Introduction
The Computational Turn and the Digital Network

Raphael Foshay

The realm of the “digital” is a variegated, rapidly unfolding, and experientially encompassing phenomenon, directly and indirectly reshaping many aspects of our global, national, and individual lifeworlds. The media of communication that are informed by digital code are multifarious, extending well beyond the reach and limitations of traditional analog reproduction: digital code enables new kinds and levels of communication across media platforms, from television to computers and mobile devices, combining text and audiovisual content with the interactivity made possible by the fusion of computerization with the Internet, the World Wide Web. While being enabled and engendered by the electronic platform of the computer, computerization itself synergizes with the Internet to create a totalizing virtual environment of connectivity—a domain that at an early stage of its emergence was termed cyberspace—within which we all now conduct daily life, whether as nations or corporations, institutions or interest groups, communities or private citizens. So habituated have we now become to this sphere of interactive connectivity that the term “cyberspace” itself has become quaint and disused. In its current iteration as Web 2.0 it surpasses an earlier, content-delivery model of the web now seen as transitional between television and the Internet’s highly interactive and multimedia environment: what “cyberspace” denoted has so thoroughly become the air we breathe that it would now be impossible, not only on a practical level, to return to an existence deprived of
the web and cellular networks, it would be unimaginable on almost any grounds that one could consider: social, political, economic, scientific, educational, communicational, military . . . the list goes on. Further, the communicational domains of the digital network are not only public but also private, increasingly woven into both our livelihoods and personal lives, ubiquitously present or proximate, and engaging us in all aspects of our daily interactions with one another, with institutions, and, indeed, in concert with the Global Positioning System (GPS), with our physical and social environs. Our lifeworld has become digital, networked, and connected, and yet it has been a mere twenty-five years since Tim Berners-Lee invented the World Wide Web.

Writing in 1964, and observing the meteoric rise of television in particular, Marshall McLuhan anticipated the encompassing nature of media change:

In a culture like ours, long accustomed to splitting and dividing all things as a means of control, it is sometimes a bit of a shock to be reminded that, in operational and practical fact, the medium is the message. This is merely to say that the personal and social consequences of any medium—that is, of any extension of ourselves—result from the new scale that is introduced into our affairs by each extension of ourselves, or by any new technology. (1964: 9; my emphasis)

As an intellectual historian, McLuhan investigated the historical context of analog electronic media and its impact on twentieth-century society. He first situated electronic media in relation to the regime of print, and before that of alphabetic writing itself. In the concluding pages of The Gutenberg Galaxy: The Making of Typographic Man (1962), McLuhan points to the profound impact of any major change in media regimes, like the printing press and, in his own lifetime, electronic media platforms such as radio, telephone, and television.

But it has been the business of The Gutenberg Galaxy to examine only the mechanical technology emergent from our alphabet and the printing press. What will be the new configurations of mechanisms and of literacy as these older forms of perception and judgement are interpenetrated by the new electric age? The new electric galaxy of events has already moved deeply into the Gutenberg galaxy. Even without collision, such co-existence of technologies and awareness brings trauma and tension to every living person. Our most ordinary and conventional attitudes seem suddenly twisted into gargoyles and grotesques. Familiar institutions and associations seem at times menacing and malignant.
These multiple transformations, which are the normal consequence of introducing new media into any society whatever, need special study. (278–79; my emphasis)

It is such special study that the present volume brings to the current stage of the advance of digital media. The totalizing scope of the combined effects of computerization and the worldwide digital network have gathered us all up in what the philosopher and media theorist Bernard Stiegler has described as the tsunami-like quality of the digital revolution, an inundation that carries with it the traumas, or at the very least the tensions, that McLuhan acknowledges, threatening to sweep away the moorings of cultural forms and practices that have shaped the very institutions that enabled—were the conditions of possibility for—the sea-change of digitalization, and disrupting the sense of context and continuity that compose the very ingredients of the notion of lifeworld (Husserl, 1970: 127–29). As Bernard Stiegler observes:

The growth of digitalisation since 1992 has brought with it a genuine chain reaction that has transformed social life at its most public level, and the life of the psychic individual at its most intimate level. [Nicholas Carr’s 2012 book *The Shallows: What the Internet Is Doing to Our Brains*] bears witness to the immense distress that has accompanied this meteoric rise—which increasingly seems to resemble a tsunami—and that has, by his own account, significantly disrupted the mental capacities of Nicholas Carr himself. And this tsunami threatens to wipe out all the inherited structures of civilisation on every continent, which may in turn produce immense disillusionment and tremendous disaffection. (2012a: 30)

Despite such an ominous warning, however, Stiegler is far from a digital dystopian. Rather, he rings for digital technology the kind of cautionary but affirmative bell that McLuhan rang in the previous generation in relation to analog electronic media technology. In a recent (2012) strongly argued position paper, citing Kant’s clarion essay “An Answer to the Question: What Is Enlightenment?” (1784), Stiegler calls for a reconstitution of the Enlightenment project for the digital age, attending to the blind spots and contradictions that have haunted the project of modernity, the dark sides of modernity explored, for instance, in Horkheimer and Adorno’s *Dialectic of Enlightenment* (conceived as it was in 1944 by two exiled Jewish thinkers in the shadow of Nazism). Endorsing recent efforts by Tim Berners-Lee and Harry Halpin under the rubric of philosophical
Stiegler argues for new efforts toward foundational enquiry into the implications of digitalization:

