay gives me the opportunity to examine the relevance of some of the same issues in a wider context and with an awareness of the accumulated experience of digital culture. Despite the persistence of the "new media" label, this experience now spans nearly three decades. Has the extensive academic and practice-based research brought about any sense of confidence in our ability to ensure that past products of digital creativity are not lost? Mainstream art history, with notable exceptions, has been rather slow in embracing digital culture as its subject; it has also been apprehensive of digital research tools perceived with anxiety as either too flexible or too rigid. It is, however, a discipline perfectly equipped to guide the documentation, study, conservation, and preservation of digital artistic culture. The mind reels at the variety of this culture, but art history is capable of handling this complexity. It has at its disposal well established empirical and epistemological methods that are not discrete but interdisciplinary. As computer art matures, a departure from current, predominantly futuristic and technology-centered debates will be more appealing. Once art historians realize this new opportunity, a historical perspective will enable theorization of digital cultural heritage on par with material heritage, possibly demonstrating how much they have in common. Much groundwork has been done in this area by researchers who have rooted digital culture in earlier forms of art and

26 Anna Bentkowska-Kafel, "Moving Images, Shifting Notions. Who can trust the digital image?,"
    Visual Culture and the New Millennnium, Proceedings of the 16th Annual CHArt Conference,
    Courtauld Institute of Art, London, September 1-2, 2000, (London: Computers and the History of
    Art, 2001), http://www.chart.ac.uk/chart2000/papers/toc.html.

communication (establishing such links as Borges and hypertext, Morse and the Internet, Seurat and bitmap pixels).

Art history is familiar with the kind of technological innovation that enables novel art, and it relies on science in examination and preservation of artifacts. Applications of numerous advanced digital technologies to material conservation have led to the promotion of heritage technology and e-science. Both are bonding technical examination of art with art documentation more than ever before. Some of the same techniques are used in art practice, while also supporting museum work and art studies. Three-dimensional color laser scanning is a good example of such a technique: it has been used by artists, conservators, curators, and cultural historians to produce, record, examine, and disseminate virtual artifacts globally over fast networks. Digital media bring about an unprecedented convergence of artistic processes and critical tools. Theater practitioners and historians have already accepted the collapse of former distinctions between scriptwriting, acting, design, and communication in digital performance; they have recognized the significance of digital media, and Net technologies in particular, as platforms for collaboration, documentation, and distribution.[27]

Art history has developed original critical theories and appropriated others from different fields. It is as familiar with philosophy, sociology, and phenomenology of art as it is with aesthetics and psychology of perception; and by proposing "neuroarthistory" demonstrates its familiarity with neuro-aesthetics and cognitive sciences. Art history deals with the material cultural heritage of different periods and of different styles, frequently embedded within a single object, building, or site. It offers advice to con-

27 Steve Dixon, *Digital Performance: A History of New Media in Theater, Dance, Performance Art, and Installation* (Cambridge, MA: MIT Press, 2007), 3.

servators and restorers regarding which phase, state, or stage should be prioritized for restoration and preservation. Art historians are no strangers to the controversy such decisions cause when a simultaneous sense of loss and preservation must be taken into account.

Committed to the history of ideas as much as to the history of material culture, art history has experience in dealing with representations of multiple realities. Last but not least, it is capable of adopting a variety of critical, often opposing perspectives to deal with the absence of the object and different reasons for such a situation; it can also adopt a formalist position and discuss the artfulness of an object while rejecting the object itself. The rationalization of art as experience (it doesn't exist until perceived) or as the artist's performance (rather than objects made by artists) are as relevant to computer arts as to earlier genres.[28] Performing arts have demonstrated a similar readiness to embrace virtual culture. "Why not claim all interactive art in the name of theater?" was John Reaves's proposition in 1995, eagerly shared by those who saw the Internet as the largest theater of the world and Internet communication as virtual performance.[29]

Despite the predicted end of the history of art, proclaimed in the twentieth century alongside other significant "ends"—of art, the artist, and history— the omnipresence of digital culture brings a new and unexpected argument for Hans Belting's proposition for universal "history" of art; it is no longer

28 See for example, John Dewey, *Art as Experience* (New York: Perigee Books, [1934] 2005); David Davies, *Art as Performance* (Oxford, UK: Blackwell Publishing, 2004). Chapter 7.4 on modality of the performance theory and the proposed individuation of works as performances is of particular interest in this context.

29 John Reaves, "Theory and Practice: The Gertrude Stein Repertory Theatre," *CyberStage* 1, no. 3 (Summer 1995): 5, available at http://www.cyberstage.org/archive/cstage13/gsrt13.html.

an ongoing history or unchallenged evolution, but a commitment by all art historians to seek ever-newer solutions to ever-newer problems.[30]

An interesting example of such an approach is the Variable Media Network, an initiative concerned with preservation of digital art, led by the Solomon R. Guggenheim Museum in New York and the Montreal-based Daniel Langois Foundation for Art, Science, and Technology.[31] The project was originally guided by conventional art-historical classification of artistic genres, which was rejected in favor of a flexible, case-by-case approach. It is an interesting alternative to the model of an archaeological museum suggested by Laforet and others, and to the documentation of secondary sources already in place at London's V&A. It is a far more flexible preservation strategy with a single goal of preserving the integrity of an artwork. This implies ensuring that art is alive and accessible. To achieve this state, it may be necessary to—variably—store or migrate the artifact, or emulate it, or replicate it, or clone it, or encode it, or reinterpret it, or to combine some of these techniques, and/or to introduce new ones to accommodate the unpredictable. The most radical of the proposed preservation strategies involves reinterpretation of the work and its new context each time it is recreated. It is suggested that approval of the artist is sought, which may not always be possible. Another possibility here is to ensure the transparency of reinterpretation by providing its full record and a commentary that is needed to understand any changes made to the original. Technical and philological methods developed to this end in relevant areas of digital

30 Hans Belting, *The End of the History of Art?*, trans. Christopher S. Wood (Chicago: University of Chicago Press, 1987), [German ed. 1984, revised 1994].

31 *Permanence through Change: The Variable Media Approach, ed. Alain Depocas, et al.* (Solomon R. Guggenheim Foundation, New York and Daniel Langois Foundation for Art, Science, and Technology, Montreal, 2003), available at http://www.variablemedia.net/pdf/Permanence.pdf.

scholarship—in particular in heritage visualization where there is an acute need to demonstrate the inconsistency of sources and ambiguity of their interpretation—may usefully be applied to digital arts. Denoted as a process of recording "paradata," this method contributes to the account-ability of the inquiry. It should be noted that this process is far more labor-intensive than recording metadata, generally accepted as standard in digital documentation.

The variable media preservation project has been devised within a museum framework, but does suggest the same preservation paradigm for a small group of artists working in collaboration with large organizations. However, the institutionalized schemes favored by some may not ensure continuity of preservation. If the fluidity and fragmentation of economic, social and professional lives is to continue, the emulation of random and independent, individual work patterns is more likely. Institutions—Bauman argues— "can no longer (and are not expected to) keep their shape for long, because they decompose and melt faster than the time it takes to cast them."[32] These "liquid times" pose a challenge for those who feel responsible for the preservation of cultural heritage but who can no longer rely on stable institutional patronage.

The arrival of "new media" divided the discipline of art history. "New media" became the subject of visual culture and new media studies, breaking away from the Hegelian conventions of traditionally oriented evolutionary history of art. Some art and design historians embraced the computer as

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[32] Zygmunt Bauman, *Liquid Times: Living in an Age of Uncertainty* (Cambridge: Polity, 2007), 3. Cf with the diagnosis of today's economic condition and flexibility of work, segmented social structures and the model of "maturation" put forward by Manuel Castells in *The Rise of the Network Society* (Oxford, UK: Blackwell Publishers, [1996] 2nd ed. 2000), 290 and passim.

a research tool and established digital art history. A reunion is now possible. There are early indications of a renewed interest in the application of traditional epistemology and scholarly methodologies to digital arts and humanities. Mainstream art history may seize this new opportunity and revive its fortunes by demonstrating its readiness to reconcile its open-ended experience of past art with digital culture. The openness to novel solutions and the use of inherited interdisciplinary models for dealing with older cultural forms may result in a much-anticipated historical perspective on digital cultural heritage. The fix is not the only alternative to the flux—a reflux is also possible.

CAN ART HISTORY DIGEST NET ART?
Julian Stallabrass

From its beginnings, Internet art has had an uneven and conflicted relationship with the established art world. There was a point, at the height of the dot-com boom, when it came close to being the "next big thing," and was certainly seen as a way to reach new audiences (while conveniently creaming off sponsorship funds from the cash-rich computer companies). When the boom became a crash, many art institutions forgot about online art, or at least scaled back and ghettoized their programs, and that forgetting became deeper and more widespread with the precipitate rise of contemporary art prices, as the gilded object once more stepped to the forefront of art-world attention. Perhaps, too, the neglect was furthered by much Internet art's association with radical politics and the methods of tactical media, and by the extraordinary growth of popular cultural participation online, which threatened to bury any identifiably art-like activity in a glut of appropriation, pastiche, and more or less knowing trivia.

One way to try to grasp the complicated relation between the two realms is to look at the deep incompatibilities of art history and Internet art. Art history—above all, in the paradox of an art history of the contemporary—is still one of the necessary conduits through which works must pass as they move through the market and into the security of the museum. In examining this relation, at first sight, it is the antagonisms that stand out. Lacking a medium, eschewing beauty, confined to the screen of the spreadsheet and the word processor, and apparently adhering to a discredited avant-gardism, Internet art was easy to dismiss. The most prominent recent attempt to capture the history of modern and contemporary art, *Art Since 1900*, contains no reference to Internet art (and little to new media art, generally).[01]

Yet, the subject has a surprising slipperiness and complexity to it—in part because both art history and Internet art have been changing (the latter, naturally, a good deal more rapidly than the former). Some Internet art looks a lot prettier than it once did. Certainly, the stern avant-garde rejection of aesthetics characteristic of early Net art (and often proffered tongue-in-cheek) is no longer held to. Art history, as we shall see, has undergone a rapid colonization by other disciplines, such that many of its core and fundamental precepts are open to question. Direct engagements between the two remain fairly rare, for most of the writers on Internet art have different backgrounds: in film studies, media studies, visual culture, or most often as practitioners, organizers, and curators of the art itself. Even so, art history remains important to any Internet culture that wants to call itself "art"—and that designation has had an enduring attraction. Art uses art history and vice versa, so for an online cultural worker references to avant-gardism or conceptualism are the swiftest and surest way to get what you are doing to be called "art."

That few art historians have ventured into the study of online art should not be cause for surprise. It is sufficient to refer to art history's ghettoization and neglect of other "new media"—notably photography and video. The literature of photography long remained separate from that of art history. Photography's early theorists were photographers themselves—or poets, philosophers, and cultural theorists (Baudelaire, Stieglitz, Kracauer, Freud, and Benjamin). It was only the art market's interest in photography from the 1970s onward that began to bring art historians to the study of photography, along with a sympathetic postmodern turn in art theory, which was interested in photography as the major tool of appropriation. Even so, right up

01 Hal Foster, Rosalind Krauss, Yve-Alain Bois, and Benjamin H.D. Buchloh, *Art Since 1900 Modernism, Antimodernism, Postmodernism* (London: Thames and Hudson, 2005).

to the present, some of the most significant writing about photography has been penned by practitioners (and not generally by art historians): the writings of Victor Burgin, Martha Rosler, Allan Sekula, and Jeff Wall stand as prominent examples. Likewise, the art-historical writing on video art had to wait for that art to be drawn into the museum in the 1990s through the device of video projection. The recent apotheosis of photography in the museum offers a warning: the art-historical texts that accompany, for example, Andreas Gursky's major show at the Museum of Modern Art in New York (2001), or Thomas Struth's show at the Metropolitan Museum (2003), certainly break photography out of its ghetto but at the cost of suppressing the history of photography, the comparisons being with the grand tradition of painting.[02] It was as if photography could only be validated by (doubtful) associations with the already sanctified tradition of Western art. Benjamin's account of that same urge, in which art is considered "a stranger to all technical considerations," still resonates: it is the attempt to "legitimize the photographer before the very tribunal he was in the process of overturning"—a situation he took to be patently absurd but which is still in force seventy years after he wrote those words.[03] In this, present photographic practice—the peculiar, mannered, and fetishized museum print with its stately deportment—becomes the end-point of a history designed to bring it about; a partial history in which documentary practice, for example, is despised and written out.

02 Peter Galassi, *Andreas Gursky*, The Museum of Modern Art, New York 2001; the Metropolitan
    exhibition originated in Dallas: Dallas Museum of Art, *Thomas Struth, 1977–2002*, Dallas 2002.

03 Walter Benjamin, "Little History of Photography," in *Selected Writings: 1927–1934*. vol. 2, ed.
    Michael W. Jennings et al. (Cambridge, MA: The Belknap Press of Harvard University Press, 1999),
    508.

