Introduction

Mizuko Ito

---Draft, January 2007---

Forthcoming in Kazys Varnelis Ed., *Networked Publics*

The era of digital media and networking is no longer in its infancy. The nineties were a pivotal decade in which we saw a decisive shift towards computer networking becoming a core player in communications and media content delivery. It was during this period that the dominant metaphors for information technology changed from computing and artificial intelligence towards networking and communication. It was also during this time that multimedia became a standard for personal computers. With the advent of graphical browsers, the establishment of consumer broadband Internet providers, and popular Internet adoption, computer networking expanded its reach beyond geek, research, and government communities to the broader public. Although the dot-com boom and bust of the late nineties absorbed public discourse surrounding the Internet, all through this period and beyond we have seen a steady march towards the Internet becoming the backbone for more and more of our everyday communications, commerce, and content delivery. At the same time, the mobile phone has become a much more ubiquitous technology that is now one of the most widely used portals to information technology. More recently, dynamic visual media such as videos and movies are also entering the Internet ecology, and increasingly sophisticated infrastructures for social exchange have heralded what some technologists are now calling Web 2.0.

These technological changes are tied to important changes in society and culture. We are beginning to see networked digital media become a taken-for-granted medium in everyday life. Although the nature of adoption varies widely by factors such as nation, region, class, and gender, an increasing number of people are domesticating networked digital media for their ongoing business, socialization, and cultural exchange. This is particularly true of the current generation of teens in post-industrial countries growing up with networked digital media as a fact of life. This may take the form of young people in Japan who use their multimedia mobile phone as their primary communications portal, in the Philippines where text messaging has revolutionized political mobilization, or in Korea where broadband Internet has enabled radically new forms of online sociality. Our focus in this book is on the context of the US, which is both an unusual and exemplary case. While the US has lagged behind other industrial countries along certain

dimensions such as the adoption of big broadband or mobile Internet, it continues to have a leadership role in the development of Internet standards, communications software, and related social practices, most recently those embedded within so-called "social software."

This introduction provides a preview and framework for the chapters to follow. After first introducing the background to this book and conceptual approach, I introduce themes that cut across the individual chapters by describing four key trends: accessibility to digital tools and networks, many-to-many and peer-to-peer forms of distribution, value at the edges, and aggregation of culture and information.

Our Framework

We use the term "networked publics" to reference a linked set of social, cultural, and technological developments that have accompanied the growing engagement with digitally networked media. Commercial media and one-to-many communications continue to cater to a wide arena of cultural life. What has changed, however are the ways in which subjects who we conventionally identify as audiences and consumers of media—are networked and mobilized. We use the term "publics" to foreground the how people are reactors and (re)makers in relation to media, engaging in shared culture and knowledge through discourse and social exchange as well as through acts of media "reception." With the advent of the multimedia Internet, publics can traffic in both professional and personal media in new forms of many-to-many communication that often route around commercial media distribution. Personal media and communications technologies such as telephony, email, text messaging and everyday photography and journaling are colliding with commercial and mass media such as television, film, and commercial music. This is what Henry Jenkins has described as "convergence culture, where old and new media intersect, where grassroots and corporate media collide, where the power of the media producer and the media consumer interact in unpredictable ways."[1] [1]This book describes the current state of networked publics at the layers of culture, infrastructure, politics, and place, examining historical context and speculating about an unfolding future.

---

[1]

Networked media ecologies are maturing and becoming more established in our everyday lives, but we are also still clearly in a moment of transition. We write this book not only to describe emergent developments in networked society, technology, and culture, but to also provide an accessible text to inform debate about our media future. Our method is interdisciplinary, syncretic, and collaborative. This book is a result of a year-long fellowship program at the Annenberg Center for Communication at the University of Southern California, where scholars from a wide variety of backgrounds and disciplines were convened to consider the present and future of networked society and culture. Along the way, we relied heavily on the technologies that we are researching as vehicles for developing a collective intelligence. These included different wikis, blogs, content management systems, and networked writing sites, as well as the usual toolkit of email, instant messaging, and face-to-face and telephone conversation. A collaborative writing project, this book has pushed each of us beyond our specific research projects to consider the relationships between our different areas of study, working to build conceptual linkages that outline the contours of contemporary networked society in broad terms. A survey of the spread of networked digital culture demands that we sample from areas and theoretical perspectives well beyond the comfort zone of an individual scholar. Despite the diversity of approaches that we take in this book, we share a collective commitment to an interdisciplinary understanding of sociotechnical change. The authors convened here come from engineering, architecture, critical studies, political science, communications, history, anthropology, and media arts. Working together has demanded that we recognize the importance of a wide variety of factors including behavioral, economic, cultural, political and technical ones.