The new philosophy that must arise from the worldwide experience of the web, and more generally of the digital, across all cultures, an experience that is in this sense universal—this new philosophy, these new Enlightenments, cannot merely be that of digital lights: it must be a philosophy . . . of the shadows that inevitably accompany all light. (2012a: 31)

Indeed, Stiegler sees digital culture as the only route out of the neoliberal economism and consumerism that have increasingly subsumed, with such disturbing social and political consequences, the Enlightenment values of universal equality and dignity at the heart of the revolutionary project of modernity. As Stiegler emphasizes:

There are many ways in which digitalisation clearly holds promise, and socialising digitalisation in a reasoned and resolute way is (I am convinced of this) absolutely imperative if the world is to escape from the impasse in which the obsolete consumerist industrial model finds itself. But if this is the case, then this socialisation in turn requires the creation and negotiation of a new legal framework that itself presupposes the formation of new “Enlightenments.” (2012a: 30)

It is of compelling importance that as students and subjects of digitalization we bring to the social, institutional, and environmental challenges of technological change an understanding of the scope and structural character of the transformations we are undergoing. The essays in this volume respond to the demands of theoretical understanding, cultural change, and political analysis as we enter on the third decade of the convergence of digital technologies in multimedia computing and the World Wide Web. The “nexus” of converging technologies, along with the cascading changes caused by networked connectivity in every sphere of civic, commercial, and private life, call for concerted analysis. In this introduction to the articles that follow, I will point to the thematic concerns that have shaped the approach taken in this volume to questions of identity, agency, and the digital nexus. The title of the volume refers to concerns both subjective and objective: questions of identity, with regard both to the converging nature of digital technologies and to their impact on personal
experience and social life; questions relating to the (often perplexingly novel kinds of) agency of the already ubiquitous and rapidly evolving digital realm. Questions are also entailed concerning our abilities to actively engage with, use, and direct the power of the digital network for good and its potential destructiveness for core institutions and traditions. There are questions as well surrounding an accurate grasp of the World Wide Web, and the challenges that ubiquitous connectivity undoubtedly delivers to public and private life.

Before introducing the essays themselves, under their three general categories of theory, culture, and politics, I will provide some context for why “identity” and “agency” were chosen as predominant concerns in relation to digitalization. First, however, I will begin with an overview of the theoretical mapping of digitalization achieved in the work of the already quoted Bernard Stiegler, arguably the most comprehensive philosopher of media technology currently writing (see Stiegler 1994, 1996, 2001, and 2013). Stiegler locates digitalization within the overall historical evolution of language as the process of “grammatization.” Grammatization Stiegler defines, after the historical linguist Sylvain Auroux (1992), as “the history of the exteriorization of memory in all its forms: nervous and cerebral memory, first linguistic, then auditory and visual, bodily and muscular memory, biogenetic memory” (2010: 71). Alphabetic writing is the principal example of such a strategic parsing of experience. As John Tinnell explains: “Alphabetic writing, for example, breaks down the flux of speech into a finite system of recognizable characters that are, on the one hand, iterable and modular, and on the other hand, capable of orthographic stability” (Tinnell, 2012). For Stiegler, human beings are from the beginning identified by their systematic and evolving invention and use of tools; in Stiegler’s lapidary formulation, “anthropogenesis is a technogenesis” (2012b: 15). It is the range and extent of their technical inventiveness that allow humans to emerge as a distinctive species, and it is grammatization and language in particular that are the key vehicles of human self-invention and construction of the complex apparatus of physical, ideational, and imaginal culture. Stiegler explains: “In sum, each epoch of psychosocial individuation configures itself by means of its own form of discretization [or grammatization]. This process of self-configuration is borne out by the epochs we have considered: those of the lithic tool, the transition to ideogrammatic writing, the alphabet, and digitization” (2010: 70). In other words,
Stiegler positions digitization not merely as successive to the era of mechanical print, but as a chapter of writing within the overall evolutionary structure of human grammatization. Digitization is an epochal shift in the technical self-configuration of human beings because it is a major transformation in the regime of grammatization as writing:

The digital technical system constitutes a global and contributory publication and editorialization system that radically transforms the “public thing,” given that the res publica, presupposes a form of publicity, of “publicity”—what the Aufklärung called the Öffentlichkeit [public sphere]—sustained by publication processes. (2012a: 32)

Digital writing, especially in the stage of Web 2.0 and the advent of social media interactivity, is fundamentally distinct from the audiovisual technologies that directly precede it, since, in concert with print-era writing, it restores agency to users, enabling active and interactive capacities, in contrast to what with radio, television, and film was a one-way disposition of passive consumption.