Nevertheless, a striking feature about the literature on Internet art—even when not written by art historians—is that it draws on some of the standard devices of art history. One of the most persistent is the construction of traditions or historical lines. Rachel Greene, in her introduction to *Internet Art*, constructs two parallel lineages, one technological and one art-historical. The two do not meet or interact, and the claims being made for the relations between the phenomena in each line are quite different.[04] In the techno-logical line, a causal relation is posited: without this invention or idea, the following step could not have taken place (without the browser, there would be no Web art). In the art-historical line, there is no clear causality: the importance of an event may be an issue of unconscious or semi-con-scious "influence," conscious use or retooling, the innocent reinvention of some prior idea, or a vaguer issue of zeitgeist. We are left with the quasi-Hegelian air of development toward a pre-ordained present. This atmosphere is also present in the book *At a Distance: Precursors to Art and Activism on the Internet*, with the surely laudatory aim of bringing attention to a variety of interactive and networking practices such as mail art, which are given focus by their new role as part of the legacy of Internet art.[05]
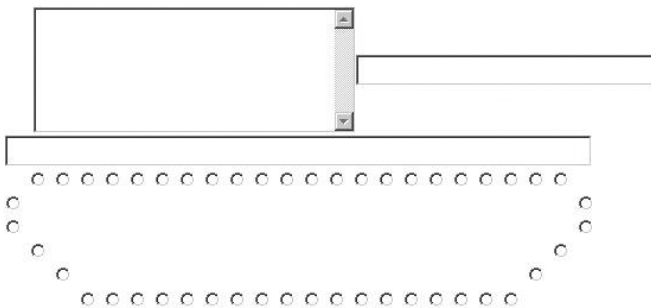
Alexei Shulgin, Form-Art,1997

Another fundamental issue (and one I have struggled with in my work on the subject): what is the art object?[06] Is it singular? Is there really something that connects Paleolithic cave painting, a Cézanne landscape, and a shopping trip by Sylvie Fleury or a dinner by Rirkrit Tiravanija? The problem is particularly acute with Internet art, in which the usual institutional assurances for the viewing of art are often absent. It has led some critics to try to hang on to autonomy and medium-specificity (even going to the extent of citing Clement Greenberg) so as to definitively fix the art status of Internet art. Tilman Baumgärtel does this in the introduction to his book *net.art 2.0.*[07] It is a hard position to maintain because the Internet is not a medium, as painting is, but rather encompasses simulations of all reproducible media. Baumgärtel eventually (after some ironically tinged avant-garde pronouncements on Net purity) gives up the game: Net art's material, he says, is "utterly anything having to do with the Internet."[08] The issue is quite similar to the paradox of photographic autonomy, and presents the same difficulties for art history: that concentration on the essential characteristics of the "medium" leads not inward to such qualities as painting's flatness and abstraction, but outward to a more accurate depiction of the world, and with it all of the world's variety and contingency.

04 Rachel Greene, *Internet Art* (London:Thames & Hudson, 2004), 14–28.

05 Annmarie Chandler and Norie Neumark, *At a Distance: Precursors to Art and Activism on the Internet* (Cambridge, MA: MIT Press, 2005).

06 Julian Stallabrass, *Internet Art: The Online Clash of Culture and Commerce*, (London: Tate Gallery Publishing, 2003); "The Aesthetics of Net.Art," *Qui Parle* 14, no. 1 (Fall/ Winter 2003–2004), 49–72.

07 Tilman Baumgärtel, *net.art 2.0: New Materials Towards Net Art* (Nürnberg: Verlag für Moderne Kunst, 2001), 27.

08 Baumgärtel, *net.art 2.0*, 28.

Often tied up with that word "art" is the idea, rarely now made explicit and indeed sometimes disavowed within art history, that it describes not merely an institutional category, or even a particular kind of human activity, but that it also carries with it a judgement about quality. Ernst Gombrich defended this position explicitly: art history is not the same as cultural history or a subset of sociology, because a small, defined canon of works of high quality constituted its corpus and its very reason for being.[09] We are familiar with the curious results: popular toys and figurines from the ancient world inhabit museums and form part of the subject of art history—not so their contemporary equivalents. Whole categories of visual cultural production never gain art-historical attention—amateur photography is an example, along with a large swathe of online practices, including the vast majority of the photographs uploaded to Flickr.

Associated with that idea of art and quality are a couple of art-historical assumptions, linked in tension if not outright contradiction: "That the true meaning of the work of art can be translated (into discourse) and that the true meaning of the work of art is untranslateable."[10] Art's *Kunstwollen* (as conceived by Riegl) or Structure (the Vienna School, particularly Hans Sedlmayer), or the aesthetic impulse in culture, is irreducible and recalcitrant to analysis. The particularity and autonomy of the work of art is pitched against the history of style as a narrative or causal chain. So the art object is secure in its status, and truly mysterious in its being. Equally, art history—the work of art's strange and inexplicable translation into language—is artful itself, an exercise of intuition and an aesthetic performance as much as an academic discipline.

09 See, for example, Ernst Gombrich, *Art History and the Social Sciences: The Romanes Lecture for 1973* (Oxford: Oxford University Press, 1975).

10 Donald Preziosi, *Rethinking Art History: Meditations on a Coy Science* (New Haven, CT: Yale University Press, 1989), 16.
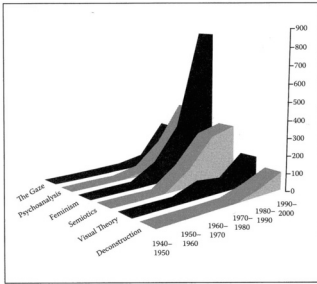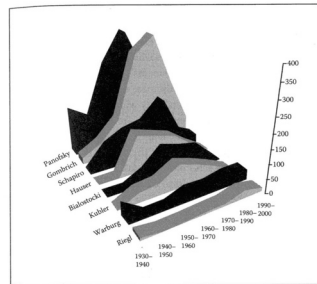
Figure 1 Theory in art history, 1940–2000.

Figure 2 Rise and fall of an older art history, 1930–2000: Citations of selected writers.

Statistical Accountings by James Elkins, 2006.

Now, of course, what I have been describing is in some ways a parody of the discipline of art history. It is, after all, a subject that has been thoroughly colonized by the practices of diverse elements of generic "Theory," at the expense of its founding figures (this is something that Thomas Crow has complained about in *The Intelligence of Art*, and that James Elkins has shown graphically through a statistical accounting of the citation of various authorities, which shows a steep decline in references to the giants of art-historical method and an equally steep rise in references to deconstruction, feminism, semiotics, etc.).[11] The discipline is very various: if, to take a single example, you look at the work of Peter Stewart on Roman cult objects that draws on the work of the anthropologist Alfred Gell, you will find an account of the relation between viewer and object that is quite alien to contemporary views, and that has little to do with any of the assumptions above.[12] Nevertheless,

[11] Thomas Crow, *The Intelligence of Art* (Chapel Hill, NC: The University of North Carolina Press, 1999. The charts appear in the series preface to Elkins' Art Seminar; see, for example *Art History Versus Aesthetics*, ed. James Elkins (London: Routledge, 2006), viii-ix.

[12] Peter Stewart, "Gell's Idols and Roman Cult,' in *Art's Agency and Art History* , ed. Robin Osborne and Jeremy Tanner (Oxford, UK: Blackwell Publishing, 2007), 158–78.

if this parody still carries a barb, it is because the kind of high theory adopted with most success in art history supports the view of works of art (and their creators) as ineffable objects of the highest impermeability to reason (Deleuze's Bergsonian vitalism, Lyotard's sublime, Kristeva's abject, Badiou's event, and so on), and as metaphorical keys to the zeitgeist (in some Foucaultian accounts, for example). Such a discourse has a link to the fundamental ideology of art, which would see it as a fathomless product of the individual psyche, but it is also linked to art history's necessarily close connection with the museum and the commercial gallery world, and their connections with the increasingly privatized Academy, on the hunt for business "partners."

There are a number of reasons why Internet art is an awkward field for the pursuit of such exercises:

First, after the flush of the dot-com boom, Internet art has generally been disconnected from the museum and the market for art. There are some examples of artists selling versions of online work in limited editions with certificates of authenticity (along the lines of video art), but the gesture appears even more absurd than with video, since the work also appears in its original form for access by anyone with an Internet connection. The five-year-long speculative bubble in the art market, which burst in the autumn of 2008, sidelined online work through the clamorous celebration of the prestigious object. There was a fundamental divide in the ethos of these worlds: between the production of rare or unique, expensively made objects, protected by copyright and curatorial scruple, appearing in exclusive and controlled environments, and purchased by the mega-rich; and the dissemination of digital works, of which no one copy is better than any other, which may appear in many places at once, which may run out of the control of artists and curators, and which are given as gifts. To the extent

that online art is associated with the culture of Web 2.0 and the "wealth of networks," it appears not merely dissociated from the mainstream market for contemporary art, but also dangerous to it.[13] It also carries a dangerous edge for the many corporate sponsors who wish to widely disseminate their cultural goods (from brands to allegorical personifications of products) while at the same time protecting them from interference by cultural hackers and subversives.

Second, its post-medium condition does not lend itself to any plausible account of autonomy, undermining one claim that this new cultural form might have had to the status of "art." Worse still, lacking the comfort of materiality and (often) museum display, its post-medium condition is thought to be even more invidious than that of installation art (which has had a rough ride from prominent critics, precisely on the grounds that its lack of a medium makes it a pliant part of "the image in the service of capital").[14]

Third (and a corollary of the last point), its connections with technology are too immediate and transparent. This tends to undercut the mystery of its "object," which remains too close for many conventional art viewers to elements of mass culture and the working environment. The very swift rise of collaborative and cooperative culture, and of the participation of individuals in public cultural production—the making and uploading of videos, for example—makes drawing such distinctions even harder. Online art is continually threatened by an infection of the vulgar and the standard.

13 See Yochai Benkler, *The Wealth of Networks: How Social Production Transforms Markets and Freedom* (New Haven: Yale University Press, 2006).

14 Rosalind Krauss, *"A Voyage on the North Sea": Art in the Age of the Post-Medium Condition* (London: Thames & Hudson, 1999), 56.

Fourth, the repudiation of the obfuscating character of much high theory by many of its practitioners and writers challenges the heavy investment that many art historians have made in such ideas, and which—since such notions have a definite market use—they are reluctant to abandon even in the face of overwhelming evidence (psychoanalytical accounts being the most obvious example).
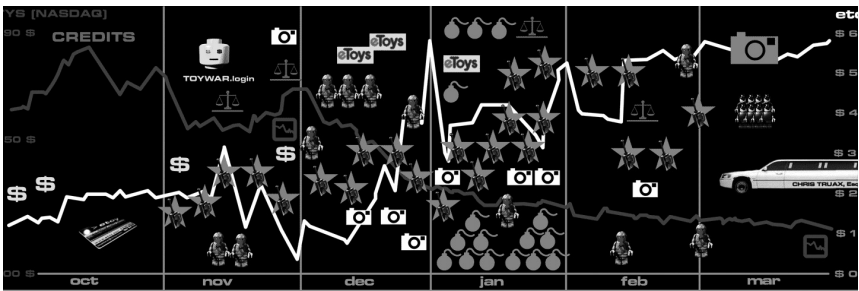
TOYWAR-timeline, 1999-2000, © etoy.CORPORATION.

Lastly, and most damningly, much Internet art has been connected with radical political activism. At the time of the first wave of "net.art," this was enough to have it judged by many to be of the utmost naivety and un-fashionability. Now, when "political" art has been back in fashion for some years, a deeper problem is revealed: while documentary forms that examine the representational rhetoric of the political are deemed acceptable (in part because they reflect upon and thus also instantiate the autonomy of a medium), works that might be put to political use or encourage popular participation are much less so. The famous victory of etoy over eToys in the Toywar dispute presented the matter with absolute starkness: that "art" could produce a direct political and economic effect, and that as etoy's "Agent Gramazio" put it: "We engaged in a real power struggle with eToys—and won."[15] Some Internet art, informed by the theories of tactical

media, strove for such effects, and as such presented those with conventional non-instrumental views of art with a dilemma. In their account of such politically engaged online art, Joline Blais and Jon Ippolito are careful to sharply distinguish art from activism:

> *Art arms its audience with neither evidence nor explosives but with a protected arena in which to challenge the status quo without confronting it head-on. … it encourages its audience to join in the play, ultimately freeing them of political and cultural dichotomies that pit right against wrong, left against right.*[16]

So the line is clearly drawn, with art on the side of play. There is some art-critical and even art-historical writing that celebrates the activist character of online art and connects it with a long history of radical cultural engagement in other fields—for instance, the writings of Nato Thompson and Greg Sholette map these neglected histories.[17] Nevertheless, such views remain on the margin of art history.

Yet, despite all this, art history and the institutions that surround and support it may yet lay claim to Internet art in a more thoroughgoing and consistent fashion. It has begun to do so with video, about which many of the same things could have been said fifteen or twenty years ago, though at the price of the profound transformation of that art. If Internet art were to pass

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15 Tilman Baumgärtel, *net.art 2.0: New Materials Towards Net Art* (Nürnberg: Verlag für Moderne Kunst, 2001), 222.

16 Joline Blais and Jon Ippolito, *At the Edge of Art* (London: Thames & Hudson, 2006), 135.

17 Nato Thompson and Gregory Sholette, *The Interventionists: Users' Manual for the Creative Destruction of Everyday Life* (North Adams, MA: MASS MoCA Publications, 2005). See also the *Third Text* 22, no. 94, special issue "Whither Tactical Media," ed. Gene Ray and Gregory Sholette (September 2008).

definitively into history, and as it did so the immediate threat of its radicalism receded, its historicization may be set in train. Art history may be seen as a rhetorical apparatus tied to the contemporary art market, and until very recently booming with it, in a massive expansion of studies of the recent past (there is a huge dominance of postwar art as against other periods in PhD subjects, with the near-disappearance of some fields).

