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**Edited by Robert Latham and Saskia Sassen: Digital Formations**

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## *Introduction*

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### Digital Formations: Constructing an Object of Study

ROBERT LATHAM AND SASKIA SASSEN

COMPUTER-CENTERED NETWORKS and technologies are reshaping social relations and constituting new social domains. These transformations assume multiple forms and involve diverse actors. In this volume we focus on a particular set of instances: communication and information structures largely constituted in electronic space. Examples are electronic markets, Internet-based large-scale conversations, knowledge spaces arising out of networks of nongovernmental organizations (NGOs), and early conflict warning systems, among others. Such structures result from various mixes of computer-centered technologies and the broad range of social contexts that provide the utility logics, substantive rationalities, and cultural meanings for much of what happens in these electronic spaces. In this regard, the electronic spaces that concern us in this volume are social. Digital formation is the construct we use to designate these specific types of information and communication structures. Digital formations are to be distinguished from digital technology tout court; not all digital networks are digital formations.

This volume seeks, then, to advance research that is at the intersection of what we might simplify as technology and society. We do not assume that technology and society are actually separate entities, and we accept many of the propositions in the critical social science literature that posit that technology is one particular instantiation of society—society frozen, that is, one moment in a trajectory that once might have been experienced as simply social (Latour 1991). Without losing this critical stance, we want, nonetheless, to capture the distinctiveness and variable weight of “technology” and to develop analytic categories that allow us to examine the complex imbrications between the outcome of society that we call technology and the social, economic, political, and cultural dynamics through which relations and domains are constituted. Much rides in social analyses of IT on the category of “newness,” and this volume is no exception. We believe we are looking at formations that have not existed before, and we mean this to imply two things: that the forms were not

present in a given social context before, and that the formations in question are novel social forms.

That these are novel forms implies that we are looking at entities that are likely in the early—if not initial—stages of formation. We are not claiming this status for IT itself. Beniger (1986) underscores that the reflexive development and organization of complex IT-based formations is discernible as early as the nineteenth century.<sup>1</sup> Rather, we attach this status to the emergence of a wide range of formations of varying scales that depend on digital technologies, cross a variety of borders (national or otherwise), and engender a diverse array of spatial, organizational, and interactive practices.

The set of cases explored in the chapters that follow is meant to give readers a sense of that range and to cover topics that have been considered important to the social analysis of IT, especially as it bears on transboundary phenomena, including transnational civil society, transboundary public spheres, global finance, transnational corporate networks, global technological diffusion, regional integration, and international economic development. There has been no attempt to be comprehensive, however.<sup>2</sup> What joins the chapters is not only the effort to capture constitutive and transformative processes, but also concerns with design and social purpose.

## Locating a New Field of Inquiry

One of the distinct capabilities of these technologies when it comes to the communication and information structures that concern us in this volume is the rescaling of social relations and domains. What has tended to operate or be nested at local scales can now move to global scales, and global relations and domains can now, in turn, more easily become directly articulated with thick local settings. In both types of dynamics, the rescaling can bypass the administrative and institutional apparatus of the national level, still the most developed scalar condition. As a result of the growing presence and use of these technologies, an increasing range of social relations and domains have become *de facto* transboundary. It need not be this way, and indeed many of these digital formations are not, but the trend is definitely toward expanding the world of transboundary re-

<sup>1</sup> Another significant historical analysis that is U.S. focused is Chandler and Cortada (2000).

<sup>2</sup> One noticeable omission is the security sphere. But see the related SSRC-sponsored volume, *Bombs and Bandwidth* (Latham 2003), which focuses exclusively on this realm. Further, a new SSRC volume on global civil society and the Internet is in progress (edited by Jon Anderson, Jodi Dean, and Geert Lovink).

lations and domains. This trend is evident in this volume, where even digital formations that need not be transboundary, such as large-scale conversations or knowledge spaces, wind up being so directly or indirectly.

We are, then, seeing the transnationalizing of a growing range of local or national relations and domains, as well as the formation of new ones. Such transformations enable nonstate actors to enter international arenas once exclusive to states and the formal interstate system. This is well illustrated by specific features of the growing numbers and types of international nongovernmental organizations, global business alliances, and diasporic networks. These transformations have also furthered the formation of new types of spaces constituted partly through cross-border actors and transactions. All of this partly reconstitutes the world of cross-border relations and takes this world beyond formulations common in the specialized literature on international relations.