Central to the function of technics in human evolution, for Stiegler, is their role as a means to support, record, retain, and extend memory, both individual and collective. In other words, the most important role of technical inventions for human evolution has been as hypomnemata, external means to record experience as aids to memory and means to inscribe, undertake reflection, discover narrative patterns, and accumulate organized thought, understanding, and bodies of law and knowledge. As Mark B. N. Hansen explains, Stiegler sees digital multimedia as “a new ecology of associated hypomnesic milieus” that will inaugurate “a new conjugation of technics and memory”:

By renewing the possibility for self-expression, and hence for self-exteriorization, today’s digital hypomnemata restore the positive dimension to our coevolution with technics . . . furnishing artificial supports for individual (and collective) memories that exist within and are nourished by a larger memnotechnological milieu—the system of the Internet. (2010: 65)

Such a utopian and epochal valuation of the importance of digitization contrasts with the darkly prophetic warnings cited earlier regarding the trauma associated with structural changes in media environments. Stiegler is strongly aware of the contrast of light and shadow in the undertaking of human civilization. Since the inception of the philosophical tradition, writing, as a technical
hypomnema, has been viewed as at worst a dangerous and at best an ambiguous phenomenon. In the *Phaedrus*, in particular, Plato has Socrates contrast hypomnemesis, an external recording, with anamnesis, an internal primordial remembering that is the preferred goal of disciplined philosophical inquiry. Writing, as with other forms of representation or *mimēsis*, is twice removed for Plato’s Socrates from the sources of true knowledge, residing, unlike those unchangeable sources, within the variable coordinates of everyday space-time experience and human craft. In contrast to the Socratic method of the *elenchus*, of dialogical inquiry, writing, as a mere technique, is unable in Socrates’ view to interact with its reader:

> When it has once been written down, every discourse roams about everywhere, reaching indiscriminately those with understanding no less than those who have no business with it, and it doesn’t know to whom it should speak and to whom it should not. And when it is faulted and attacked unfairly, it always needs its father’s support; alone it can neither defend itself nor come to its own support. (Plato, *Phaedrus*: 275d-e)

For Plato’s Socrates, then, writing is a dangerous tool, functioning with the potentially dangerous healing or poisoning effects of a medicinal *pharmakon* (medicine, drug, remedy), substances that must be used with knowledge and understanding because of their power both to heal and to poison. As Derrida argues in “Plato’s Pharmacy” (1981: 103), writing is essentially anarchic, ambivalent, and uncircumscribed by the restraining oppositions and hierarchies of logocentric reason.

Likewise, Stiegler is actively concerned about the darker side of the digital milieu. In its exteriorizing of memory and knowledge retention, it has a capacity to shortcircuit deliberative consciousness and collapse the learning process that has been developed over centuries of print culture. He grounds what he explicitly categorizes as these “pharmacological” concerns, both in recent work in the neurophysiology of reading and in the phenomenological tradition of Edmund Husserl. Husserl articulated three stages by which we interact with and retain experience in memory. Primary experience or perception is a form of retention in that we consciously register this experience in the midst of undergoing and internalizing what is happening around us, to us, and within our responses to those occurrences. Secondary retention is our recollection of the primary experience after the fact; it is retention in the form of memory. Tertiary retention is the phase of exteriorization of memory through grammatization, a
turning of the temporal memory (with its manifold of sensory, emotional, and intentional responses) into a spatialized expression through language and/or some other material medium of expression:

This mental reality [the secondary retention of memory] can thus be projected onto a support that is neither cerebral nor psychic but rather technical. The web grants access to such a space, through which shared, digital tertiary retentions are projected and introjected, constituting as such a new public, global, and contributory space, functioning at the speed of light. What light and what shadow, what Enlightenment and what Darkness, can and must this bring us? (2012a: 34)

At this stage of his argument, Stiegler invokes several categories of the recently rediscovered philosopher of technology, Gilbert Simondon (1924–1989), in particular those of individuation and transindividuation. These terms differentiate the stages of individual and social tertiary retention, the discrete phases in which individual self-understanding is formed through reflection on the secondary retentions of memory (and sometimes the tertiary retentions of writing or other exteriorizing expressions of that reflective process). Transindividuation is the phase in which social groups, communities, and institutions are formed on the bases of shared needs for cooperation, organization, and action around secondary reflection on experience, a stage that depends increasingly—as complexity in larger social units necessarily multiplies—on tertiary retentions, with their many “pharmacological” capacities of healing and poison.