Furthermore, the attraction may be mutual. Online tactical media activists, naturally, use the art world tactically. It may be a way of gaining access to the mass media. It may be a way of funding work, or it may be considered one point in a process through which the work passes. Hans Bernhard, formerly of etoy and now (with Maria Haas) of the duo UBERMORGEN.COM, explains:

> *Becoming an artist was rather simple, it was all about usability. … after eliminating all the other candidates (such as sports, politics, etc.) there was nothing left but art. Today I consider this process to be freestyle research. Conceptual art is crossed with experimental research and mass media stunts—but the products (sites, digital images, sculptures, e-mails, log files, paintings, drawings, etc.) are positioned in an art context.*[18]

Since the political effects of much tactical media work are small or very difficult to gauge, and victories such as that over eToys very rare, the very playfulness and humor of such work may make it possible to consign it to the realm of art. UBERMORGEN.COM's own work, *Gwei—Google Will Eat Itself* (2005–08), in which Google's advertising service is used to earn money that is used to buy shares in the company, is an amusing conceit,

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18 Cited in Domenico Quaranta, "UBERMORGEN.COM: The Future is Now," in *UBERMORGEN. COM*, ed. Domenico Quaranta (Brescia: FP Editions, 2009), 70.

and of only virtual utility. The estimated time for the full purchase of Google using its own funds is over 200 million years![19] Here we seem to come up against a fundamental incompatibility between political action and cultural activism, as it is currently formulated, in which the latter is fixed on the creative autonomy of individuals and small groups. That commitment leads theorists such as Geert Lovink to repudiate all ideology in favor of the use of technology for experimentation, play, and self-empowerment.[20]

But let us flip the question over, and ask what Internet art, and digital culture broadly, may bring to art history. After all, photography, long repudiated as a subject for art history, was at its very basis an academic subject—first in the black-and-white print and then in the color slide (and perhaps the two are linked: again, how can a tool also be an art?). Digital resources obviously open up access to vast archival and visual resources to many more people, and this is bound to have a leveling effect not only on research but also on cura-tion. Aside from the sway of the market and the museum, two major diffi-culties have left art history at a primitive level of analysis, dependent on the sensibilities and intuitions of its writers. The first difficulty is that that there has been no agreed-upon way of describing visual phenomena—not even paintings or drawings. This is changing with the digital reverse engineering of human image recognition mechanisms, producing testable and systematic descriptions of, for example, the various systems through which perspective may be portrayed, which may be tied to historical accounts.[21] The second is that there has been little work done within art history on the qualitative

19 See http://www.gwei.org.

20 Gregory Sholette and Gene Ray, "Reloading Tactical Media: An Exchange with Geert Lovink," *Third Text* 22, no. 94, special issue "Whither Tactical Media," (September 2008): 554–55.

21 John Willats, *Art and Representation: New Principles in the Analysis of Pictures* (Princeton: Princeton University Press, 1997).

character of viewer interactions with art objects. Online, the surveillance of viewers is entirely standard, and begins to offer (along with the brain sciences) the feedback mechanisms a study of art needs to found itself as an objective discipline, one that can identify correlations and work toward the settling of questions (rather than the endless proliferation of discourse) and the demonstration of causal effects. The tools, at least, for such a development are becoming available, though it plainly conflicts with the fundamental ideology of the discipline through its ties to the art world and the art market.

There is the opportunity for a much more thorough demystification of the processes of the making and viewing of art than that envisaged even in the salutary writings of the Net art theorists such as Lovink, Garcia, and Fuller, and with it, the prospect of clearing the fog around the very term "art" itself. It offers art history the prospect of a much deeper transformation than that effected by photography. Whether either Internet art or art history will survive such a development is an open question.

ubermorgen.com, Gwei—Google Will Eat Itself, 2005–08

WHY I NEVER BECAME A NET ART HISTORIAN
Verena Kuni

"Pioneers" are people who penetrate into regions to open those regions up for themselves and for others. Writing their history entails a whole set of problems, including that of unconfirmed sources.

As the title of this essay indicates, the following reflections will address the question of why I—despite having enjoyed the appropriate education and having begun early to study the subject under discussion here—never became a "Net art historian." The formulation may suggest that the reasons are of a primarily personal nature. To my own regret, however, this is not the case, and in fact the reasons were by no means constant. Over the years, there have been significant shifts and changes in the constellation of factors that prevented me from adopting a suitable position. Indeed, I hope that my attempt to explore these constellations will lead to some fruitful insights into what is sometimes referred to as a, or even the, "history of Net art."[01] Moreover, the occasion offers a chance to discuss a whole range of methodological, technical and/or technological, economic, and context-based problems important for a systematic investigation into the developments in this field of cultural production. It is in this sense, too, that I have chosen a title that alludes to a work by the British artist Tracey Emin—namely, her video *Why I never became a dancer* (1997). The reference is less personal than methodological. Unlike Emin, who tells here of how she originally wanted to become a dancer to escape the stuffy provincialism of her

01 For an early view of the issues involved, see Hans Dieter Huber, "Digging the Net: Materialien zu einer Geschichte der Kunst im Netz," in *Bilder in Bewegung: Traditionen digitaler Ästhetik*, ed. Kai-Uwe Hemken (Cologne: DuMont, 2000), 158–74; online at www.hgb-leipzig.de/ARTNINE/huber/aufsaetze/digging.html.

hometown of Margate, UK, I shall avoid discussing the "Net art historian" option under the rubric of personal biography. I also believe it makes more sense to read Emin's video as a sociography related to art as "operating system"[02] than to read it as a personal confession. What I do adopt, though, is the narrative form—the rear-mirror view—in order to look more closely at a piece of the past that some refer to as "Net art history."[03]

BEFORE 1995

From the start, I had my difficulties with the concept of "Net art," especially when it was taken to refer exclusively to Web-based art. Art located in networks, using and/or thematizing networks—whether they be technological, social, or semantic—doubtless existed before the introduction of the World Wide Web.[04] If, on the other hand, one refers to "Net art history" as what is generally called "Net art"—namely, Web-based art—then it is a good deal easier to state the reasons why, before 1995, I never became a "Net art historian." When not using the high-school computer center—while offering relatively generous working conditions, its PC rooms were frugally equipped and still had no fiber-optic connections—I would log on for private Internet access via an antediluvian modem. When nothing, or decidedly too little, was happening, I would watch the drifting snow (or falling stars) in my browser logo.[05] My excitement was all the greater, then, when perseverance was rewarded by pages that slowly loaded onto the

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02 See Thomas Wulffen, "Betriebssystem Kunst. Eine Retrospektive," *Kunstforum International*, 125 (January–February 1994): 49–58.

03 For further reflections on my choice of this format to explore the issues being considered here, see Verena Kuni, "'Was vom Tage übrig bleibt.' Netz-Kunst-Geschichte(n): Beschreiben und Erzählen als Basis des Archivs?," in *Mediale Ordnungen: Erzählen, Archivieren, Beschreiben*, ed. GfM Gesellschaft für Medienwissenschaft (Marburg: Schüren, 2007), 300–18.

04 See page 184 in this volume.

screen and turned out to be artwork. Even at this time there were already grounds for reflecting on phenomena such as "Net conformance" or "usability," or on the relation of technology, aesthetics, and conceptuality—for instance when the HTML documents contained scripts or formats which the browser or my DOS computer interpreted willfully, or which involved inordinate loading times for those not sitting at Macintoshes with good graphics cards and fiber-optic server links in well equipped "medialabs."[06] This was more expensive for private German telecommunications provider customers than for high school staff overseas. Still, there was an enthusiasm and joy in discovery about the "hunting and gathering," which one might well call a "pioneering mood." The same was true professionally: I was convinced that, in a large number of cases, these projects represented relevant contributions to then-contemporary art practice—that is, were deserving of critical and scholarly attention. But this was also precisely what prevented me from converting the "Net art history" pioneering mood—with which I easily identified—into a critical and scholarly attitude. After all, the methodological-critical debates, introduced to the subject not least by feminist art historians, had long since shown the problematic results this kind of gesture could entail: the generation, among other things, of hero legends and a concomitant widespread disregard for social, political, and economic factors. Little could have been less appropriate, especially in the case of "Net conditions,"[07] in addition to which many of the actors in the field had thought about and directly addressed such issues from the start. My systematic reflections at the time took place within a relatively restricted frame

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05 A picture that has already become history following the halting of the development of the Netscape browser.

06 "Usability" has been a topic in technical literature ever since the introduction of the PC. In art and design, however, it has remained and remains to this day something of a stepchild.

07 From *net_condition*, ed. Timothy Druckrey and Peter Weibel (Cambridge, MA: MIT Press, 2000).

of survey, and were anyway less concerned with the criteria of art-historical classification than with another question. Until then, artists and cultural producers had used the electronic networks to experimentally sound out their potential—communication and exchange played an important role. This was the case with THE THING, which ran as a bulletin board system until 1994/95, and in which I was active via its Cologne-Düsseldorf node.[08] How would transfer to the Web change these art networks?[09] What does moving into an "arena of representation"[10] mean for the communicative aspects and networking—and what consequences would it have for those actors who had invested their creative energies into developing innovative concepts and strategies based on the use of communication and information systems?

1995 TO 1997

As for "Net art history," there is perhaps another reason that it makes more sense to begin not with pre-history, but with the years when history started to be recorded. Interest in the field of art history was a marginal phenomenon in the German-speaking world at the time. And it is hardly surprising that

[08] Founded in New York in 1992, until the mid-1990s THE THING as a bulletin-board system had nodes in Cologne-Düsseldorf, Berlin, Frankfurt am Main, and Vienna, and for a short time in Basel, Rome, and Stockholm. Only the New York, Vienna (meanwhile discontinued), Frankfurt am Main, and Berlin nodes have survived in the World Wide Web. The bulletin-board system was a dial-in system that functioned via a program on the DOS shell.

[09] This question was central to the first *interfiction* Congress in Kassel, attended by numerous people active in the art nets existing at the time (e.g. FOEBUD e.V., Internationale Stadt Berlin, Botschaft e. V., Digitale Stad Amsterdam, and THE THING); see http://www.interfiction.org (archive).

[10] See Verena Kuni, "Eine Arena der Repräsentation," in *Webfictions: Zerstreute Anwesenheiten in elektronischen Netzen*, ed. Manfred Faßler, Ursula Hentschläger, and Zelko Wiener (Vienna/New York: Springer, 2003), 174–79.

one of the first texts to appear on the subject in a German-language journal was by a colleague who had also been one of the first to address the medium of video: Dieter Daniels, whose essay "Die Kunst der Kommunikation: Von der Mail Art zur E-Mail" appeared in 1994.[11] All the same: when people ask how an art form began, and what came before that, and what led to its development, a certain level of establishment is already indicated. Indeed, the first institutional appraisal was not long in coming. In 1995, "ars electronica" not only chose an unambiguous motto—"Welcome to the Wired World!"—but also introduced a new category of prize: the category "Web."[12] The symposium wanted to explore the "mythos of information," which one tends to associate primarily with "the Internet," or with the streams of information in a wired, networked world, and the "a" of "ars electronica" on the catalogue cover had yielded to the notorious "@" of e-mail addresses.[13] The logo and the alliterative title indicated which development had really prompted the choice of theme—namely, the growing popularization of the World Wide Web. The catalogue not only introduced a whole range of Web-based art projects and art and/or culture platforms, but, in Thomas Dreher's essay "Vernetzungskünst(l)e(r)" ("The arts and artists of networking"), an attempt was also made to art-historically pinpoint some of the characteristic principles of this art form.[14] Essays like those by Daniels and Dreher show that, early on, there were already attempts at a differentiated

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11 Dieter Daniels, "The Art of Communication: From Mail Art to the e-mail", http://www.medienkunstnetz.de/source-text/73/ first published in German, *Neue Bildende Kunst*, no. 5 (1994), 14-18.

12 *Mythos Information: Welcome to the Wired World. ars electronica '95*, ed. Karl Gerbel and Peter Weibel (Vienna/New York: Springer, 1995).

13 *Mythos Internet*, ed. Stefan Münker and Alexander Roesler (Frankfurt am Main: Suhrkamp, 1997). The term "Generation @" (playing on "Generation X") was also in the air at this time.

14 Thomas Dreher, "Vernetzungskünst(l)e(r): The arts and artists of networking," in *Mythos Information* (see note 12).

"Net art history," based not on producing "hero legends" but on a prob-
lem-oriented account. My own interest at the time, however, was directed
more at critically exploring actual production—including its positioning
and self-positioning in the sphere of the arts—and above all at its dissemina-
tion and spread.[15] For although the number of artists and cultural producers
engaged in Net culture, or in launching Net-based works, rose dramatically
as of the mid-1990s, and were generally tightly inter-networked, it was
still a specialized scene hardly accessible to a broader public, and if so, only
on technical grounds.[16] Hence the festival of "ars electronica" continued in
those years, mainly to address a specialist public, and did not necessarily
represent a wider status quo in the cultural field. For this, the year 1997 was
more significant, with Catherine David's documenta X, featuring a special
curator for Web-based art, Simon Lamunière,[17] while the "Hybrid Work-
space" in the Orangerie (normally an exhibition space) served as a tempo-
rary laboratory for Net-cultural work, where those active in the field could
present or conduct their own projects.[18] Through its prominence at a big
international exhibition claiming to present state-of-the-art contemporary
art to a broad public, so-called Net art seemed at last to have arrived at
the prestigious heart of the "operating system." What that meant is aptly

15 As theory in my texts for *Blitzreview* would show. *Blitzreview* was an online magazine for art criticism
     founded in 1995, initially as a board on THE THING's bulletin-board system, which also migrated
     to the Web in 2005. Unfortunately, the contents, or pages, are no longer available online (formerly
     at http://www.blitzreview.de).