To some extent these transformations in the world of cross-border relations are overdetermined in that they entail multiple causalities and contingencies. This volume's focus on computer-based interactive technologies and networks does not presume to posit a single causality. What we refer to below for short as sociodigitization is deeply imbricated with other dynamics.<sup>3</sup> In some cases sociodigitization is "derivative"—a mere instrumentality of these dynamics—but in others it is "transformative"—by reshaping social relations—and even "constitutive"—by producing new social domains of action. Yet even when derivative, sociodigitization is contributing to the rescaling of a variety of processes with the resulting implications for territorial boundaries, national regulatory frames, and cross-border relations. The outcome is a set of changes in the scope, exclusivity, and competence of state authority over its territory, and, more generally, the place of interstate relations in the expanding world of cross-border relations.

An organizing assumption in this volume and in the larger Social Science Research Council (SSRC) project on information technologies to which it contributes is that these new conditions have implications for theory and for politics.<sup>4</sup> The social sciences are not well prepared to take on these developments. The discipline that has had cross-border relations at its core, international relations, remains mostly focused on the logic of relations between states and has not generally treated communication and information as essential to analysis. Exceptions to the state-centric focus in IR include work on transnational relations (Nye and Keohane 1971),

<sup>3</sup> Sociodigitization, as defined below, is the process whereby activities and their histories in a social domain are drawn up into digital codes, databases, images, and text.

<sup>4</sup> In particular, the SSRC program, IT and International Cooperation. See [www.ssrc.org/programs/itic](http://www.ssrc.org/programs/itic).

which assumes new relevance under current conditions.<sup>5</sup> Also warranting greater attention is pioneering work incorporating information and communications (Deutsch 1953, 1957; Jervis 1976) and more recent research and analysis that focuses on information technologies.<sup>6</sup> However, this work cannot quite fully encompass today's multiplication of nonstate actors and new conditions in transboundary cooperation and conflict.

An alternative line of scholarship is centered on the technical properties of the new technologies and their capacities for producing change.<sup>7</sup> These technologies increasingly dominate explanations of contemporary change and development, with technology seen as the impetus for the most fundamental social trends and transformations.<sup>8</sup> Such explanations also tend to understand these technologies exclusively in terms of technical properties and to construct the relation to the social world as one of applications and impacts.

Neither theorizations centered on the state nor those centered on technology as the key explanatory variable can adequately capture the transformations in the world of cross-border relations that concern us in this volume. Understanding the place of these new computer-centered networks and technologies from a social science perspective requires avoiding a purely technological interpretation and recognizing the embeddedness of these technologies and their variable outcomes for different economic, political, and social orders.

Confining interpretation to the properties of these technologies neutralizes or renders invisible the social conditions and practices, place-boundedness, and thick environments within and through which these technologies operate. Such readings also lead, ironically, to a continuing reliance on analytic categorizations that were developed under other spatial and temporal conditions, that is, conditions preceding the current digital era. Thus the tendency is to conceive of the digital as simply and exclusively digital, and the nondigital (whether represented in terms of the physical/material or the actual, all problematic though common concep-

<sup>5</sup> Of note is the special issue of *Millennium: Journal of International Relations* on Territorialities, Identities, and Movement in International Relations (1999).

<sup>6</sup> See, for example, Choucri (2000), Deibert (2000), Der Derian (2001), Laguerre (2000), and Wilson (2004).

<sup>7</sup> Latham (2002) offers a fuller discussion of ways that newness has figured into analyses of IT and social change.

<sup>8</sup> For critical examinations that reveal particular shortcomings of technology-driven explanations see, e.g. Wajcman (2002), Loader (1998), Nettime (1997), Hargittai (1998), and more generally Latour (1987), Munker and Roesler (1997), Mackenzie (1999), and Mackenzie and Wajcman (1999). For a critique by "technologists" of such technology-driven explanations, see Brown and Duguid (2000).

tions) as simply and exclusively nondigital. These either/or categorizations filter out alternative conceptualizations, thereby precluding a more complex reading of the intersection and interaction of digitization with social, other material, and place-bound conditions. Another consequence of this type of reading is to assume that a new technology will ipso facto replace all older technologies that are less efficient, or slower, at executing the tasks the new technology is best at. We know that historically this is not the case.

Nonetheless, it is important for our effort to recognize the specific capacities of digital technologies.<sup>9</sup> They are central to the emergence of new information and communication structures and the transformation of existing ones.<sup>10</sup> In their digitized form, these structures exhibit dynamics of their own that derive from technological capacities that enable specific patterns of interaction. These technology-driven patterns are, then, endogenous to these digitized structures rather than the product of an exogenous context such as the interstate system. Among such patterns are the simultaneity of information exchange, capacity for electronic storage and memory, in combination with the new possibilities for access and dissemination that characterize the Internet and other computer-centered information systems.<sup>11</sup>

These technical capacities can change the relationship between information and a broad range of entities and conditions. For instance, new resources and capabilities are being created for NGOs and other private

<sup>9</sup> There are important types of computer technology that we are not addressing in this volume, notably robotics, data processing, and virtual reality.