With the advent of systematic practices of tertiary retention, however, serious changes occur in the way human beings perceive and conceive the secondary retentions of memory. Invoking recent progress in the neurophysiology of reading, for instance, in the work of Maryanne Wolf, Stiegler observes that “the brain is literally written by the socio-technical organs, and where our own brains, which she calls ‘reading brains,’ were once written by alphabetical writing, but are now written by digital writing” (2012a: 35). Quoting Wolf directly, to the effect that human beings “were never born to read” (Wolf, 2007: 3), Stiegler emphasizes that writing, an invention after all only a few thousand years in application, has restructured our brains, changing the way we are able to think, and so altering our intellectual evolution. In light of the further move to reading in digital environments, Wolf remarks: “We make the transition from a reading brain to an increasingly digital one” (2007: 12). Stiegler emphasizes that rewritting the brain can involve overwriting or outright replacement of patterns that
have taken centuries to refine and which constitute major achievements in our evolution and adaptation. As Walter Ong emphasizes, regarding the interaction of our levels of attention, once human beings have become literate they think differently than they did within the former context of oral culture. With their practices of exterior representations of thought and memory, tertiary levels of attention act on the way we construct our experience, how we perceive the world (primary retention), and how we work with our recollection and memory of experience (secondary retention):

A deeper understanding of pristine primary orality enables us better to understand the new world of writing, what it truly is, and what functionally literate human beings really are: beings whose thought processes do not grow out of simply natural powers but out of these powers as structured, directly or indirectly, by the technology of writing. Without writing the literate mind would not and could not think as it does . . . even when it is composing its thoughts in oral form. (1982: 77; quoted in Stiegler, 2012a: 37)

The implications of the reformulation of secondary by tertiary forms of retention is that major changes in tertiary retention change our ways of thinking (secondary retention) and even, in certain respects, our ways of perceiving (primary retention). If ways of thinking in secondary retentive memory involving recollection and structures of thought (narrative, schematic, analytic, and so on) are disrupted in the habituation to digital environments, key stages and elements of identity formation on which fundamental institutions of society rely may unravel, become short-circuited, leading to serious consequences. Both the fabrics of our social institutions as well as the psyches and personalities of the citizens on whom those institutions rely may be affected. For instance, with respect to Simondon’s aptly named function of individuation, in which persons differentiate themselves from their environments and articulate their experiences in communication with other human beings within increasingly complex social and material traditions, the longstanding medium of that process of individuation has been until recently that of print, with its characteristic patterns of expression and reception. The advent of global digital connectivity introduces substantively new patterns of sociality, of written expression. Consequently, tertiary influences on secondary patterns of individuation may change, and may alter how one works with primary perceptions of one’s environment. To some degree the shape and forms of primary perception itself may change (as,
for instance, we spend more and more of our waking hours engaged with various kinds of screens and less in interacting with persons, objects, and actual, rather than virtual, environments). The transindividual nature of social groups of all kinds assumes and in some cases imposes certain levels of individuation on the part of members, contributors, leaders, or simple participants. The act of reading in a mechanical print environment is an inherently individuating experience. In its typical form, it involves the focus of readers on the printed page in a manner that disengages them from social interaction, enabling solitary interaction with the text. This is a formative experience of everyone who comes of age and undergoes an education toward adult citizenship in a literate culture. To fundamentally change this mode of individuation, and to restructure the relationship between individuation and transindividual social formations, on the global scale that is enabled (and increasingly imposed) by the web and social networking, is to administer a pharmakon of unknown healing and/or baneful effects, of an entirely new and still-to-be understood type. Digitization is a human experiment, unprecedented in its globalized scope, in social and evolutionary transformation, and its results we can only anticipate as a substantive change in the configuration of personal and collective experience and of social, economic, and political practice.

Thus far, we have considered interior vectors of the impact of digitization and the increasingly ubiquitous connectivity of the web. Following the revelations of Edward Snowden in June of 2013, however, we know that as users of digital media and the Internet we are objects of official surveillance, subject to scrutiny of a hitherto unimaginable scale and degree of invasiveness. Snowden, a contract employee of the U.S. National Security Agency, in a series of stunning media disclosures in 2013, revealed that the NSA, in partnership with the so-called Five Eyes partners (the NSA-equivalent agencies in Australia, Canada, New Zealand, and Great Britain), had been conducting global surveillance of all Internet and phone activity, demanding and receiving direct access to private user accounts and phone records in Google, Yahoo, and Verizon, spying on both citizens and heads of state of friendly and unfriendly nations alike (including, for example, German Chancellor Angela Merkel). An NSA mission statement titled “Sigint Strategy 2012–2016” reveals that the NSA plans for continued expansion of surveillance activities, with the “stated goal to ‘dramatically increase mastery of the
global network’ and ‘acquire the capabilities to gather intelligence on anyone, anytime, anywhere’” (“Edward Snowden” 2014). While there is widespread public outrage in the media, the U.S. courts are currently divided on the legality and constitutionality of these NSA activities, with the likelihood that the matter will need to be decided in the Supreme Court. Snowden has become a fugitive, his U.S. passport revoked, currently in temporary asylum in Russia, a hero to those concerned at the unprecedented intrusion on personal autonomy and privacy he exposed, while he is pursued for prosecution and vilified by the security-minded public alarmed at the implications of the post-9/11 environment. That security agencies of leading developed nations would consider it within their rights to spy indiscriminately on citizens without restraint and in the absence of accountability goes counter to all reasonable expectations of privacy, threatening fundamental democratic rights, as well as the established understandings of the bounds of government oversight of citizen rights.