16 While personal computers had become a presence on desks in German-speaking countries at the
     time, even around 1995 people were not generally linked up to or using the Internet.

17 Online documentation at http://www.documenta12.de/archiv/dx/ (September 1997); however, the
     address has changed several times in the past in the wake of restructuring connected with
     successive documenta exhibitions.

18 A documentation of these pages was issued at the time on CD.

conveyed by Vuk Cosić's works at this time, in particular his "pirate copy" of the documenta X web pages *documenta done* (1997).[19] On the one hand, this work can be seen as taking a position against the institutionalization of Web-based works, or against their assimilation by the "operating system." Indeed, one wonders whether an art form located in the Web[20] and (insofar as access is not technically limited) in principle publicly accessible requires institutional presentation at all, and whether such presentation doesn't entail limitations (the gesture at all events being quintessentially appropriative). But Cosić's intervention also made one wonder to what extent there was more involved there than in the traditional rhetoric of secessionism. Unlike colleagues such as Heath Bunting or jodi.org, Cosić was not one of documenta X's invited artists, despite the fact that he, or his works (not entirely without reason) had already become "classics of Net art." Of course, the project of the same name[21] also aimed at signaling distance to art as "operating system" and at being a "self-fulfilling prophecy." For it was by no means the case that the scene in general resisted integration into the art-historical system, as for instance Natalie Bookchin's *story of net art*, which she produced while teaching at CalArts, shows.[22] That this is called a "story" is no accident.[23] Rather, it documents a critical system consciousness—which one can indeed grasp, should one wish to depart from the hegemonial perspective of official history, as a system of stories.

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19 http://www.ljudmila.org/~vuk/dx.

20 Joachim Blank, "What is net.art ;-)," 1997, http://www.hgb-leipzig.de/index.php?a=person&b=mit arb&c=&d=&p=322&.

21 http://www.ljudmila.org/~vuk/books.

22 http://bookchin.net/history.html.

23 The title "a story of net art (open source)" does not actually appear on the page itself but in the title (meta-) tag of the source code.

1997 TO 2001

Precisely this set of conflicting positions occupied me at that time far more than an art-historically oriented invention and exploration of the field of art activities, which in the meantime had grown considerably. Those which also interested me in this context were the gender-political issues—the way the familiar tales of women's problematic relation to technology, and the mechanisms of exclusion of the "operating system," linked hands to celebrate a joint revival in how they perceived "Net art."[24] If, then—as a member of the Old Boys Network,[25] for example, but also in my research work—I increasingly and consciously addressed this set of issues and art projects, it does not mean that formal, aesthetic, and systematic questions did not also interest me. Nor does it mean that I had lost sight of developments in the field of Web-based art as such. In the winter of 1996–1997, I had begun preparing an anthology on the subject in collaboration with the Institut für Moderne Kunst Nürnberg, which is not only a publisher and library, but which also runs an archive. Since the 1960s, the archive has been compiling dossiers on contemporary artists, containing books but also ephemera such as articles, invitations, and other documents. The book was certainly intended to encompass "Net art history" as well. But, above all, it aimed at a poly-vocal perspective and at a theme-based, problem-oriented approach. This is why artists, curators, and art researchers were called upon for the essays, and whose work brought them into contact with friction points in the contexts Net-based art had positioned itself within at the time.[26] Not just one but

24 See for example the essay (originally a lecture in Hybrid Workspace), "The Future is Femail: Some Thoughts on the Aesthetics and Politics of Cyberfeminism," in *First Cyberfeminist International: A Reader*, ed. Cornelia Sollfrank/OBN (Hamburg: OBN, 1998), 13–18.

25 http://www.obn.org.

26 *netz.kunst. Jahrbuch '98/'99*, ed. Verena Kuni and Institut für Moderne Kunst Nürnberg (Nürnberg: Verlag für Moderne Kunst, 1999).

several (hi)stories were "related." The project also represented a character-istic attempt by an institution specializing in art history at dealing with Web-based art at the time. There were plans to install a "net.art.space" on the institute's Web sites for presenting and disseminating Web-based art, to support projects with production grants, and to run appropriate collect-ing and archiving activities, publications, and other channels of communica-tion.[27] Unfortunately, it is also typical that, despite promising beginnings, the vision failed. Similar visions failed elsewhere, where the structural and financial means available were completely different. One must ask why, of course—and there are various reasons, differing in relevance from case to case. One of these is the way many of the bigger institutions took an in-terest in what, even then, was referred to and criticized as "Net hype" (and "Net-art hype"). From 1997–98 on—visibly moved by the spirit of the "dot-com" boom and/or the prospect of participating (in the form of im-age enhancement and aid money) in the flourishing Internet economy[28]— numerous institutions, mainly but not exclusively in the Anglo-American world, competed with ambitious projects not only to present Web-based art in the context of exhibitions, but also to absorb it into their stock.[29] While the latter was viewed highly critically even then by many engaged in the field,[30] it is not enough to ascribe this solely to hostility vis-à-vis art's

27 The relevant pages were set up and online by 2000, but, for financial reasons, only the basic pages were
     realized, along with a version of my introductory essay for the book *netz.kunst* adapted for the Net
     ("Das Netz, die Kunst, der kleine Punkt und seine Liebhaber," in the print version [see note 26], 6–17).

28 For the background to the dot-com boom, see Eli Ofek and Matthew Richardson, *DotCom Mania:
     The Rise and Fall of Internet Stock Prices* (Cambridge: National Bureau of Economic Research, 2001).

29 Of the museums in the German-speaking world, this was true of the Hamburger Kunsthalle,
     which, as early as 1997, held the competition "Extension: Internet als Material" in collaboration
     with *Spiegel/Spiegel online* and *Philipps*, for the opening of its Galerie der Gegenwart; see http://
     www.hamburger-kunsthalle.de/_aext/wettb.htm.

"operating system" or to the system of art history (which, of course, is closely tied to the operating system's system of traditional institutions). When Natalie Bookchin, Alexei Shulgin, and the duo sero.org (Joachim Blank and Karlheinz Jeron) took part in the ZKM exhibition *net_condition* with a Web site chiseled in stone—a persiflage on its own hyperbolic *Introduction to net.art (1994–1999)*[31]—one saw it perhaps at first as taking a position no less ambivalent than Cosić's *documenta done.* On the one hand, by transferring the Web site to stone, the assimilation by the traditional institution was satirized; on the other, one integrated oneself into the framework that one was ostensibly, with great poise, calling into question. But there is another perspective, perhaps, at least looking back from the present, from which one can view the piece. Still, there were numerous institutions in the second half of the 1990s—for instance the Dia Art Foundation, the Walker Arts Center in Minneapolis with its Gallery 9, and the Whitney Museum of American Art's artport who made serious efforts to present, disseminate, and curatorially attend to Web-based art.[32]

2002 FF.

Even then, conceivably (at least in the case of the Whitney, whose official remit is to collect the nation's contemporary art production), a certain disproportion might have been noticeable in relation to collecting in other fields.[33] And it would also have been possible, at least within the circles

30 On "Extension" (see note 29), see Cornelia Sollfrank's work *Female Extension* (1997), http://www. artwarez.org/femext.

31 For *net_condition*, see note 7 above; for *Introduction to net.art (1994–1999)* (including photos of the exhibition version) see http://www.easylife.org/netart.

32 See http://www.diacenter.org/webproj/index.html (since 1995; the most recent project dates to Nov. 2008); http://collections.walkerart.org/item/object/10600; Gallery 9 (1997–2003) in modified form at http://gallery9.walkerart.org; http://artport.whitney.org.

involved with Web-based art, to point more urgently to the precarious econ-
omies that would soon become an existential problem for them and for
the initiatives supporting them—had they not still been involved in discussing,
in the name of the "operating system" itself, the reasons for their own
marginalization. Could those who had so crisply critiqued the Net with artis-
tic means have also foreseen the consequences of an overheated market
for their own work, and, indirectly, for its longer-term survival? Could it have
been foreseen that the "Net-art hype"—as part of the "Net hype"—would
prove the well-nigh ideal example for the necessity of keeping art, or the art
business, independent of the economy? The sponsors, both of the inde-
pendent scene and of institutional initiatives, came almost exclusively from
one area of the information-technology (IT) business—namely, e-commerce.
And, just as the prospect of support when the Internet economy was
flourishing doubtless stimulated certain institutions' interest in Net culture,
the notion that the enthusiasm would wane as soon as the slump set in
was also predictable.[34] In fact, just as the institutionalization of Web-based
art seemed to be reaching a peak, the decline had already begun in the
background. Whether this paradoxical-seeming development might have
been tackled at the time by a "Net art history" following events with due
care must remain moot here, not least because the pertinent discussions
took place largely within the scene itself.[35] Reflections on problematic

[33] Artport is meanwhile no longer a part of the collection, but rather located in the "Special
Exhibitions" area.

[34] That the situation was altogether realistically assessed within the Net-culture scene is evident from
discussions on the nettime mailing lists as well contributions to the conference "Tulipomania
Dotcom" that took place in Amsterdam (and Frankfurt am Main) in 2000; see *Tulipomania Dotcom
Reader: A Critique of the New Economy*, ed. Geert Lovink and Erik Kluitenberg (Amsterdam:
Uitgeverij De Balie, 2000) and the online archive of the conference at http://www.balie.nl/
tulipomania.

aspects of institutionalization appeared at a relatively early stage in my own researches.[36] Yet this had less to do with visionary prescience than with the experiences that direct involvement with Net-cultural practice had opened up to me—in particular in the context of the projects realized by the Old Boys Network from 1997–2001, including the announcement in 2000 of a competition and prize for cyber-feminist Net art "held" by the San Francisco Museum of Modern Art, a response to the SFMOMA-initiated "Webby" for an "overall work in the area of Web-based art."[37] That the prize, modeled on the Hugo Boss Award, had only a very short career is the icing on a cake whose eat-by date (the cake having been placed in the display window all too hastily and without the necessary cooling) soon elapsed.[38] Similarly, the Guggenheim, which in 1997 planned to advance into the field of Web-based art in the context of its Virtual Museum, soon withdrew these plans.[39] After 2002, most of the programs once so ambitiously begun were discontinued. In summary, it is certain that economic and institutional-political factors played a major role both in the "Net-art hype" and in the subsequent slump.[40] For the museums, it was in part a question of sharpening image and enhancing prestige for reasons of financial survival. Among other things, they hoped for pecuniary aid from the

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35 See the nettime mailing list archives 1997–99 and for example *ESC*, ed. Gerrit Gohlke, Künstlerhaus Bethanien (Berlin: Media Arts Lab, 2002).

36 For further publications see http://www.kuniver.se.

37 The announcement to award the so-called Femmy was distributed via relevant mailing lists such as nettime and Rhizome. For the Webby, awarded annually since 1996 for the "Best of the Web" in a wide range of categories, see http://www.webbyawards.com.

38 The SFMOMA Webby was held for 2000 and 2001; it is no longer mentioned on the Museum's pages. The SFMOMA e.space—presented today as having been from the start a temporally limited exhibition project—existed for a year from 2001–2002; see http:?/www.sfmoma.org/exhibitions/espace.

emerging IT sector—aid which they in part received, but which just as swiftly evaporated as soon as the dot-com bubble burst and, with it, the reasons for distinguishing themselves in the field of Net technology.[41] A further fundamental problem is that the political and economic strategies of museums cannot, or can only in part, be applied to Web-based art. Institutions like the Walker discovered that Web-based art did not help boost local pull, and hence visitor numbers, utilizable for procuring subsidies. Private collectors and gallerists, whose importance for museum politics is continually on the increase not just in the Anglo-American world, quickly realized that the classical principle of up-valuing through placement in museums and/or museum exhibitions has little relevance for Web-based art. And the museums themselves learned the hard way that the "Guggenheim principle" of institutional expansion with Web-based art is not to be had as simply, and certainly not as cheaply, as they had perhaps thought at first. Not only adequate presentation, but above all the collection and conservation of Web-based art, proved more cost-intensive than ex-

39 While the latter has also in part to do with the partial failure of the Guggenheim's expansion politics, this alone scarcely affords an explanation. The pilot project—Shu Lea Cheang's *Brandon* (1997)—was at times removed from the Net (reachable again at http://brandon.guggenheim.org, but unlinked and not in the search engine); the category "Internet Art" in the Collection area at http://www.guggenheim.org/new-york/collections/collection-online/show-list/artwork-type/ ?search=Internet%20Art comprises only two 2002 works; the Collection address http://www. guggenheim.org/internetart announced at the time gives the classical "Error 404" message.

40 First to be hit by the economic problems, before the institutions, were the self-organized art platforms of the first years, which were also dependent on sponsors; in the sequel, they modified their structures (e.g. Rhizome or THE THING New York), or gave up. äda'web had already been discontinued by 1998 and was absorbed into the Walker Arts Center collection.

41 The latter is reflected in the fact that at most institutions, the Web-based art was in the hands of temporarily employed curators, who were dismissed during or in the wake of the slump.

pected, not to say a well-nigh insuperable Sisyphean labor. The real problem, of course, is not so much that the institutions to date have failed to solve the task satisfactorily, but that they have proved de facto all but incapable of being mastered.