When writing about new technologies it is tempting to focus on the technologies as the site of interest and the most decisive driver of change, but in this book we work actively against a technical determinist frame. One of the primary theoretical innovations of contemporary technology studies has been the recognition that technology does not stand apart as an external force that impacts society and culture. Rather, technologies are *embodiments* of social and cultural structures that in turn get taken up in new ways by existing social groups and cultural categories.[2] As Lawrence Lessig famously argues in the case of legal structures being embodied in technical architectures: "law is code."[3] Similarly, John Seely Brown and Paul Duguid have argued that information has a "social life" that structures its uptake and creation.[4] This stance is foundational to the interdisciplinary approach we take. The sociocultural is subject to technical analysis just as the technical is subject to social and cultural analysis. This stance also demands that our essays are not focused on specific new technologies, but

rather on longstanding social, cultural, technical, and material domains. The chapter topics—culture, place, infrastructure, and politics—are meant to locate contemporary technologies within broader historical trajectories.

This recognition of the social, culture, and material nature of information technology is not only a research commitment; it is also a sign of the technological times. As computers have moved from being standalone boxes that were "computing machines" or "models of the mind" to being networked devices for human communication, our popular understandings of computers have also changed. We look to the online world as a source of sociality and culture, and designers of new online systems recognize that they are engaged in social engineering as well as technical engineering. For many, computers and digital technologies have become intimate, indispensable, and pervasive in their lives. More recently, with the advent of portable networked technologies such as the mobile phone and RFID (Radio Frequency Identification), as well as location based networked systems, we are also being forced to recognize information systems' relation to the materiality of diverse objects and places. In other words, the interdisciplinary approach that we take in this book is one that is tuned to the current moment in networked culture and society, a moment when we are actively grappling with the massive convergence of society, culture, places, and things via the medium of the Internet.

Our review of networked society and culture is certainly not comprehensive. We do not, for the most part, delve into the details of particular technologies, platforms, or online sites. The reader should not expect coverage of many of the developments in online systems that have been most visible in public discourse, whether that is multiplayer online games. eBay, blogs, MySpace, or YouTube. Our intention is not to rehash ground that has been well trodden by the popular media as well as a growing body of scholarly case studies. Instead, our effort is to read across these different developments to identify broader patterns and shifts in culture and society. We mobilize case studies that speak to these trends playing out over a longer haul, though they may not be the ones that are most visible or debated in public culture today. This book is also not intended as a theoretical text that proposes a new framework for understanding digital networks. Recent years have seen the publication of key texts that are defining the terms of debate in this area. We introduce what we believe to be key thinkers and concepts for understanding networked and convergent culture and society. Our goal is to bring these theoretical contributions into conversation with one another, and into relation with the wide range of content areas and examples that we have collectively researched. In this way, we have tailored this book to the strengths of a collective enterprise and collaborative writing process.

I now turn to an overview of some of the overarching themes that cut across the topics covered in the specific chapters. I cover these themes by outlining four key trends in the current move towards networked publics: the accessibility to digital production and networking tools, many-to-many and peer-to-peer forms of content distribution and publishing, value at the edges, and aggregation of information and culture.