Science writer George Dyson draws the link between foreign military intelligence and domestic security: the United States now has the satellite-enabled ability, and policy, to execute drone strikes against potential foreign enemies. Dyson voices the disturbing question that follows from the Snowden revelations regarding the blanket surveillance of a country’s own citizens: “Why kill possibly dangerous individuals (and the inevitable innocent bystanders) when it will soon become technically irresistible to exterminate the dangerous ideas themselves?” (2013). With the level of detail and coverage of current data trails for every user of digital media, a new level of intrusion and predictive ability comes into play:

The ultimate goal of signals intelligence and analysis is to learn not only what is being said, and what is being done, but what is being thought. With the proliferation of search engines that directly track the links between individual human minds and the words, images, and ideas that both characterize and increasingly constitute their thoughts, this goal appears within reach at last. “But, how can the machine know what I think?” you ask. It does not need to know what you think—no more than one person ever really knows what another person thinks. A reasonable guess at what you are thinking is good enough. (Dyson, 2013)

Dyson identifies the problem with such kinds of statistically determined prediction. Citing mathematician David Hilbert’s 1936 elucidation of the Decision Problem, in which he demonstrates the impossibility of proving veracity in even
simple arithmetic propositions, Dyson draws the logical connection to the ability of firewalls to accurately filter security risks: “For any system complicated enough to include even simple arithmetic, no firewall that admits anything new can ever keep everything dangerous out.” The problem, he argues, is that panoptical scrutiny of this kind filters out and dampens positive as well as negative thought and potential action:

It will never be entirely possible to systematically distinguish truly dangerous ideas from good ones that appear suspicious, without trying them out. Any formal system that is granted (or assumes) the absolute power to protect itself against dangerous ideas will of necessity also be defensive against original and creative thoughts. And, for both human beings individually and for human society collectively, that will be our loss. This is the fatal flaw in the ideal of a security state. (Dyson, 2013)

In the sphere of everyday life and participation in the marketplace, the degree and kind of surveillance of our activities as online consumers is of an encompassing scale and uncanny granularity. Google and Facebook are financed by both the ad placement on their webpages and by the sale of the information they glean from their users. For instance, Google’s recent acquisition of “the startup company Behavio will soon give it the power to track your location 24 hours a day, as well as to predict where you will be and who will meet you there—hours, days, or even weeks into the future” (Epstein, 10, May 2013). Google has invested heavily in development of its online mapping function:

Today, Google’s map includes the streets of every nation on earth, and Street View has so far collected imagery in a quarter of those countries. The total number of regular users: A billion people, or about half of the Internet-connected population worldwide. Google Maps underlies a million different websites, making its map A.P.I. among the most-used such interfaces on the Internet. At this point Google Maps is essentially what Tim O’Reilly predicted the map would become: part of the information infrastructure, a resource more complete and in many respects more accurate than what governments have. (Fisher, 11 Dec. 2013)

Fully 20 percent of Google searches involve where-related questions, resulting in the appearance of its mapping function as part of the results. In an article entitled “Google’s Plan for Global Domination,” Adam Fisher observes: “The Internet land grab, . . . can be reduced to three key battles over three key conceptual territories.
What came first, conquered by Google’s superior search algorithms. Who was next, and Facebook was the victor. But where, arguably the biggest prize of all, has yet to be completely won” (2013). With mobile devices now on the person of an increasing proportion of the global population, and with wearable computing in active development, GPS positioning will soon make the physical whereabouts and movements of everyone on the grid readily and thoroughly trackable.

In Code: Version 2.0 (the second, much-revised edition of his Code and Other Laws of Cyberspace [1999]), Lawrence Lessig recalls the utopian and libertarian optimism of the early promoters of the World Wide Web in the 1990s:

The space [i.e., cyberspace] seemed to promise a kind of society that real space would never allow—freedom without anarchy, control without government, consensus without power. . . . The claim for cyberspace was not just that government would not regulate cyberspace—it was that government could not regulate cyberspace. Cyberspace was, by nature, unavoidably free. Governments could threaten, but behavior could not be controlled; laws could be passed, but they would have no real effect. There was no choice about what kind of government to install—none could reign. (2006: 2–3)

By 2005, the picture emerging regarding the relation of the Internet to regulatory agencies looked fundamentally different. As Siva Vaidhyanathan observes, “While once it seemed obvious and easy to declare the rise of a ‘network society’ in which individuals would realign themselves, empower themselves, and undermine traditional methods of social and cultural control, it seems clear that networked digital communication need not serve such liberating ends” (quoted in Lessig, 2006: 5).