THE FUTURE IS NOW

However, there is a particular reason why, especially in the case of Web art, serious scholarly research is considerably hampered or impaired—a reason that might also conceivably make becoming a "Net art historian" impossible, and not just for me. This reason is the rapid decay of an art form that in several respects—software, hardware, and the contextual system in which it is embedded and with which it often works—is an art of unstable media.[42] In many cases, even under ideal curatorial and financial conditions, it is simply not, or is at best only partially, conservable. From this angle, there should have been more "Net art historians" to attend to this art form at the right time, using the subject's well proven methods in addition to new ones in need of further development.[43] That many early works were not documented in time with the available art-historical tools turns out to be an existential problem, primarily for an art history that aspires to be worthy

[42] It is conceivably not entirely by chance that the concept of "unstable media" has hitherto primarily been used by those involved with their creative and cultural aspects. Coined as early as the mid-1980s by the V2 media initiative, since the 1990s—i.e. with the popularization of the Internet—it has been applied to electronic media; see MANIFEST VOOR DE INSTABIELE MEDIA in Club Moral (Annemie van Kerckhoven, Danny Devos) (ed.), Force Mental 15 (Winter 1987/88): 542 f.; V2 Institute for Unstable Media in Rotterdam, http://www.v2.nl/; the agency fork unstable media; and Förderverein für instabile Medien e.V. (Berlin, around 1995).

[43] Yet it is not true to say that even early on there were no attempts to study "Net art" using the methods of art history (and to reflect on the methods in their application to the object). Please see, in particular, for instance, the works of Hans Dieter Huber (e.g. www.hgb-leipzig.de/artnine).

of its name. Vast amounts of data that ought to form the very foundation of a faithful history of this art have already been lost. Also, the teaching and dissemination of "Net art history" has long since become problematic, which makes creating understanding of the problems even more difficult. The present "story," for instance, would have gained in clarity had I been able to furnish it with a wealth of illustrations or, better, with valid addresses.[44] But this is at best only partially possible, not just for the art projects distributed by bulletin board systems and conceived for 1980s computer operating systems, such as Felix Stefan Huber's *private room* (1992).[45] A whole range of works that I researched in various phases, and about which I wrote, no longer exist, or exist only in a condition that scarcely enables one to judge their original qualities.[46] And since an essential quality of many Web-based works is the way in which they refer to and critically engage with "Net conditions," the continual transformations of the Net mean that there is no chance of their restoration, even when the works themselves can be technologically reconstituted.[47] Even the publication contexts of many works—and with them the

44 Obviously, screenshots can at best illustrate only certain aspects of a Web-based work—and whether under different temporal/spatial and media/device conditions a URL arrives at that which it was intended to refer to, is, quite apart from the survival problem, far from guaranteed.

45 In the context of this project, F.S. Huber sent a PC-installable program that invited the recipient to complete a living-room ground plan. Once one's "ideal plan" had been set up, the program put in beds until the "occupancy" was consonant with the available space in emergency accommodation. See the documentation at http://www.fshuber.net/projects/provisional/provisional-03.html.

46 In addition to the essay already mentioned in note 10, see Verena Kuni, "Re-Enactments from RAM? On working in the ruins of a virtual museum and on possible futures of a history of web based art," in *Image-Problem? Media Art and Performance within the current picture/image-discussion*, ed. Dawn Leach and Slavko Kacunko (Berlin: Logos, 2007), 113–29.

47 Adaptation to the new or respectively current Net conditions would be a more appropriate

occasional sites where early contributions to "Net art history" were published—have changed radically, or disappeared altogether from the Net.[48]

Apart from research topics where Web-based art is one media form among others, it is these problems, and their ramifications, that have increasingly occupied me for several years—and that will enduringly prevent me from seeing myself as, let alone from being, a "Net art historian" in the classical sense. Naturally, given the numerous initiatives and research projects that have sprung up in the past number of years,[49] there are grounds for a modicum of hope, particularly where forces are joined not only in order to document and put Web-based works to art-historical scrutiny, but also— as is the case with the Net Pioneers 1.0 project—to archive them along with the available sources and documents concerning their geneses and the periods of their Net presence. Nevertheless, that these initiatives and research projects will, at best, be able to save the tip of the iceberg is foreseeable. And, of course, the tip or peak of a mountain lends itself to the erection of monuments and to the generation of hero legends. Whether, and under what conditions, subsequent generations will opt for a profession as "Net art historian" remains a question. For the time being, in my view, it is a question, among other things, of preserving for later generations at

solution in such cases. This, however, should it be worthwhile and feasible, ought as a rule to issue in a new/different work.

48 This not only holds for art nets such as THE THING New York (whose projects, still accessible until 2008 at http://bbs.thing.net, can now only be accessed directly via the project URL, (see e.g. http://old.thing.net/html/stefanb/intro01.html) or äda'web, but also, among other things, for early context projects such as the aforementioned *Blitzreview*.

49 See e.g. *Aktive Archive* (www.aktivearchive.ch), *Capturing Unstable Media* (http://capturing. projects.v2.nl), and *Variable Media Network* (http://www.variablemedia.net), among others.

least a few fragments in a field of research that ought to be called "Net art archaeology" rather than "Net art history." From this point of view, chiseling a Web site in stone back in 1999 was really not such a bad idea.

PART 4: MUSEALIZATION

OUT ON THE EDGE
Barbara London

Net art follows a long trajectory of experimentation with new tools on the "cutting edge." In the early 1960s, advanced, room-sized computers were the focus of collaborations among innovative engineers, visual artists, dancers, and musicians. Under the auspices of technical research or ground-breaking residency programs, artists were invited to such high-tech corporate enterprises as Bell Laboratories in New Jersey and Siemens Studio for Electronic Music in Munich.

My own work with media began as a young curator at The Museum of Modern Art, New York in the early 1970s. Up-to-date information could be gleaned by nosing around makeshift venues and talking with artists. I discovered a dynamic counterculture (offspring of the Beats and Woodstock) flourishing in Manhattan's desolate Soho and in rural upstate communes. Art from this ad-hoc context found itself more on the fringes of prevailing Conceptual and Minimal art. This was the Dark Ages, before fax and home pages. Pioneering media artists shared their clunky portable video cameras (weighing twenty pounds) and the crudest of on-the-fly editing systems for "open-reel" half-inch tape. Denizens like me climbed dank staircases and congregated in dusty lofts for impromptu screenings of the latest black-and-white videos and for interdisciplinary performative experimentations. A joint passed around eased viewers into unhurried events that stretched way into the night. Process took precedence over saleable product. With travel and long-distance phone calls being expensive and therefore infrequent, information from the hardcore reached more out-of-the-way practitioners through alternative publications such as *Radical Software*, a grassroots, sophisticated how-to, and *Avalanche*, an in-depth interview magazine that captured the grit of downtown New York.

As a bright-eyed young curator from a family of inventors, my interests settled on the "cutting edge" and on how artists harnessed gear in a perpetually shifting state of upgrades. From the start I sought out independent voices, interested in work that expanded boundaries. Video then was sold inexpensively in unlimited editions, closer in spirit to artists' books or zines than to painting or sculpture, which dominated the prevailing art market. At MoMA's Open Circuits conference in 1973, I observed "expanded cinema" practitioners from around the world argue about the distinctions between video and film. The two divided camps eyed each other as competitors for the newly available government arts funding—video-makers as the upstarts and Jonas Mekas, Shirley Clarke, and others as the veterans who had bucked the Hollywood system by founding the Filmmakers Cooperative ten years prior.

Several months later I made my first curatorial research trip abroad. At Project 74, a video installation exhibition organized by the Kölnischer Kunstverein, I witnessed VALIE EXPORT and Vito Acconci make new video installations on the spot. A do-it-yourself spirit was the norm back then. Writers still called Acconci and Bruce Nauman "body artists;" Joan Jonas categorized her performances as events. Definitions are useful handles, which practitioners regularly revise.

Back in New York, I helped launch MoMA's ongoing video exhibition program. By then video equipment had became relatively user friendly; three-quarter-inch video cassettes had just come on the market, opening the way for distribution. My early curated video shows shared a gallery with an old technological favorite, Thomas Wilfred's *Lumia Suite* 1964—one played in the morning, the other in the afternoon. Together with MoMA's projectionists, I learned how to open up playback decks and get jammed cassettes unstuck.

The museum took another important step when we began acquiring artists' videos, after seriously considering the subsequent responsibilities around video preservation. This was the first new medium to be added to MoMA's collection program in more than forty years. Initial titles included *Global Groove* (1972) by Nam June Paik, one of the first artists to discuss the "digital highway." In the video he examined communication, juxtaposing high and low culture of East and West.

Informal networks formed among artists, curators, and the new non-profit distributors in order to link the independent video world. Ever on the prowl for the next wave, I made several trips to Japan and Latin America, where video was emerging as an underground art activity. Around this time mayors and tourism bureaucrats realized they could create a buzz and attract audiences to their city by promoting the latest artists' video. Cassettes could be sent via parcel post and screened at cultural centers for a lot less than crating and importing recent paintings and sculptures for special shows. I benefited by making regular stops at lively video festivals sprouting up in Los Angeles, Tokyo, Locarno, Montbéliard, and Sao Paulo. Looking back on this period now, I realize that these were the early days of the globalization of contemporary art.

Technology kept changing and had two tiers: consumer and professional. In the 1980s, such videomakers as Jane Veeder in Chicago and Steina and Woody Vasulka in Buffalo were working with early analog computers; meanwhile production houses connected to the broadcast industry used computers for newly frame-accurate editing. At this upper tier, video became highly polished. Commercial television, which artists had initially considered the enemy, was now looked upon as the ideal standard. For many, including Bill Viola, "high-end" production values were considered imperative, which meant that the cost of making a video skyrocketed.

Stubbornly contrarian artists like Tony Oursler found creative possibilities at the "low end" for raw, performative narratives. For downtown artists like Oursler, Laurie Anderson, and Perry Hoberman, the personal computer initiated a wide range of new interactive work that soon morphed into media art, absorbing video.

In the late 1980s, as baby boomers reached adulthood and media art and the art market exploded, museums developed larger contemporary shows that routinely included video installations. Everywhere one turned, there were more artists, and more museums purchasing contemporary art and producing larger international survey shows. Meanwhile, private collectors built bigger homes to display loft-scale paintings and video projections.

To keep up with technical developments—as I had done for years—I visited Bell Labs in New Jersey, MIT's Media Lab in Cambridge, Massachusetts, and Xerox Park in Silicon Valley, California, to see what was happening with this new art medium with unlimited possibilities. (These were the early days of artists working with MUDs [multi-user dungeons] and MOOs [MUDs object oriented], text-based online virtual reality systems to which multiple users could connect at the same time.) As a means of surveying all of the change, I organized MoMA's lecture series *Technology in the 1990s*. David Blair, with his *History Among the Bees*, discussed his idiosyncratic work that had two versions—one Net-based, the other linear and screened in cinemas.

Ever curious about the cutting edge of technology, I visited artist Wolfgang Staehle in his small TriBeCa basement office. I clambered down a metal staircase, under a sidewalk grating. Wolfgang had just launched THE THING, the first international art community online. He demoed his bulletin board system (BBS). Within a few years, THE THING had grown into a successful online community with raging debates, and host of many artists' websites.

I regularly visited THE THING's sprawling Chelsea office, where a diverse group of media artists from around the world congregated to converse, collaborate, and critique the latest work. Whereas the image of Net artists might be of solitary, nocturnal geeks possessed by their computers, THE THING flourished as a social space. These face-to-face meetings and impromptu encounters raised the level of discourse and contributed to Net art's development.

Around 1995, museums contemplated how to create a Web presence. Together with my colleagues Paola Antonelli and Sheryl Conkelton, we encouraged MoMA to launch a pilot Web site, which outlined my exhibition *Video Spaces,* and their concurrent *Mutant Materials* and *Annette Messager* exhibitions. *Video Spaces* featured eight video installations, including recent work by two computer prodigies—the revered film master Chris Marker's random-access *Silent Movie* (1997), and the Kyoto-based, mixed-media genius Teiji Furuhashi's interactive installation, *Lovers* (1995). After debating and obtaining the URL for moma.org, for expediency we were restricted to well designed, descriptive text and images of work in the exhibitions. The museum's administration knew that should the site flop, we could simply take it down and chalk it up to experience. (This didn't happen.)

Net hubs sprouted as the dot-com industry started to bubble. In 1994 Benjamin Weil launched äda'web as a research and development platform based in the Silicon Alley of Manhattan. Set up as a digital foundry, the small nonprofit invited non-media artists to experiment with and reflect upon the Web as a medium, pairing artists with specialists who had the technical expertise of dot-com producers.

Before I headed off to China on a research trip in 1996, I met with äda'web. I thought about all of the artists' biographies, interviews, and photos I

accumulated every time I visited a studio. "Enough of this squirreling away of information in folders stuffed into file cabinets!" I decided to put my research on the Web, using the Internet to make my file folders public. The informal conversation at äda'web turned into *Stir-fry*, a curator's Web journal from China, which uncovered the thirty-five media artists in the Middle Kingdom at www.moma.org/stirfry. (Designed by äda'web's Vivian Selbo, *Stir-fry* documents the early careers of major artists still active today.)

On the trip I visited Beijing-based Feng Mengbo, the first artist in China to have a computer and the first to gain access to the Internet. For him the Web functioned as a font of otherwise inaccessible information; however, video games were a passion. In his tiny home studio, he demonstrated how he had been hacking for years. As a gamer without the means to travel, he used what was accessible: he appropriated film versions of the didactic (propagandistic) Beijing-style operas, which during the Cultural Revolution valorized the life of Mao. As a subtle critique, Mengbo wittily adapted the proverbial content to the style and cultural implications of games. His latest project, *Long March Restart* (2008), is an inspired, ballroom-scale upgrade, now entering the MoMA collection.