Accessibility

The current growth of networked publics is grounded in the spread of digital technologies and networks. This includes the lowered costs of processing power and digital storage, the accessibility of various digital productions tools, as well more pervasive network infrastructures, particularly through mobile and wireless technologies. This is what Benkler characterizes as one of the central shifts towards a networked information economy: "the move to a communications environment built on cheap processors with high computation capabilities, interconnected in a pervasive network."[5] This distribution of processing power to larger masses of people is linked to the distribution of the means of cultural and information production. It has been a decade or so since access to the production of text based digital content through word processing, text messaging, and email has become relatively common in the US. More recently, home pages, blogs, and photo sharing sites have enabled multimedia production using a standard personal computer toolkit. Now the means to produce movies and video are also ready at hand as a standard package of personal computer functionality. Digital cameras, digital video cameras, and camera phones are inexpensive consumer technologies. Software such as iMovie and GarageBand is exemplary of this new ability to author rich digital media as part of everyday life. The chapter on culture describes the growth of amateur content and the cultural styles of remix and appropriation that have accompanied the growth of home-based digital media production. Similarly, the chapter on politics describes new modes of bottom-up political expression and mobilization that have been enabled when the means of digital production are close at hand.

In addition to the distribution of the means of cultural and knowledge production, networking infrastructures are becoming increasingly pervasive and varied. The intimate presence of the mobile phone in our everyday lives is probably the most emblematic shift in this relation of network accessibility. Users rely on handheld devices to maintain an always-on relation to information and personal networks, as well as utilizing them as ready-at-hand digital production devices for snapping photos and crafting text messages. In addition, we see the growing presence of Wi-Fi and other wireless Internet infrastructures, as well as experimental efforts in Internet-connected automobiles and location based networking services. The

chapter on place describes how pervasive digital networks are reconfiguring our relation to place by enabling simultaneous presence in both physical and networked place. This layer of networked accessibility is tied to a range of social and cultural tensions, as drivers are distracted by their mobile phones and screens, massively multiplayer online games capture players' attention at the expense of out of game commitments, or people congregate in cafes only to huddle in front of their laptops. We are still very much in the midst of negotiating appropriate social norms in this era of layered presence.

The issue of pervasive networked connectivity involves the politics of objects and infrastructure as well as interpersonal social negotiations. The chapter on place describes how locations and objects are becoming part of networked publics through technologies such as Geographic Information Systems (GIS) and RFID. As these new systems are deployed to map the traffic in objects and the characteristics of places, we should expect to see a new set of social controversies about privacy and the invasiveness of digital networks. The chapter on infrastructure also sounds a cautionary note, warning us not to assume that networking infrastructures are always deployed in even and equitable ways. Describing the policies and politics surrounding the deployment of "big broadband," this chapter describes the political and economic obstacles that stand in the way of cheap and accessible broadband in the US. The digital divide is resilient because the bar of technological sophistication continues to rise. Even as larger masses of people gain access to digital technologies and networks through mobile phones, big broadband and state-of-the-art personal computers remain out of reach of most.

Peer-to-Peer and Many-to-Many

Hand-in-hand with the growing accessibility of digital tools and networks have come new means and practices for distributing digital content. As the chapter on infrastructure notes, from its inception, the Internet has relied on an open end-to-end architecture that has prioritized the free flow of content from the "ends" rather than being selective about types of content or where it traveled. As the Internet has scaled up, and as networking applications have become more sophisticated, this end-to-end architecture has helped support cultures of *peer-to-peer* (P2P) media distribution and *many-to-many* (M2M) forms of communication.

Until recently, we have shared media and knowledge through ongoing talk and dialog and the copying and physical distribution of objects such as paper, tapes, and more recently CDs and DVDs. On one end of the spectrum, large scale media distribution was controlled by commercial industries and their one-to-many

infrastructure of broadcast and commodity distribution. On the other end, personal communication was dominated by one-on-one or small group talk through modalities such as physical gatherings and telephone conversation. With the advent of P2P online sharing systems such as Napster, Kazaa, and BitTorrent, combined with increasingly sophisticated social network tools such as Web bulletin boards, podcast systems, blogs, journal sites, and social network services, the opportunities for sharing media directly to other media "consumers" has radically expanded. The spectrum between commercial media sharing and personal media sharing is now populated by a more diverse set of social practices and media types. Now, for example, even strangers can share files through P2P systems or people can develop new relationships through special interest forum and blog communities. With sites such as eBay, Amazon Marketplace, and Yahoo Auctions, tangible objects also flow through P2P networks, spurring new forms of micro enterprises built on secondary market exchange.