By the time of current writing (early 2014), it is obvious that, given the security, regulatory, and commercial interests described above, we are looking at a significantly changed landscape of cyberspace in 2014 and the years to follow. Lessig’s argument in 1999 and again, with emphasis, in 2006 was that the Internet was not only regulable, it was subject to a control that, from its original, inherently flat, multinodal and distributed architecture (see Hui, 2010: 5–7), seemed not only unthinkable but inherently impossible. The march of bureaucratization in modernity, with its marvels and horrors of social rationalization, might have taught us otherwise (think healthcare systems and prolongation of average lifespans on the one hand, and implacable genocides on the other). Lessig’s arguments now call for organized resistance and pushback on the part of all those
who want to see realized the powerful potential for creative and constructive
good of a free, open, and responsible Internet:

Liberty in cyberspace will not come from the absence of the state.
Liberty there, as anywhere, will come from a state of a certain kind. We
build a world where freedom can flourish not by removing from society
any self-conscious control, but by setting it in a place where a particular
kind of self-conscious control survives. We build liberty as our founders
did, by setting society upon a certain constitution. (4)

Before turning to the essays themselves, the promised word of explanation
regarding the thematics of “identity” and “agency” in relation to what we have
termed the “nexus” of digital culture. Bernard Stiegler’s call for a renewal of the
project of Enlightenment in the context of the closely linked phenomena of
globalization and digitization is a salutary reminder both of the unfinished pro-
ject of modernity, of the darker sides of its nineteenth- and twentieth-century
technological and bureaucratic history, and of the closely imbricated challenges
and opportunities that accompany the pervasive impact of the newly emerging
digital epoch. The phrase “unfinished project of modernity” invokes a repre-
sentative work of analysis performed by Jürgen Habermas in his Philosophical
Discourse of Modernity (1987). In continuity with Horkheimer and Adorno’s
already mentioned Dialectic of Enlightenment (first published in 1947), Habermas
brings his Frankfurt School origins and what he terms his “late modern” (rather
than postmodern) intersubjective theoretical model of communicative action to
bear on analysis of late twentieth century debates surrounding postmodernity.
He argues that the announcement of “postmodernity” is premature; that the
project of modernity, rather, remains “unfinished.” Habermas takes as definitive
the understanding of Enlightenment values and principles articulated by Kant.
For instance, in his in manifesto-like essay of 1784, “An Answer to the Question:
What Is Enlightenment?” Kant declares the centrality of individual freedom,
dignity, and responsibility at the core of the project of modernity:

\textit{Enlightenment is mankind’s exit from its self-incurred immaturity.}
Immaturity is the inability to make use of one’s own understanding
without the guidance of another. \textit{Self-incurred} is this inability if its cause
lies not in the lack of understanding but rather in the lack of the resolu-
tion and the courage to use it without the guidance of another. \textit{Sapere}
Have the courage to use your *own* understanding! is thus the motto of the enlightenment. (Kant, 1784: 58)

Kant understands the principle of the free and individual exercise of the autonomy of the will to be grounded apodictically in the *a priori* of a categorical imperative. The dignity and, indeed, sublime identity of the enlightened individual resides in its self-authorizing agency, itself choosing the law to which the individual is to become subject. As Kant argues in *Groundwork of the Metaphysics of Morals*: “Autonomy of the will is the property of the will by which it is a law to itself (independently of any property of the objects of volition)” (Kant, 1785: 4:440).

Along with such an elevation of the individual to freedom from the authority of the traditions and institutions of the past, Habermas argues, comes also an uprooting of free individuality from the social and cultural soil of inherited worldviews, whether theological or metaphysical. Along with Hegel and much subsequent reception of Kant, Habermas observes that, while so emphatically asserting the role of freedom, Kant deepens and aggravates the characteristic dualism of modern thought explicit in the Cartesian opposition of subject and object (*res cogitans* and *res extensa*). Kant’s critical epistemology inures the knowing subject from the objective world of things-in-themselves. In his three great critiques he differentiates the knowledge realms of science, morality, and art—thought, action, and judgement—in ways that present difficulties for any understanding of identity and moral action in modernity, at both the personal and the social levels. Defining his own position with reference to Hegel’s critique of Kantian dualism and separation of realms of knowledge, action, and judgement, and in keeping with elements of Hegel’s own theory of recognition (which Habermas claims remain unexploited by Hegel), Habermas argues for the intersubjective and social, rather than the individual and *a priori*, construction of identity. Introducing a volume of essays addressing the reception of Habermas’s *The Philosophical Discourse of Modernity*, Maurizio Passerin D’Entrèves situates Habermas’s analysis of the postmodern critique of modernity:

Against the depiction of modernity as a spent epoch, as having exhausted the promises and projects of its philosophical mentors in the Enlightenment, Habermas set out to defend [in *The Philosophical Discourse of Modernity*] the unrealized normative potential of modernity. This defence is based on Habermas’s theory of modernity and communicative rationality presented in his earlier two-volume work,
The Theory of Communicative Action. In that work Habermas offered a systematic theory of societal and cultural modernization capable of explaining both the achievements and the pathologies of modernity. Crucial to that effort was the paradigm shift from the philosophy of consciousness to the philosophy of language, and from a subject-centred to a communicative conception of reason and rationality. (Passerin D’Entrèves, 1997: 1)

In his shift to an intersubjective model of communicative rationality, then, Habermas takes up a position, D’Entrèves argues, midway between Kantian and Hegelian philosophy of consciousness, rooted in the autonomy of individual self-determination, and postmodern argument for identity as mere social construction. Habermas understood the latter as a rhetorical rather than fully rational model of identity, as distinct from his own model of communicative action, governed by communicative reason rather than rhetorical persuasion.