<sup>10</sup> Studies of new or transforming structures have typically focused on various dimensions of social life, including individual identity, community, social development, work, politics, and economic organization. Illustrative are Webster (1995), May (2002), and of course Castells (1996), the latter being mainly focused on socioeconomic change. Note that much of this literature is anchored in the notion that modern societies are transforming into information societies driven by an information revolution. This sort of thinking caught on in the early 1970s, and a particularly notable statement is Bell (1973). Among the structures that are seen as developing through and around the use of these technologies are “virtual communities,” “virtual corporations,” and multi-user-domains (MUDS). On communities, see Smith and Kollock (1998); on virtual corporations, see the journal at [www.virtual-organization.net](http://www.virtual-organization.net); and on MUDs, among other virtual social forms, see Turkle (1995).

<sup>11</sup> For most producers and consumers of research on IT, knowledge begins and ends with the Internet. While the Internet is crucial to the development of digital formations, in and of itself it is not a formation but, as conveyed in the chapter by Latham, a global communication system that comprises myriad electronic networks. These networks, in turn, are the underlying platforms for digital formations. But a digital network need not be part of the open Internet tied to e-mail and the World Wide Web if it is a private network as considered by Ernst and Sassen.

associations via web pages and document storage (Garcia, this volume). This matters because groups, particularly when involved in contestational politics, can use these information resources to challenge certain kinds of interpretations of developments, events, or policies. Such challenges lead to new knowledge spaces (Bach and Stark). Groups, such as diasporas connected to zones of conflict, can construct their histories and make them accessible to insiders and outsiders. These possibilities, in turn, prompt a reexamination of assumptions about the role of “knowledge” circulating within and across groups in the shaping of intergroup cooperation or conflict (Alker). Technology here makes it easier to trace the history of interactions and events, which in turn has implications for reciprocity and repeated strategic interaction. When it comes to major economic actors such as transnational corporations, the typically private information systems offer whole new organizational and managerial capabilities, such as the global flagship networks examined by Ernst.

From a social science perspective, as compared to a purely engineering one, such digitized information and communication structures and dynamics—what we call digital formations—filter and are given meaning by social logics. By social logics we intend to refer to a broad range of conditions, actors, and projects, including specific utility logics of users as well as the substantive rationalities of institutional and ideational orders. The distinctiveness of digital formations can contribute to the rise of social relations and domains that would otherwise be absent. Examples of such distinctive structurations in our volume are open source software communities (Weber), the formation of digitally based large-scale conversations (Sack), new types of public spheres (Cederman and Kraus), certain types of early warning systems (Alker), and electronic markets for capital (Sassen).

The presence of social logics in the structuring of these formations means, from a social science perspective, that the technical capacities of these new technologies get deployed or used in ways that are uneven and contradictory within diverse digital formations. They unfold in particular contexts and evince both variability and specificity. Digital formations, as we define them here, do not exist as purely technological events. This, in turn, makes it difficult to generalize their transformative and constitutive outcomes. Variability and specificity are crucial dimensions emerging from the diverse foci of analysis in the volume. The choice of chapters seeks to address this as each focuses in great detail on a different subject. While variability and specificity make generalization difficult, detailed study can illuminate patterns and structures helpful in hypothesizing future trends and in developing agendas for research and analysis as IT continues to evolve.

The uneven and often contradictory character of these technologies and

their associated information and communication structures also lead us to posit that these technologies should not be viewed simply as factor endowments. This type of view is present in much of the literature, often implicitly, and represents these technologies as a function of the attributes of a region such as Asia or an actor such as an NGO—ranging from regions and actors fully endowed, or with full access, to those without access. Rather, we recognize that any given region or actor can be associated with uneven or inconsistent technological capacities. Cederman and Kraus make clear that even in wired Europe, attempts to construct a rich communicative space confront the limits of online public engagement.

Variability also emerges because the deployment and diffusion of these technologies is shaped by the diverse operational logics of social forms, including prominently states and markets. For instance, technologies relating to the Internet, satellite surveillance, and data banks can be strongly associated with cooperative policies and practices (e.g., transborder access to IT infrastructures, data, and human capital, greater transparency, the formation or strengthening of transboundary public spheres) or they can be linked to conflict (e.g., applications of IT in the military, the identity politics of ethnic groups involved in violent conflicts, the confrontational politics of activists, and the competition for sectoral economic dominance among large transnational corporations).

Variability is also a function of unintended consequences. Guthrie shows us how the state-controlled development of an IT industrial sector in China had the effect of setting in motion processes of change not foreseen by any of the players involved, most importantly a trend toward reducing some aspects of state authority as networked individuals could gain access to information about foreign models of economic development. Developing the industrial side of these technologies had the perhaps ironic effect of altering—if ever so minimally—the position of individuals toward the state.