Yochai Benkler sees these decentralized networks of communication and exchange as key to the shift to a networked information economy that is displacing the industrial information economy. "decentralized individual action—specifically, new and important cooperative and coordinated action carried out through radically distributed, nonmarket mechanisms that do not depend on proprietary strategies—plays a much greater role."[6] The lowered barriers to the means of distribution have meant that the reach of nonmarket sharing of knowledge and culture has expanded dramatically. In the early days of the Internet, Howard Rheingold described a culture of "virtual community," characterized by supportive interpersonal interaction.[7] This culture of community-based sharing is still very much alive in many corners of the Internet, in Live Journal communities, in online game guilds, MySpace networks, mailing lists, and Yahoo groups. But these interpersonal networks have been radically augmented by sharing between relative strangers mediated by new sociotechnical systems. People provide content free and anonymously to others via P2P systems such as BitTorrent or Kazaa. One-time visitors scatter comments on blogs, and anonymous others browse personal photos on sites such as Text America and Flickr. Social network and reputation systems on eBay and Amazon Marketplace, Technorati link tracking for blogs, and commenter "karma" on sites like Slashdot help us navigate and prioritize the now massive marketplace for P2P exchange.

P2P networks have different dynamics in the spread of information, tending towards more viral word-of-mouth circulation rather than top down dissemination. This has been exploited by a wide range of players, including activists packaging political messages in catchy political videos, as well as marketers who use these same techniques in viral advertising campaigns. Now social network sites are used by bands and filmmakers as promotional sites to

generate buzz through P2P networks. SMS zapped from friend to friend has proven to be a potent tool for organizing spontaneous political protests as well as more playful gatherings of flashmobbers. Technologists are also exploring the potential to use these P2P dynamics to design wireless mesh networks that rely on relaying network traffic between individual users rather than a centrally managed network. These viral models are described respectively in the chapters on politics, place, culture, and infrastructure.

The growth of P2P traffic in commercial content has led to a wide range of opportunities as well as new social problems. The most high profile battles have been with respect to P2P exchange of commercial works such as music, television, and movies. Culture industries are struggling to regulate and monetize the traffic of their content over P2P networks. This has led to high stakes battles over IP policy and digital rights management technologies.[8] Some of these dynamics are described in the chapter on networked public culture. The underlying issue is the tension between openness and control in the flow of culture and information. In an end-to-end environment, people also begin to see value in filtering, regulating, and prioritizing the flow of content. This is a tension that is currently manifesting in the debate over network neutrality, as described in the infrastructure chapter. Commercial content providers are beginning to explore alliances with Internet service providers to filter network traffic in order to prioritize commercial content delivery of P2P traffic. A similar tension is at work in the domain of politics. While the Internet has spurred a rise in online political discourse, it has been difficult to channel these conversations in ways that conform to the norms of productive political deliberation. The chapter on politics describes this struggle of political activists and theorists to foster political deliberation.

Value at the Edges

In their discussion of business strategy in an era if globalization, John Hagel and John Seely Brown suggest that we should increasingly look to the edges—the edges of companies, markets, geographies, and demographics—to find innovation. They look to the end-to-end architecture of the Internet as both an enabler and a metaphor for value creation at the edges.[9] The current growth of activism at the ends of the network and media ecology has implications for a wide range of social, cultural, and economic domains. For example, in politics, the Internet has led to a growing visibility of smaller edge political actors that can make their voices heard in political blogs, make small campaign contributions, coordinate via viral SMS exchange, or mobilize through networked activist groups. In a similar vein, the chapter on networked public culture focuses on the changing relationship between media producers and consumers, describing the

cases of the industries for music, anime, advertising, and news. The growing activism of media audiences in what Jenkins has called a "participatory media culture"[10] reverberates back to media industries, reconfiguring the relationship between the edge and the core, The result is new configurations of media markets characterized by proliferating special interest groups that dwarf what was previously considered the mainstream. Chris Anderson has described this changing market for media products as the "long tail," where sellers are making more off large numbers of niche products rather than a small number of megahits.[11]