As part of my curatorial practice, I produced several additional Web projects. *Interynet* covered my research in Russia (and Siberia) and Ukraine at www. moma.org/internyet in 1998, when I caught up with early Net pioneers Alexei Shulgin in St. Petersburg and Olia Lialina in Moscow. Lialina produced a Net artwork in the form of a compelling narrative, *My Boyfriend Came Back from the War* (1996). But it was her online gallery that was more impressive, as she was the first to address the challenging issue of what ownership of a Web site meant—context and provenance as indicated by a URL.

Contemporary art museums are handling the not-so-simple issues of Net art in different ways. Since 1995 the Dia Art Center has commissioned and maintained thirty Web pieces by artists. The Museum of Modern Art in San Francisco has archived Web sites based on design, and has commissioned artists' Web projects. Recently it shifted several of their commissions from the realm of exhibition to acquisition and into collection, not a trivial move. The New Museum in New York recently absorbed Rhizome, the small non-profit founded in 1996 dedicated to the creation, presentation, preservation, and critique of emerging artistic practices that engage technology, now with a comprehensive digital art archive. MoMA got its feet wet with several Net art commissions, which for practical purposes were treated in the manner of exhibitions—presented for a period of time without commitment to future maintenance. Tony Oursler's *TimeStream* (2001), an online project commission, explored the magic and mysticism that surrounds new mimetic devices. Oursler looked back a century when vaudeville and magic shows morphed into silent cinema, while the spirit world loomed large. The other project, Allan McCollum's witty *Registration of an Artwork* (1999), resides now with the artist.

Exhibition and acquisition have separate but related functions. The former is the starting point—the exploratory, scholarly, educational phase. Adding a work of media art to a museum collection requires determining the artists' intentions and the inherent aesthetics of their technology-based work right now, so that later the best decisions can be made around preserving it for future generations. The perennial issue is functionality—how to keep Net and media art working. As commissioner of the first MediaCitySeoul in 2000, I invited Lynn Hershman to present her telerobotic sculpture *CybeRoberta* (1970–98), which incorporated Internet interactivity. While Hershman brilliantly continued her exploration of the roles of spectator and subject in the context of a feminist critique of communication, the doll required a commitment to

nonstop maintenance. Hershman's engineer regularly teleported repairs and upgrades, as the doll in Seoul connected with online viewers.

The Net pioneer Mark Amerika began pushing the envelope of media at Brown University ten years ago when he worked with hypertext (along with Robert Cover, Michael Joyce, Jay Boulter, and George Landow, who founded the Electronic Literature Organization, a nonprofit organization "established in 1999 to promote and facilitate the writing, publishing, and reading of electronic literature.") Amerika recently released "the first feature-length mobile phone art film." Shown as an installation at the Chelsea Art Museum, *Immobilité* fuses the language of "foreign films" with landscape painting and literary metafiction. Intentionally shot in a do-it-yourself style related to the evolving forms of video distributed in social-media environ-ments such as YouTube, he is still experimenting outside the art market, in the same manner as independent video and cinema-makers were doing thirty years ago. However, Amerika's potential audiences for the web version of *Immobilité* are vast, unlike the handfuls who would have tuned into local public access television and seen artists' videos.

Today media artists work with the latest technologies as readily as they sip water. Their tools are affordable and in the economic downturn collectives are active again. Audiences are ready for content that goes beyond reality TV and the most up-to-date iteration of what, as a young curator, I discovered in underground art venues scattered along the periphery. Now the new setting is the unfolding Internet.

The youngest generation of media art pioneers is poised to reinvent the avant-garde. Hackers, programmers, and tinkerer-revisionists draw upon their local culture and upon more international sources. They will forge new methodologies. I remain resolutely curious and optimistic, certain that

breakthrough Net art forms will appear out of the blue and affect everything around—in particular that uncontrollable, loosely defined field of media art. Museums have put good procedures in place, after decades of experience in collecting and archiving video and installations. Matters in Media Art is an online resource developed by a consortium—MoMA, SFMOMA, the Tate, and the New Art Trust—at http://www.tate.org.uk/research/tateresearch/majorprojects/mediamatters/. As we face the future together only one thing is certain: media will always change.

NET ART IN THE WHITE CUBE—A FISH ON DRY LAND
Robert Sakrowski

The assumption that Net art[01] is difficult or even impossible to exhibit is a result of attempts to apply conventional concepts from the art world. As Net phenomena in a Net context, in Net space, Net art activities are always already exhibited and enacted[02] as production or performance.[03]

The term "Net art activity" is used here and in the following to refer to all phenomena appearing on and via the Internet that are connected in some way to the art system. There are various elements of the act of exhibiting itself that are also basic structural elements of any Net art activity, among them: Accesibility, Selection and Curating. Set in a cultural context, these characteristics serve the purposes of showcasing in the context of preserving a state of being. As a phenomena accessible online, any Net art activity appears as it does against the semantic backdrop of art by virtue

01 Lockemann arrives at the following conclusion: "The heterogeneity of works produced under the influence of the Internet shows that a definition that classifies solely on the basis of the medium does not necessarily enlarge our understanding." Bettina Lockemann, "Netzkunst als Konzeptkunst," in *Visuelle Netze: Wissensräume in der Kunst ,* ed. Hans Dieter Huber, Bettina Lockemann, Michael Scheibel (Ostfildern-Ruit: Hatje Cantz, 2004), 50.

02 The terms "enacting," "enactment," and "mise-en-scène" used in this article refer to an arranging of elements, not just graphic or art elements, but also the interplay of specific networked hardware and software environments arranged with a view to having an aesthetic effect. See Nina Kahnwald, *Netzkunst als Medienkritik: Neue Strategien der Inszenierung von Informationsstrukturen* (Munich: Kopaed, 2006).

03 See Hans Dieter Huber, "Von der Immaterialität der Netzkunst und der Materialität der Browser," lecture in *foro artistico*, Hannover, March 4, 1999, http://www.hgb-leipzig.de/ARTNINE/netzkunst/vortraege/hannover.html.

of Net properties, on the one hand, and by being designated as art (works) on the other.

The problem is that exhibiting Net art activity in real space can only ever be thought of as a secondary transformation or translation.[04] This article aims to create a better understanding of these problems via a comparative analysis of the structural features of Net art and of current exhibition practice.

Taking as its point of departure the case studies[05] of the Net Pioneers 1.0 research project, the following considerations relate to the Net phenomena of the years 1993–98. The first generation of Net artists[06] were quick to use the BBS[07] and the WWW both as distribution and production medium, and as a theme of their work. In the process, the networked computer and its technological potential as a means of production and distribution channel and, ultimately, as a core reception situation, delineated the parameters of the new art form.[08] This first generation of artists intensively explored the Internet, its technical but also social, political, and aesthetic conditions, and likewise its limitations. Working with the specific properties of the Internet and the computer, they also contributed to developing

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04 See Franz Thalmair, Sabine Hochrieser Michael Kargl, "TRANS.FORM.WORK—INTERNET-BASED ART IN THE REAL SPACE," in *3rd Inlcusiva-net Meeting NET.ART (SECOND EPOCH): The Evolution of Artistic Creation in the Net-system Buenos Aires*, ed Medialab Prado Madrid (e-book), 2009. http://fratha.cont3xt.net/?p=470.

05 THE THING Vienna, THE THING New York, jodi.org, Public Netbase.

06 See Rachel Greene, *Internet Art* (London: Thames & Hudson, 2004); Natalie Bookshin, "timeline," http://www.calarts.edu/~line/history.html.

07 Bulletin board system.

08 See Nina Kahnwald, *Netzkunst als Medienkritik: Neue Strategien der Inszenierung von Informationsstrukturen* (Munich: Kopaed, 2006).

these properties.**09** These specific characteristics later came to be designated the art "material"**10** of the work. That is to say, Net artists were defined in terms of their work with and reflection on the material, i.e. the Net.**11** "Immateriality" was also identified and highlighted as one of the specific properties of Net art.**12** To describe Net art activity as "immaterial" leads, however, to contradictions, for on the one hand Net art activity certainly has a physical vehicle; on the other, the concept of material here is too narrowly understood. Vilém Flusser may be able to help with this problem, for in his view, Net art activity must be understood materially, because it fills forms.**13** Any view of Net art activity, therefore, must always take into account the structure and context of the activity, because complex modes of appearance (as text, image, sound, film, animated graphics,

09 Hence the properties of Web 2.0, in particular terms such as "social software," "tagging," and "blogging," must always be seen against the backdrop of the first generation of Net artists and their work. Social software is essentially based on test runs and concepts from artistically motivated context systems; blogging has its antecedent in artists' journals; tagging emerged from a critical relation to the indexing services of search engines, skepticism vis-à-vis the so-called rankings, and from the unabated critique of the commercialization of content and its distribution.

10 Material in this sense includes the Net languages and documents (image, text, video, 3D-graphics) provided by the computer.

11 See Hans Dieter Huber, "Materialität und Immaterialität der Netzkunst," *kritische berichte: Zeitschrift für Kunst- und Kulturwissenschaften*, 26, no. 1, special issue "Netzkunst" (1998): 39–53. http://www.hgb-leipzig.de/ARTNINE/huber/aufsaetze/materialitaet.html.

12 See Tilman Baumgärtel, "Immaterialien: Aus der Vor- und Frühgeschichte der Netzkunst," (Heise Telepolis, 26.06.1997), http://www.heise.de/tp/r4/artikel/6/6151/1.html: "While the conceptual works of Lawrence Weiner, Joseph Kosuth, or Jenny Holzer still involve physical message bearers (whether paper, walls, or circuit boards with LED's), works employing telecommunications or the 'universal machine,' the computer, operate with nothing more than immaterial information broken down into bits and bytes… ."

photos, and combinations thereof) and conceptual description (source code) including their mise-en-scène, presentation, reception, and inherent interaction merge here into a single work.

The cognitive model that stems from the produced "thing" to construct and describe the world no longer has a constituent function in our society. Signs and symbols permeate contemporary society. This construction of the world via signs and symbols is not merely confined to intelligible space—it is perpetually taking place in economics, technology, communication, and, last but not least, in art. Art as mediator between the new and the old way of thinking—and Net art phenomena in particular—mirrors this upheaval more clearly than anything else. The operative constructions of the world assume real form on the Internet; where the use and the manipulation of one and the same object merge. Consequently, every work *in* the Net is always work done *on* the Net, whereby a transfer into the prevailing quotidian relations occurs. Or, more provocatively: whenever the Net is used, cultural work is performed—the Net itself being a real expression of the social changes involved. Thus, phenomena from utterly heterogeneous social spaces come together and are refracted in Net art activities, since their structural elements tie them closely to technical (e.g. hardware/software),

13 Vilém Flusser, *Medienkultur* (Frankfurt am Main: Fischer, 1997), 220f: "In painting, as everywhere in culture, the material is the way forms appear"; and "Such synthetic pictures (Mandelbrot sets) can (incorrectly) be termed 'immaterial,' and not because they light up in an electromagnetic field, but because they are matter-free, empty shapes. Were one to paint these images in oil, they would still be 'immaterial' in the aforesaid sense, even though located on a canvas support"; and "It used to be a question of ordering the apparent world of matter according to forms, whereas now it's more a question of bringing to appearance a primarily numerically encoded world of forms that is increasing beyond measure. It used to be a question of formalizing the given world; now it is one of realizing the conceived worlds as alternative worlds."

economic (e.g. ongoing distribution and accumulation costs), legal/political (e.g. copyright), and cultural (e.g. mailing lists, boards, etc., as discourse platforms) space. The Net in its specific technological form can be understood as the technological realization and real image of our human structure,[14] which one can describe as the potential to form constructions, to exist in (commodity) exchange and in communication, and to appropriate the world in these ways. Because they are inextricably interwoven with the medium of the Internet, which must be understood performatively, Net art activity also is to be understood as performative artwork.[15]

Society qua information society can no longer think past the ubiquitous Net. It is a matter of course, then, given that observation of the past can explain present events, that Net art activity be subjected to exemplary review. The question is simply: How can art characterized in such terms be exhibited?

The digitization and digital production of cultural artifacts and their commensurability not only unify the national cultures switched into the global network, they also homogenize the relations of individuals to the existence of things. The action and behavior of individuals in relation to things, and thus to the world, can no longer be thought of as free, personal action. Instead

14 See Martin Heidegger, "Einblick in das was ist," in *Gesamtausgabe*, Vol.79 (*Bremer und Freiburger Vorträge*) (Frankfurt am Main: Klostermann, 1994).

15 See Dorothea Hantelmann, *How to Do Things with art: Zur Bedeutsamkeit der Performativität von Kunst* [James Coleman, Daniel Buren, Tino Sehgal, Jeff Koons] (Zurich: Diaphanes Verlag, 2007), 11f: "Thus, inquiry into the performative in art does not mean to define a class of artworks, either. It is more a question of determining the contours of a level of meaning production that is present in every artwork …, namely, its reality-productive dimension"; and "The performative dimension denotes the artwork's participation in constituting reality, or, more precisely, it denotes the fact that art is incorporated in a reality that each and every individual work always also coproduces."

such actions have become a profilable, relation-based, tense, and even over-wrought network of social functions.