One can argue, after revisionary modernists such as Habermas, for a differently grounded conception of intersubjective identity and agency. Or, after postmodernists such as Lyotard, Foucault, Derrida, and Žižek, one can seek consistency within modes of critical analysis of the inherent aporias in all attempts to objectively ground autonomous subjectivity and social practices. In either case the newly evolving digital virtualization and mediatization of twenty-first century social environments intensify the ongoing issues inherent in Enlightenment traditions of social self-understanding. Stiegler’s call for a reinvigoration of Enlightenment values attuned to the ambiguous pharmacological effects of digitalization recognizes the deepening challenges of modernity, along with its inextricable, intensifying involvement with technological transformation of the natural, social, and psychic environments of globalizing contemporary society.

As a result, the pharmacological bivalency of digitization is accompanied by polarities within questions of identity and agency inherent to the project of modernity, polarities that pre-exist digital technology, but which are deepened by its aggravation of the inherent subject/object dualism that haunts modern philosophical and scientific worldviews. On the one hand, as creators of digital technology, we actively shape our collective and personal identities through the creative and destructive powers of exponential technological transformation. On the other, the increasingly ubiquitous scope of our incursions into our natural and social environments is transforming human identity and relationships, within society and also between society and the manifestly disrupted natural
environment. In other words, *The Digital Nexus: Identity, Agency, and Political Engagement* refers both to questions of human identity and self-determination and also to the increasing force, energy, intelligence, and ingenuity of our technologically saturated human environment. Where in this book we have used the term “digital nexus” for the convergence of technologies and the technical infrastructures of media and Internet, technology writer Kevin Kelly has seen the necessity of creating a new term in order to signify the transformative nature of the technological sphere. In *What Technology Wants*, Kelly explains:

I dislike inventing words that no one else uses, but in this case all known alternatives fail to convey the required scope. So I’ve somewhat reluctantly coined a word to designate the greater, global, massively interconnected system of technology vibrating around us. I call it the technium. The technium extends beyond shiny hardware to include culture, art, social institutions, and intellectual creations of all types. It includes intangibles like software, law, and philosophical concepts. And most important, it includes the generative impulses of our inventions to encourage more tool making, more technology invention, and more self-enhancing connections. (2010: 11–12)

It is with the “computational turn” from industrial to information technology that Kelly sees a significant change in the scope and nature of our involvement with technology:

As we refined this stuff through generations of technological evolution, it lost much of its hardness. We began to see through technology’s disguise as material and began to see it primarily as action. While it inhabited a body, its heart was something softer. In 1949, John von Neumann, the brainy genius behind the first useful computer, realized what computers were teaching us about technology: “Technology will in the near and in the farther future increasingly turn from problems of intensity, substance, and energy, to problems of structure, organization, information, and control.” No longer a noun, technology was becoming a force—a vital spirit that throws us forward or pushes against us. Not a thing but a verb. (41)

The technological environment that we have created is thus increasingly creating us, gaining a momentum and a kind of agency that Kelly argues poses new questions. What Kelly calls the technium and, in this volume, we have referred to as the digital nexus is thus a new form of human action and
identity, one that redraws the boundaries between society and natural world and between human beings and their social environments. The “unfinished project of modernity” has been delivered—and delivers—an unanticipated turn of the screw of modernity.

The essays in this volume are presented according to their dominant concerns, under the categories of theory, culture, and politics. Dominant concerns are by no means exclusive ones: these organizing categories are useful when understood to be consciously implicative and interactive with one another. Given the strong emphasis in cultural theory in recent decades on political implications and arising problems, there are overt political concerns, for example, among the essays in Section Two, “Digital Culture,” though they focus primarily on cultural commentary and analysis. The areas of concern stated in the title of the collection, *The Digital Nexus: Identity, Agency, and Political Engagement*, speak to the convergence of digital media in the way digitization, in its multimedia nature, transforms the overall environment within which identity expresses itself and action is undertaken. Such transformational effects of digitization have intellectual and theoretical implications. Elizabeth Eisenstein, in her classic study of the enabling effects of the invention of the printing press on the emergence of modernity, articulates the way a vital technology enacts the convergence of social, political, and intellectual forces:

One cannot treat printing as just one among many elements in a complex causal nexus for the communications shift transformed the nature of the causal nexus itself. It is of special historical significance because it produced fundamental alterations in prevailing patterns of continuity and change. . . . Intellectual and spiritual life, far from remaining unaffected, were profoundly transformed by the multiplication of new tools for duplicating books in fifteenth-century Europe. . . . The printing press laid the basis for both literal fundamentalism and for modern science. It remains indispensable for humanistic scholarship. It is still responsible for our museum-without-walls. (1979: 703–4)

As Eisenstein articulates, “the communications shift transformed the nature of the causal nexus itself.” This is the premise the present volume of essays seeks to underline. Foundational changes in media of publication have transformative effects on social milieux, since they create new conditions and means of
expression for thought and communication, social congregation and interaction, and political argument and engagement.