The concepts that have been central to work on cooperation and conflict—such as alliances, regimes, and institutions—may not analytically capture what some of these types of communication systems are. The Internet illustrates this well. For instance, it has some of the features through which we specify institutions—in this case a transnational institution. It is so in the sense that there is a set of rules, compliance procedures, and norms that shape human action. But with its varied uses and forms of information, the Internet is also more than an institution: it is worthy of study as a global phenomenon in its own right, with interesting implications for cross-border relations (Latham).<sup>12</sup>

<sup>12</sup> The uniqueness of the Internet (compared to the telephone, telegraph, or television)

In brief, there is considerable diversity in the types of actors and logics that constitute communication and information structures. Their endogenous technical properties vary as do their endogenized social logics. Recapitulating the above, we identify at least three sets of implications for their study from a social science perspective. One is the difficulty of prediction in a domain of contradictory and uneven patterns and processes, a fact that may help undermine various types of regimes for control and governance. A second implication is that these systems have endogenous capabilities that may enable them to escape partly the conditioning of existing systems, such as the interstate system, and transform these or constitute whole new domains. A third implication is that communication and information structures need to be treated as distinct from information technology. That is, the first are human “habitats” or ecologies anchored in the social relations associated with public spheres, networks, organizations, and markets.<sup>13</sup> They are therefore not subsumed by or reducible to the technology that helps make them possible.

### Digital Formations: Constituting an Object of Study

Methodologically, the types of concerns present in this volume require us to go beyond the notion that understanding these technologies can be reduced to the question of impacts.<sup>14</sup> That is, impacts are only one of several forms of intersection of society and technology—understood in the qualified sense discussed above. Other forms of intersection have to do with the constitution of whole new sociotechnical relations and domains—digital formations—that in turn need to be constructed as objects of study. This means examining the specific ways in which these technologies are embedded in often very specialized and distinct contexts. And it requires examining the mediating cultures that organize the relation between these technologies and users, where we might think of matters as diverse as gendering or the utility logics that organize use. Because they are specific, these mediating cultures can be highly diverse; for example, when the objective is control and surveillance, the practices and disposi-

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rests on a combination of (1) ready-at-hand storage capacity for documents; (2) diffuse networks of communication and interactivity (including many-to-many rather than just one-to-one or one-to-many); (3) simultaneous access and interactivity produced by 1 and 2. The first factor may seem trivial at first, but it should be noted that the capacity to store data and documents of political import to wide bodies of actors was a virtual monopoly of the state (government archives, libraries, data bases such as tax rolls, etc).

<sup>13</sup> For an exploration of the concept of “information ecologies” see Nardi and O’Day (1999).

<sup>14</sup> We see this as consistent with the analytical frame in Castells (1996).

tions involved are likely to be different from those involved in using electronic markets or engaging in large-scale computer-based conversations.

The search for impacts means framing analysis in terms of independent and dependent variables, which is by far the most common approach in the social sciences. Our understanding that these technologies are part of transformative and even constitutive processes means we cannot confine the analytic development of this field of inquiry to that type of framing. We also need to develop analytic categories able to capture formations that incorporate what would be conceived of as mutually exclusive conditions or attributes in the independent-dependent variable framing. This is what we intend for the construct, digital formation.

The construct obviously builds on the concept of social form and the process of formation. The term “social form” is meant to convey that digital formations have ontological status as social “things” (with coherence and endurance), but not as fixed units whose attributes are pregiven to analysis.<sup>15</sup> We are adopting a relational perspective that emphasizes that forms emerge in and through complex social processes and changing relations.<sup>16</sup> By formation we mean to imply four things. These forms are, as mentioned above, in the early stages of development. Second, their emergence is not likely to be signaled by some sort of founding event, formal constitution, or charter, but by a mix of informal elements ranging from network blueprints (see Latham) to manifestos (Weber). Third, they will tend toward a developing and variable structure and nature because any social form is subject to changes in relevant contexts, agents, relations, and logics from one time to the next or one instantiation to the next (across different times and places). Finally, our understanding of digital formations is nascent and will change considerably as analyses of existing and newly emerging formations cumulate.

As that understanding begins to develop, we will need to think through strategies for delineating, however contingently, general categories of formations and their corresponding instantiations. How will we know we have the right categories in place? Are research networks, knowledge communities, and electronic markets, for instance, the right categories? How far up in generality or far down in specificity does one go? How will we identify the trajectories of change in categories? On what terms and with what basis of confidence should we generalize from individual cases and categories? These are important questions because their pursuit will open the way for comparisons across types and cases and for the identification of overarching logics and patterns relevant beyond digital formations.

<sup>15</sup> Coherence and endurance as important qualities for marking the existence of a social form is mentioned by Abbott (1995).

<sup>16</sup> See Tilly (1995), Emirbayer (1997), and Cederman (2002) for discussions of this perspective.

















