In the wake of digitization and its Internet distribution, the relation of the object to its representation, hitherto interpreted as being simple, changes fundamentally. A reversal of the usual dependencies occurs. The digital derivatives take the place of what they once only referred to.[16] The arbitrary relation of signifier to signified breaks down visibly in Net phenomena. Digital artifacts stand for nothing but themselves, because operations are conducted on and with them, and not with "originals"—the "sources." Things as we hitherto thought we knew them, i.e. objects as such, thus lose their significance as benchmarks underpinning culture. The endeavor to institutionally appropriate these forms of media art will bring about the structural transformation of the art world. Fundamental parameters will need to change in order to integrate Net art phenomena. For the difference from other art forms is precisely the social performativity of the medium itself as described here. The foundation stones for future society are being laid, and an interpretation of Net art activity can help us better understand what is happening now, and what lies in store. The museums and research establishments of the art world see it as their task to equip us for the present and the future, to avert a sense of lost-ness in the contingent, and to con-struct culture through identity-formation by means of a mediating, analytic view of the past. Thus, museums must find ways to integrate Net phenome-na into their social function. For it is with their aid that the cultural upheav-als currently taking place can be mediated.

While it is being produced, art can still be viewed in a state of "becom-ing," still rooted in the living world. That museums, galleries, and other

16 See the text by Gunther Reisinger in this volume.

establishments in the business of exhibition historicize artworks through display, and thus insert them into the art world context, is a well-known and necessary feature of such institutions. To fulfill its function as a socio-cultural repository that constructs, mediates, and conserves history, continuity, and hence identity, an exhibiting institution requires forms that can be passed on—forms that have the characteristics of objects—otherwise they are not transmissible in the institutional context.[17] The concepts of the original, the work, and the author are closely bound up within this conception of the art world, at the center of which stands the exhibited object.[18] These are fundamental, systemic conditions of the offline art world. To exhibit these paradigms and to continually reproduce the systemic conditions necessitates exhibition spaces—for objects are dependent on real space as their substrate. Retroactively, the objects' auratic mise-en-scène legitimates the terms of the subsequent art world system.

However, art forms whose reception can only occur against a certain event backdrop,[19] as is the case with Net art, can only enter the institutional context as documentation. Precisely when the exhibiting institution successfully applies its systemic conditions and enforces requisite assimilation, the system's constituent concepts no longer consistently hold—for neither work nor original is actually exhibited.

17 See Dorothea Hantelmann, *How to Do Things with Art* (see note 15), 14: "An art that provides no means of transmission is either made transmissible or it disappears in the long run from the canon of the visual arts."

18 Christiane Paul, *New Media in the White Cube and Beyond: Curatorial Models for Digital Art* (Berkeley: University of California Press, 2008), 74: "There have always been and always will be art objects. Today these are supported by a cultural 'system' of presentation and preservation that includes museums, galleries, collectors, and conservators."

19 Art movements such as Situationism, Fluxus, Happenings, performance, Conceptual, and video art.

Should institutions prove unable to resolve these paradoxes,[20] the Internet will sooner or later assimilate *them* and write or enact its own history.[21]

Net art activity is a composite phenomenon consisting of Net conditions (bandwidth and protocols), hardware conditions (computer, monitors, etc.), and software (server, script interpreter, etc.); furthermore it is based on dynamic exchange[22]—on sharing—and hence on participation. It is essentially active, caught up in the process of (technological and social) exchange, and only materializes under specific Net conditions. A final and particular feature of Net art activity is that, in the process of its performance, it shares or is shared and multiplies,[23] and because of its inherent presentational form, (i.e. the Net itself), it is always contextually enacted.[24]

20 See Rudolf Frieling, "Vermittlungsparadoxie," *40jahrevideokunst.de. Digitales Erbe: Videokunst in Deutschland von 1963 bis heute, ed. Rudolf Frieling, Wulf Herzogenrath* (Ostfildern-Ruit: Hatje Cantz, 2006), 7–14.

21 On the one hand, the Net has a tendency to spawn its own platforms for disseminating and mediating art production (from Flickr to Prado, from Archive.org to Google Statistics); on the other, there is a trend whereby hardware and Net components producers appropriate the Net and its contents (for instance the IBM Kittyhawk project). http://domino.research.ibm.com/comm/research_projects.nsf/pages/kittyhawk.index.html.

22 In terms of software (data) and hardware (physical interfaces), but also at the user's operational level, which is where the exchange acquires meaning and which often first constitutes the Net art activity as a "work."

23 Every exchange is based on a transmission (but not surrender) of data, which continues to be available; in other words, every production produces a specific performance independent of its conditions of production and reception, a performance closer to the concept of the event than to that of the original. See Marc Ries, "Die Kunst des Teilens: Von der ersten Netzkunst zum Web 2.0," lecture within the context of Ars Electronica, 2007.

Net art activity is thus a complex phenomenon. It is perceivable as events on a monitor, yet its multimedia and intermedia structure[25] and the conditions of mediality are also performatively determined as repeated expressions of work done on the world. Thus, it will never be possible to simply apply the art world system to Net art activity, especially those concepts of the original and the author. The author as genial producer forfeits a hierarchizing function, for the interplay of the components listed above and their performative realization in a Net art activity—including the (even passive) participation of interacting viewers and Net conditions—no longer takes place under the sole direction of an artist.

Furthermore, one should note that the art production of the Net art activity considered here did not envisage presentation outside the Net. On the contrary, rejection of Net-independent, real-space realization in the art world is often an integral and deliberate component of the works. But this also means that a certain situation of reception (precisely not the conventional

24 Of particular note here are the use of snippets and the integration of external websites and other media such as image, sound, and text documents that arise from the programming languages themselves. This production context almost automatically entails that contextualization via what may be called a collage technique, which is the favored aesthetic approach of many Net artists. Moreover, the production of multimedia work depends on the computer and its specific properties. It is impossible to go into the matter more deeply here. Suffice it to say, the absorption and integration of "foreign" content depends on the technical structure of the Internet, just as the potential to manipulate these assimilated elements depends on the computer and its digitality. For collage technique, see George Dillon, "Dada Photomontage and net.art Sitemaps" (2000), http://faculty.washington.edu/dillon/rhethtml/dadamaps/dadamaps2b.html.

25 Composed as they are of texts (in formal and natural languages), images (electronic and photographic), sounds, signs, icons, hardware and software systems, Net art activity cannot be considered as anything but intermedia phenomena.

white cube) was envisaged in the production of these works. Moreover, it was invariably envisaged against the backdrop of technology current at the time.[26]

Net-based art activities are thus geared toward their respective hardware and output options. They are always conceived at a particular time, for the performance and output devices in use at that time. But technological conditions change constantly, so that individual activities must always be viewed within their specific context of origination. We are talking here of the specific properties of the hardware utilized: the monitor, the video card and its color spectrum, Net capacity, and the processor speeds of the performing computers.

Net activities in this sense comprise the following chief components: computer and server function, documents formulated in formal languages, network connection and all relevant hardware elements plus requisite communication conventions—in particular the domain, the client/reception situation (computer system with input and output devices), and the operating system that controls it. The client must be equipped with certain functionalities facilitating both communication via the Net and the reception and presentation of documents according to the conventions.

The first endeavors to exhibit Net art phenomena were undertaken by Net activists themselves.[27] The Net was, and still is today, attractive for art production because it represents an autonomous and—in respect of cost-

26 Thus videos on the Net, for instance, were not designed for today's 16:9 Hd capable mobile
    devices but usually for QuickTime Player and a standard ISDN transmission rate.
27 The concept of "activist" is used here to denote initiators or major participants in respect to Net
    art activity, and not political activists.

effectiveness—potent distribution and presentation medium. That the Net activists present themselves on the Net has to do with their ambition to collectively appropriate the Net as autonomous presentation space and autonomous distribution medium. Thus, the first appearance of Net art activity as Net presentations actually amounts to the first "exhibitions" of Net art. Since activists were aware of the mise-en-scène and constituent Net properties of the presentations,[28] and since it was their intentional, artistic choice to embrace the medium for those very reasons, Net space came to be shaped for "exhibiting" Net art activity.

The etoy group's tank system, for instance, began as an endeavor to occupy Net space. The metaphor of the data packet—the tank—was far superior to then-current metaphors stemming chiefly from the sphere of book production (page, scroll, page forward and back, index, etc.). Wormhole-like telescoping, winding, nonlinear navigation, context shifts through dense overlapping and folding emphasized how limited, in contrast, the white cube was. New digital worlds, such as the web presence of jodi.org, extended their formal language in unusual ways right into the private sphere of surprised Net users. For the normal Net user was not prepared for an "exhibition" of Net art. His aesthetic perception while "surfing" in workroom, living room, or office was more shock than disinterested pleasure. That a new form of expression and/or a specific Net aesthetic was at stake is now clear from the influence the formal language jodi.org had on other artists.[29]

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28 See note 3.

29 While, for instance, etoy copied a single area in "Digital HiJack," *01.org* copied the entire Net
    activity or inspired Alexei Shulgin's Form Art.

The first frameworks[30] facilitated the formation of groups that went beyond political or economic boundaries. In such groups political, artistic, and economic issues and positions could be productively exchanged via the Net. It must be stressed that communication was always simultaneously conceived as art production. The idea was to contest the demagogic leveling function of the mass media with a utopian and anarchic principle of sharing and of collective, discursive, and participative design. While it is true that the finished "singular" Net phenomenon also addresses everyone, the viewer can, as a rule, receive it in an intimate, one-to-one and also (inter)active situation.[31]

The fundamental task of an exhibition of Net art activity in the real space of a museum building consists of inaugurating an open discourse on the paradigms immanent to the offline art world. Exhibiting Net art activity calls for, on the one hand, the reconstruction of historical environments and the enactment of an appropriate reception situation. On the other hand, the act of exhibiting must be transformed into a dynamic, discursive, performative sharing of ideas and attitudes that generates a social model of collective social action and negotiation.

If participation in the Net is understood as cultural work, then genuine integration of the Net into the art world system as a constituent component of culture would amount to work on society.

The Net art activity that coincides with the emergence of the medium (1993–98) had an anticipatory character in this respect, since it proactively

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30 e.g. THE THING International or the International City Federation, but also activist platforms such as the Public Netbase.

31 See the above passage on "performance," 216.

realized the interpenetration of culture and (digital) technology that characterizes the form of society known today as the information society.

However, the historicity of the media basis of Net art activity outlined above suggests (in line with the premises and conventions of the offline art world) the following argument: the very necessity to present the phenomenon as historically contained and limited, utilizing a mise-en-scène beyond mere documentation, aligns with the museum's mediating function. The precondition is that in the re-construction of the environments prevailing at the time, Net art activity appears in its historic "original" state and contemporaneous reception situation. However, the bulk of the Net[32] as it was from 1993–95 (to say nothing of 1982–93) no longer exists. Because the structure of the medium itself is so ephemeral (due to technological and economic dynamics) and because the temporal context (the Net and reception situations) is an always integral, non-reconstructible component of Net art activity, the Net art activities we engage with here must be termed "historical." The case studies considered here would no longer exist were it not for the attention they have received from historians. Without the Ludwig Boltzmann Institute for Media.Art.Research (LBI) research, THE THING Vienna (TTV) would no longer be on the Internet, and the Public Netbase and THE THING New York (TTNY) would no longer exist in their original forms. In the case of the Net art activity jodi.org, an attempt will be made to re-present the dynamic, active elements of this particular art production, which have long been overwritten, as well as the Net art activity that is itself permanently developing, by reconstructing the artistic search for a formal, Net-specific language. The re-presentation will be put on the Net as a part of the overall Net art activity in a system of subdomains under the jodi.org domain.

32 Understood as the constituent context of Net art activity.

To facilitate further discussion of the paradoxes dealt with above, we will now consider a hypothetical exhibition display. This display was developed to propose specific models for the exhibition of the three different types of Net art activity that were documented and reconstructed within the framework of the Net Pioneers 1.0 research project. It will be presented in what follows and will take into account the following features:

A) The "auratic" mise-en-scène of an object/original in the exhibition space
B) The historically conditioned reception situation
C) The preservation of the integrity of the (specific) Net context

A) Building on the concept of Net art activity as a complex, intermedia, performative phenomenon, a dual strategy is proposed in the context of the Net Pioneers 1.0 research project. On the one hand, the mise-en-scène itself will reference the unfeasibility of such an undertaking.

The so-called artwork, the Net art activity, is characterized by its historically conditioned production, distribution, and reception situations. If a Net art activity is to be enacted in real space as a work and as an original, in the conventional senses of those terms, then the circumstances pertinent to the historical situation must be restored and recreated. This includes the relevant hardware on which the Net art activities were originally published and the output devices on which they were originally performed. The digital documents underlying a Net art activity must also be reconstructed with the relevant programming codes that describe and constitute it. Approaches to delimiting Net artworks hitherto cite the URL and/or domain as an essential, distinctive element that documents the Net art activity's originality.[33] The URL (domain) must therefore also be reconstructed.

A further element is the intimate reception situation-cum-simultaneous mass distribution and/or reproduction, whereby in the case of frameworks –i.e. TTNY, TTV, and the PNB– the focus is on social interaction and networked production.

B) The historical reception situation of Net art activity varied from private viewing to the actionist and the social, in the sense of collective action. The Net art activity's structure prompted the individual recipient's interactive participation; the individual, private reception situation was thus broken open. In order to do justice to these aspects, the works in the exhibition will offer opportunities for active or interactive exploitation of Net art activities, as well as more individual, reflexive exploration. Accompanying documentation material[34] will provide background information explaining the historical situation. These pertinent documentation materials assigned to each exhibited Net art activity will also be downloadable via the Internet and will access secondary materials, including historical accounts, to date and source research.[35]

As detailed above, the historical reception situation is also conditioned by the specific historical output device hardware. This must be reconstructed in the exhibition context.