With an expanded network, individuals are able to reach out to a potentially larger and more varied pool of culture and information. While debates on globalization in the heyday of mass media suggested that interconnection would lead to the homogenization of culture, in the Internet era, the opposite appears to be more the case. What we are seeing now is a proliferation of niches. We see this in subcultures such as English-language fandoms of Japanese animation, a case described in the culture chapter. Now teens in the US can gain access to niche Japan-origin media that they would never have been able to get their hands on even a decade ago. In the blogosphere, this tendency has been criticized as creating an "echo chamber," where bloggers and audiences are connecting with greater frequency and fidelity with people who share their opinions, relying less on the standards of neutrality espoused by the mainstream press. At a lower level of granularity, we also see this in the "telecocoons"[12] described in the chapter on place. Mobile phones, Wi-Fi hotspots, and networked automobiles create personal cocoons of private connectivity and conversation so people can stay connected with the people they feel most comfortable with.

This tendency towards niches, peer cultures, and special interest groups has been widely criticized as leading towards a fragmentation in common culture and standards of knowledge. This critique has been particularly noticeable in the case of news, where professional journalists worry about the breakdown of civic culture and journalistic standards as people turn to the blogosphere for news and opinion. Similarly, deliberative democrats worry that online political discourse is just chatter, and is rarely elevated to the level of true deliberation that can have political clout. With infrastructure policy, this concern manifests in the griping of network providers who bear the expense of wiring the communications backbone. These providers feel that they are providing services for the edges without being able to recoup revenue back to the core. Commercial content providers have a similar complaint, where they feel they are providing investment and value into cultural resources that get exploited by the edges without revenue back to the industry. Commercial content and network infrastructure providers are joining hands to lobby for the rights of the core to regulate and capitalize on the value

being trafficked at the edges through digital rights management schemes and filtering and by prioritizing of network traffic.

Aggregation

As networks expand, the dynamic tension between the broader network and individualized niches becomes more pronounced. This is a dynamic that Manuel Castells has famously dubbed the relation between the network and the self.[13] The growth of value at the edges is linked to the *aggregation* of a growing range of media content through the Internet and various mechanisms of search and filtering. As the Internet has evolved from a medium for the exchange of text, to now pictures, sounds, moving pictures, and 3D worlds, the scope of our culture and knowledge that is available for digital aggregation and access has expanded dramatically. We not only exchange text and pictures to family and friends, but also links to video and other rich media. Search companies like Google and Yahoo are busily constructing new systems to aggregate and filter video, particularly after YouTube entered the public eye. Game systems like Second Life are putting forth 3D online worlds as a general purpose interface to knowledge, culture, and sociability, hoping to renew the hope for a 3D metaverse ignited by Cyberpunk authors such as William Gibson and Neal Stephenson.[14] Further, as described in the chapter on place, the embedding of networks in location, and the possibility of an "Internet of things" is also on the horizon. Objects and places are the next targest for aggregation into the digital network. As networks increasingly pervade the nooks and crannies of physical space through portable objects and place-based infrastructure, we now have opportunities for an always-on sense of networked connectivity, and a layering of presence in various physical and online places.

The effects of this large-scale aggregation of knowledge and culture are varied and often contradictory. Scholars such as Jenkins and Benkler note more powerful and distributed collective intelligences that are enabled by new networking systems. Benkler describes a wide range of cases such as Wikipedia and SETI@home as instances of what he calls "commons-based peer production": "radically decentralized, collaborative, and nonproprietary; based on sharing resources and outputs among widely distributed, loosely connected individuals who cooperate with each other without relying on either market signals or managerial commands."[15] Jenkins suggests that "consumption has become a collective process"[16] and describes examples of highly mobilized fan and gaming groups who develop vast stores of collective knowledge about their hobbies. Political groups such as MoveOn.org suggest a new model of leveraging network aggregation for political mobilization.

This aggregation effect in the nonmarket sector also, however, has a counterpart in the commercial sector. Anderson's analysis of the long tail describes the proliferation of niches as tied to the business success of network-based content aggregator sites such as amazon.com or Rhapsody.[17] Niches feed the aggregators and vice versa. The advent of sophisticated recommendation and reputation systems also feeds into the tendency to rely on aggregator sites for a channel to niche interests and products. While network participants may not rely on centralized sources of knowledge such as mainstream news sites or information portal sites, they increasingly turn to search engines and aggregated service sites. The presence of Google as new information industry behemoth is testament to the power of aggregation services at this current moment in network society.