In Section One, “Theory,” the noted philosopher of technology Andrew Feenberg, in “The Internet in Question,” opens the volume with a balanced canvassing of the overall implications of the web. Feenberg has been a pioneer in research with and into the Internet, and his long reflection on the relation between technology and society provides the reader with an even-handed adjudication of the extremes of web utopia and dystopia. In Chapter Two, “Emergent Meaning in the Information Age,” Ian Angus brings his longstanding engagement with the nature of communication to bear on a Husserlian phenomenological reading of the ways in which digital media change our understanding of language as the fundamental condition of community. In Chapter Three, “Responsible Machines: The Opportunities and Challenges of Artificial Autonomous Agents,” philosopher of technology David J. Gunkel engages the ethical implications of digitally enabled software and hardware. A distinguishing factor of digital encoding is its capacity for a new layer of cognitive technological complexity: the ability to learn from its own processes and to make adjustments on the basis of the data generated. What are the implications of machines that are able to act as “autonomous agents”? If they are responsive to themselves and their environments, able to make adjustments on the basis of feedback, is such responsiveness a form of responsibility, and if so do they also enjoy the rights associated with responsible roles in the human community? Gunkel raises some necessary and provocative questions about the ethical nature of rights and responsibilities in the light of digital agency. In Chapter Four, computer systems expert Daryl Campbell asks about the philosophical implications of the open-source software movement. His essay is a specific instance of the question addressed by the volume as a whole: what order of effect does digitization have on communication and forms of coordinated action such as the invention and elaboration of software programming? Campbell brings the thought of French philosopher Alain Badiou to bear on the nature of “event” in evaluating leading characteristics of this movement.

Section Two takes up representative issues in digital culture. In Chapter Five, “Hacktivist (Pre)Occupations: Self-Surveillance, Participation and Public Space,” Carolyn Guertin, a pioneering specialist in digital narrative, provides an illuminating overview of recent crossover reflexive art projects that perform critical commentary on the pervasive surveillance that has become an integral feature of digitally monitored public, commercial, and corporate spaces.
In Chapter Six, “Institutions and Interpellations of the Dubject, the Doubled and Spaced Self,” Mark McCutcheon explores the ways in which digital media interpellate their users, calling on postcolonial theory to articulate the hybrid forms of ambivalent subjectivity, or dubjection, that arise from colonization of subjectivity by the pervasive presence of and involvement with digital media. In Chapter Seven, “The Network University in Transition,” in a case study of York University (Canada), Bob Hanke studies the impact of digital networks on the university, and the institutional tensions that arise in academic life with digitalization. One of the remarkable features of the web as a publication medium is the intensification of writing it has fostered, as a result of the immediate publication and debate it enables. In Chapter Eight, “Spinning the Web: Critical Discourse Analysis and its Online Space,” Leslie Lindballe explores the relevance of critical discourse analysis to the ways in which written language is affected, both overtly and in subtle ways, by its reframing of language in the multimedia networked environment of the Internet termed the blogosphere. In Chapter Nine, in the suggestive “Paramortals, or Dancing with the Interactive Digital Dead,” the late Roman Onufrijchuk sees in the current popular culture preoccupation with the half-life of the undead a symptom of the ambiguous virtual transcendence offered by the rich multimedia data streams each of us is creating and which we will leave behind us, as it were, in our “wake” (as Professor Onufrijchuk himself poignantly does at his recent passing, Memory Eternal).

The interactive, multimedia, and immediate character of the Internet enables new forms of social congregation, knowledge diffusion, and political engagement. From the Arab Spring to Wikileaks to the Edward Snowden revelations, it has become starkly evident that the digital environment changes the dynamics of political identity and agency in ways both empowering and disempowering. In Section Three, “Digital Politics,” Peter J. Smith (Chapter Ten, “The Rise of the National Surveillance State in Comparative Perspective”) and Karen Wall and Lorna Stefanick (Chapter Eleven, “Democracy and Identity in the Digital Age”) address the unprecedented kinds and levels of surveillance at work both in the political and the general public sphere. The scope of digitally enabled surveillance, whether political, commercial, or military, entirely redefines the former boundaries between the public and private spheres, raising profound legal and political challenges and complexities. Josipa G. Petrunić (Chapter Twelve, “The Digital Democratic Deficit: Analysis of Digital Voting in a Canadian Party Leadership Race”) provides a close-grained case study of the complexities and dilemmas of digital voting technology, while Maria Bakardjieva (Chapter
Thirteen, “Navigating the ‘Mediapolis’: Digital Media and Emerging Practices of Democratic Participation”) and Sharone Daniel (Chapter Fourteen, “The Construction of Collective Action Frames in Facebook Groups”) investigate the new forms of social and political action and cooperation enabled by social media.

REFERENCES