C) It must be determined for each individual Net art activity, depending on its condition, whether and how it will be performed on the Net. Given the

33 See Olia Lialina, "Ein Link wäre schon genug," *Du* magazine (November 2000), http://art. teleportacia.org/du.html (February 10, 2007).

34 See the text by Gunther Reisinger, in this volume.

35 See the text by Dieter Daniels, "Reverse engineering modernism with the last avant-garde," in this volume.

ephemeral, changeable nature of the exhibits, it will be necessary to de-
cide whether some form of simulation,[36] direct reproduction,[37] or re-pre-
sentation[38] is to be implemented.

As for the implementation of the exhibition project embracing the activities
TTV, TTNY, jodi.org, and the PNB, a design concept must be developed
that actively engages with a range of problems. Development of a topology
and/or typology offers a useful approach. To identify the essence of the ex-
hibits and to obtain a model for each, they will be abstracted in respect to
their determinant concepts. These conceptualities reflect the different artistic
positions and subjects, pointing to the exemplary nature of net activities
and to how specific exhibits may be positioned and defined in an art-historical
context. Thus, from the concepts obtained, a design concept developed
that was aligned with both the content of the exhibition and that of the indi-
vidual Net art activities.[39]

The Public Netbase—Institute for New Culture Technologies is definable in
terms of the concepts of "discourse" and "Net actionism."

Intensive exploration of the medium of the Internet in its communication
technology function is typical of the early phase of PNB. A primary focus of

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36 Virtualization of a specific historical computer environment, with emulated programs both server-
   and client-side on which the Net art activity is performed.

37 Migration, in other words, reinstalling the Net art activity under then-actual conditions.

38 Simulation combined with an appropriately designed reception situation in the exhibition space—
   see translation—a combination of the two previous forms, taking into account the exhibition
   situation and its requirements.

39 On the distinction between work/source and document, see the text by Gunther Reisinger in this
   volume.

the PNB was to mediate the new practice of cultural communication which the Internet facilitated, while at the same time preserving a critical stance. From 1994–98 the PNB provided a platform for workshops, presentations, and lectures exploring the phenomena of a new media culture. The PNB itself not only operated as an organizer but was also active as an ISP.[40] As a Viennese cultural provider it was soon able, because of cost-efficient "public access," to give a wide range of cultural and art projects and initiatives the opportunity to present themselves on the Net. New approaches in art and media-critical positions confronted each other, *in persona*, in symposia and workshops.[41]

The PNB sees its own presence in digital and public space as contesting consumption-oriented, power-structure-reproductive and surveillance-state structures. The PNB often refers to analogies between digital, public, and cultural space. In a number of public actions, PNB activists confronted issues concerning the interrelations of these areas. This mode of operation, between political and artistic action, is typical of the PNB.[42]

DISCOURSE: One of the design principles developed during the course of the research was the idea of a space within a space. The space within a space can be read as an implementation of the PNB's dual strategy of digital Net activism and public political appearance. Functionally, this design in the exhibition space can be used as an open space for actions integrated into the institutional space. The space will be flexibly adaptable; exhibition visitors will be able to see into and walk around it. Its partitions can be used

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40 Internet service provider.

41 See events 1994–98, http://www.netbase.org/t0/intro/eventlist.

42 See Clemens Apprich, "Auszeit in der Kampfzone—Ein Rückblick auf die urbanen und symbolischen Konflikt¬linien der Public Netbase," http://www.netbase.org/t0/intro/06.

for presenting documentary material on the actions or for historical repre-
sentations of the PNB.

This kind of open space integrated into the exhibition context will be used as a
platform for workshops, conferences etc.[43]

The New York and Viennese frameworks THE THING New York –www.
thing.net– and THE THING Vienna –www.thing.at– can be defined in the
terms "process-oriented platform," "provider," and "content provider."

TTNY was founded by artists in New York in 1991 to offer an independent
platform for discourse and the exchange of art world information using the
new medium of the Net in its early form. The idea of an art platform or
framework for the realization and presentation of projects was already at the
fore in the early days of TT International.[44] TTNY saw itself as representing
a critical counter-position to established production and mediation conditions.
The idea was, by means of an autonomous and independent infrastructure,
to facilitate discussion of an alternative conception of art and also to realize
it via Net technology. From the very beginning, even before the appearance
of the "Net art" label,[45] the significance of the new medium of the Internet
for art production was thematized and discussed, and early BBS experiments
conducted. Information exchange can be seen as a form of counter-public.

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[43] In collaboration with the World Information Institute –the successor organization to the public
netbase, the Ludwig Boltzmann Institute Media.Art.Research, and the Austrian Cultural Forum
New York, organized and held a conference on "Critical Strategies in Art and Media" September
10, 2009. See Documentation http://www.netpioneers.info.

[44] Rainer Ganahl, HILUS, Robert Adrian, Eva Wohlgemuth, Holger Friese, Eva Grubinger, Helene von
Oldenburg, Peter Halley, and others.

[45] Jordan Crandall, "Transactivism," BBS symposium in TTNY, November 1, 1993–February 14, 1994.

From the (mere) exchange of information, a social network emerged that soon extended beyond New York to Europe. TTNY was a model and example for the Net-linked mailboxes in Europe (Frankfurt, Düsseldorf, Berlin, Basel, Cologne, London, Stockholm, Hamburg, and Vienna). TTNY was the first BBS node to switch over to the WWW, and hence the first project to explore the changes in Net conditions and forms of production.

TTV is a Vienna-based Austrian association that promotes the culture, theory, research, and science of electronic media.[46] In contrast to PNB, TTV concentrated less on initiating a broad political discourse, seeing itself instead as a platform for the presentation or, with the support of THE THING team, realization of the works of a wide range of artists and art projects. From 1995–97, TTV hosted many projects (*HILUS*, *Netzbikini*, *unendlichfast*, to name a few) and became a regular feature on the Austrian art scene. Projects supported by TTV, such as *Blitzreview* and *E-Journal*, placed emphasis on the theoretical exploration of the field of new media culture and communication.

FRAMEWORK
The specific framework concept derives from the structure of TTV and TTNY, and especially from their own historiographical activities since 1998, in the form of the "TTV Archive" and old.thing.net. The basic design idea of the realized framework is that of an exploratory archive.

This idea will be realized in the exhibition space in a metaphorical installation as a "shelf unit." The shelf unit symbolizes the conservational and organizing functions of physical archives. With their search and reference systems, shelves are the basic unit of most archives, whether libraries or

46 See http://www.thing.at/portal/impressum/index.html.

other collections. The projects hosted will be presented in these special shelf units both alongside and equal to the framework itself to convey their deep connectivity. TTNY and TTV themselves are not identical with their hosted projects. The projects continue to exist independently today, at least in part, although usually under a different domain. To understand TTNY and TTV, it is necessary to understand their function as frameworks. To convey this in the exhibition context, the shelf units will feature interactive gestures that call on the exhibition visitor to access content and context himself. The shelf unit will thus facilitate different forms of contact with archive culture. It will be possible to open, pull out, or fold out compartments, to switch lighting on or off, to arrange artifacts on work surfaces that can be folded up or pulled out, to examine sources, and generally to gain an understanding of the historical development via documentary materials and / or the re-presentation of the reconstructed interfaces.

The shelf units will also display—insofar as they are available—subprojects, secondary materials such as books, posters, photos, journals, and structural diagrams alongside reconstructions of the individual TTV interface states, the accompanying LBI research texts, and video interviews.

The shelf unit aligns well with the museum requirements of conservation and mediation. It can be treated as a completely self-contained unit in the museum archiving context, possibly reusable in later exhibitions. The shelf unit gives form to the otherwise hard-to-grasp processual framework of TTNY and TTV. This particular form, adaptable to exhibition rooms and the museum, can thus bring content within the range of sensory experience thanks to diverse interactive possibilities.

Taken together, the various documentation materials, video monitors, books, hardware and software installations presented in the shelf units will illustrate the idea of THE THING as platform and framework.

The artist collective jodi.org has been working on the Internet since the beginning of 1994, and since 1995 under the domain jodi.org. In 1995, the collective achieved popularity with its Net art activity which extended beyond the very small Net artist community at the time. Its work can be understood as artistic reflection in search of a formal language with which to address the social changes occurring as a result of the Internet.

The exhibition "Net Pioneers 1.0" will show how two Net art activities from jodi.org developed over time as art from 1995–98. The two activities will also be re-presented as a documentation on the Net under a special subdomain of the jodi.org domain.

These activities are Net art in the "classical" sense—works that cannot function without the Net and are grounded as far as possible in the art system—so that they form exemplary objects by means of which to study the concept of Net art.

ARTWORK
A fitting work re-presentation and documentation will be undertaken in the exhibition under this rubric.

The original Net art activities can no longer be performed under the original domain because the artist collective jodi.org still actively uses the domain for current work. The subdomain wwwwwwwww.jodi.org can be understood as a showroom, photo, or archive of jodi's early Net art activity, con-

taining more or less snapshots of the then-current state.[47] It is not possible to re-present them in their original structure, for the overall context no longer exists. Yet a reconstruction that simultaneously accesses sources can convey the dynamic element of these works, their search for a form, and for artistic expression. This re-presentation of Net art activity no longer existing in original form is essentially a performative documentation, for the focus of re-presentation is on two select activities and their contextualizing documentation materials—no attempt is made to present a comprehensive reconstruction, reproduction, or simulation.

To give a critical and historical account of a Net art activity as Net art in its specific context, re-presentation as a combination of reconstruction (where simulation also plays a role) and reproduction under a special subdomain proves to be the optimal solution. Re-presentation in the exhibition context must make clear what is involved, and that the "original" historical context has been lost or cannot be fully reconstructed.

Reflections on the paradox of exhibiting a Net art activity as a work in real space are incorporated in the design. The historical devices with which Net art activities are performed will be fixed to the wall behind glass in the appropriate exhibition furniture alongside the accompanying documentation materials, each exhibit having its own space. The two Net art activities on display will be performed on two different output systems, and will be presented as physically distinct, independent works. The resulting "glass showcase effect" graphically conveys the self-containment of the work as it emerges in the real exhibition space. It also bears analogy to other presentational modes in the museum. Moreover, the vitrine staging of the historical

47 For instance %Statistic, HQX, %20AutomaticRainSystem, HAVOC, %Link, Goodtimes, SUSEME, %Location, and many others.

hardware on which the works were (and are, in the exhibition) performed has auratic value. The glass showcases will stand on supports so that exhibition visitors are reminded of a collector's art cabinets.

Discussion of the numerous pros and cons of the different design concepts led to the conclusion that a modular variant would best meet objectives. The individual modules can be viewed as exhibition furniture, usable independently of any particular spatial situation. Despite differences in content, the modularity creates an overall context, with the historical output devices generally exhibited behind glass and the documentation materials more "freely" accessible.

The opposition that has been described between a traditionally-understood original, a work, an auratic artifact, and the ephemeral and performative nature of Net art activity will be explicitly thematized in the proposed exhibition design and will be emphasized via an activity's particular mise-en-scène.

The exhibition situation should on the one hand provide a personal, private, intimate reception situation, and on the other (via documentation materials and comparative presentations), demonstrate the historical context in which the Net art activities first appeared. The different elements of the Net art activities will be combined into a unified whole with the aid of the exhibition modules described. In particular, the historical output devices, the effect of which comes close to the auratic, show the viewer what Net art activity conditions prevailed. But the user interfaces of the interpreting and producing software, and of the browsers, have also changed enormously, so that the aesthetic effect of the monitor events diverges radically from today's conventions.

Early Net art activity almost seismographically engaged with the political and social alterations brought about in society by the new technology, formulating positions and developing experimental procedures to critically analyze the changes—changes that have become, to a large extent, a visible part of our reality today. The artists also decided on a particular form in relation to their concepts to create a specific expression, excluding all other possible forms, and in this way contribute to shaping the symbolic world. This presentation of early Net art activity, and in particular the accompanying documentation, make visible the innovative achievements as well as the artistic and critical positions of these activities in relation to the new socially revolutionary medium of the Internet.[48]

48 See Christiane Haibach's analysis of McLuhan's position in *Literatur im Internet : Theorie und Praxis einer kooperativen Ästhetik* (Berlin: Verlag dissertation.de, 2000), 25: "Every medium causes fundamental changes in social structures and infiltrates human existence and coexistence right into the most private spheres. Thus, McLuhan concentrates … on the effect of the media and not their content, for it is the effect that modifies, or even revolutionizes, the economic, psychological, sociological, and political structure of societies."

Early net-based art (also known as Internet art, net art, net.art or webbased art) is presented in this book as evidence of a pivotal moment in digital culture. As document of a paradigm shift in media society in general, its importance goes far beyond art history. Yet the framework of art history alone can provide the basis for understanding the context, ideas, and concepts behind the works. They were created in response to a specific setting in the art world of the early 1990s. A historical view must therefore maintain this context, although the works are also significant in that they simultaneously testify to the development of the socio-technical media:

- Theory of the Avantgarde in the Age of the Internet
- Contextualisation of net-based Art
- Digital Source Criticism and Archive-Theory
- Methodological Analysis.

Contributions by Anna Bentkowska-Kafel, Dieter Daniels, Wolfgang Ernst, Verena Kuni, Barbara London, Christiane Paul, Gunther Reisinger, Marc Ries, Robert Sakrowski and Julian Stallabrass.

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