Network aggregation is taking new forms as objects and locations become integrated into digital networks. The chapter on place describes current speculation about the "Internet of things," that is emerging as objects begin to transmit and receive information through networks. The incorporation of geographic information systems into our everyday lives is well under way with the advent of services such as Google Earth and MapQuest. Now aggregated geodata is accessible to corporations and individuals, leading to companies such as Claritas.com that maps the relation between places and lifestyle demographics, or zillow.com where you can do an Internet fly-over of neighborhoods mapped to property values. These systems highlight the ways in which aggregation often crosses certain boundaries of privacy which are likely to become more pronounced if objects are also transmitting information to the network. Bloggers, Web cams, and camera phones now upload a steady stream of information to the Internet, information that can be easily searched, tagged, and reblogged. Already, we are seeing a series of moral panics surrounding privacy and accessibility to personal information on sites such as MySpace or Facebook, a louder echo of earlier social problems when search engines first began crawling Net newsgroups and mailing list archives.

With this we return full circle to the issue of accessibility and ubiquity of the network with which I opened my review of the thematics of this book. The four themes I have outlined—accessibility, P2P and M2M distribution, value at the edges, and aggregation—are threads woven throughout the chapters to follow. The chapters to follow address these technosocial trends in more depth, within specific domains and case studies. Collectively, the essays trace the contours of an emergent set of networked publics, describing their historical evolution, and suggesting the current controversies that are likely to shape their future.

1. Henry Jenkins, *Convergence Culture: Where Old and New Media Collide* (New York: New York University Press, 2006), 2.

2. Paul Edwards, "From "Impact" to Social Process: Computers in Society and Culture," in *Handbook of Science and Technology Studies*, ed. Shelia Jasanoff, et al. (London: Sage, 1995); Christine Hine, *Virtual Ethnography* (London: Sage, 2000); Trevor F. Pinch and Wiebe E. Bijker, "The Social Construction of Facts and Artifacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other," in *The Social Construction of Technological Systems*, ed. Wiebe E. Bijker, Thomas P. Hughes, and Trevor Pinch (Cambridge, MA: The MIT Press, 1987).

3. Lawrence Lessig, *Code and Other Laws of Cyberspace* (New York: Basic Books, 1999).

4. John Seely Brown and Paul Duguid, *The Social Life of Information* (Boston: Harvard Business School Press, 2002).

5. Yochai Benkler, *The Wealth of Networks: How Social Production Transforms Markets and Freedom* (New Haven: Yale University Press, 2006), 3.

6. Ibid.

7. Howard Rheingold, *The Virtual Community: Homesteading on the Electronic Frontier* (New York: Addison Wesley, 1993).

8. See Lawrence Lessig, *Free Culture: How Big Media Uses Technology and the Law to Lock Down Culture and Control Creativity* (New York: Penguin, 2004).

9. John Hagel and John Seely Brown, *The Only Sustainable Edge: Why Business Strategy Depends on Productive Friction and Dynamic Specialization* (Cambridge: Harvard Business School Press, 2005).

10. Henry Jenkins, *Textual Poachers: Television Fans and Participatory Culture* (New York: Routledge, 1992); Jenkins, *Convergence Culture*.

11. Chris Anderson, <u>The Long Tail: Why the Future of Business Is Selling Less of More</u> (New York: Hyperion, 2006).

12. Ichiyo Habuchi, "Accelerating Reflexivity," in *Personal, Portable,*

Pedestrian: Mobile Phones in Japanese Life, ed. Mizuko Ito, Daisuke Okabe, and Misa Matsuda (Cambridge, MA: MIT Press, 2005).

13. Manuel Castells, *The Rise of the Network Society* (Cambridge, MA: Blackwell, 1996).

14. William Gibson, *Neuromancer* (London: Victor Golancz, 1985); Neal Stephenson, *Snow Crash* (New York: Bantam Books, 1992).

15. Benkler, *The Wealth of Networks*, 60.

16 Jenkins, *Convergence Culture*, 4.

17 Anderson, *The Long Tail*.