

# Link, Search, Interact

## The Co-evolution of NGOs and Interactive Technology

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WE ARE witnesses to an epochal transformation in the analytically distinct domains of production and communication. On one side, we see a shift from mass production to network modes of organizing, as hierarchical, bureaucratic forms coexist with heterarchical, collaborative forms. On the other, we see a shift from mass communication to interactive media, as the uni-directional channels of one-to-many coexist with the hypertextual world of increasing interactivity. The dual shifts are, in fact, a twinned transformation: from mass production/mass communication to network production/network communication. To understand the new organizational forms of our epoch we must study how their roles and practices co-evolve with the new interactive technologies.

These transformations are being exponentially accelerated by digital tools that make it possible to access text, audio, visual and database information in an encompassing, interactive environment. Actors now participate in complex digital ecologies consisting of the Internet, intranets, extranets, web sites, virtual collaborative workplaces and the like. Within this encompassing environment of extended connectivity and near-ubiquitous computing, the new media do not simply allow organizations to communicate faster or to perform existing functions more effectively, they also present opportunities to communicate in entirely new ways and to perform radically new functions. Especially because these are interactive media, their adoption becomes an occasion for innovation that restructures interdependencies, reshapes interfaces and transforms relations.

The impact of such developments is as far-reaching for international order as for individual organizations. Among the many actors of this rapidly changing environment, non-governmental organizations (NGOs) have

exploded in number and visibility as the 20th century neared its end. We use the term NGO to refer to the broad array of civil society organizations that together constitute what Anheier and Themudo (2002: 191) call the organizational infrastructure of global civil society. We are aware of the inherent limitations of any covering term, and use NGOs to refer to non-profit organizations formally independent from government. These include community-based, national and international NGOs. The irreducibility of civil society-based organizations to a set organizational form is precisely of interest in understanding how, by any definition, the NGO has become a key actor in the global order by the beginning of the current century. The numbers vary according to method but all tell a similar story: NGOs of all types have increased from negligible numbers – a few dozen to just under 200 – at the beginning of the 20th century, to a modest presence by the 1970s; then there was a period of exponential growth from the 1980s to the present day, with estimates ranging (depending on method) from 47,000 international NGOs (active in at least three countries) to 250,000 (Anheier and Themudo, 2002; Union of International Associations, 1999; World Resources Institute, 2003). The World Bank estimates that over 15 percent of total overseas development aid is channeled through NGOs (World Bank, 2001).

Today NGOs are engaged, directly or at the margins, in the transformation of national, international and transnational political space. In their engagement they appear in various, often conflicting, guises: as building blocks for a global civic culture, incubators for new international institutions, barefoot revolutionaries carrying out globalization from below, or new missionaries imposing Western ideals from above. While an ever-increasing literature on NGOs implicitly recognizes their growing power, NGOs are most often discussed, however, as if their form were given and only their effect remains to be worked out. Thus NGOs appear as an incipient global civil society, as functional equivalents of democracy, as tools of the ruling class or as the vanguard for globalization from below (Appadurai, 2000; Falk, 1999; Rosenau, 1998; Warkentin, 2001).

Interactive technology is generally regarded as instrumental support for one or the other of these guises. Technology is appended to a constellation of factors that are used to explain the recent growth and prominence of NGOs, most notably the retrenchment of the welfare state, the end of the Cold War (with its dual legacy of democratization and new civil wars) and a rise in private donations (Lindenberg and Bryant, 2001: 8–12). In nearly all of these scenarios, interactive technology appears in a diffusionist fashion as either speeding up the process, presenting obstacles, or both. Viewing technology as an external actant misses the way in which intelligence is distributed across actors and artifacts (Hutchins, 1995). We would like to approach NGOs and interactive technology as co-evolving actants embedded in an era where knowledge is increasingly a resource for creating enduring associations (i.e. as a source of power). Our approach is part of a growing body of social science research that seeks to overcome the artificial

divide between ‘society’ and ‘technology’ by viewing the social as consisting of humans and non-humans (objects, things, artifacts).<sup>1</sup> Viewing technology not as a tool but as part of a co-evolutionary process that shapes organizational forms and practices will help us understand why NGOs have been able to assume a more powerful and controversial role as co-constituents of global transformation.

This article proceeds in two parts: first it examines how NGOs are embedded within epochal shifts that are unbundling, as Saskia Sassen (1999) puts it, the centralized forms of authority that govern the nation-state. NGOs are among the new actors engaged in what is often loosely termed global governance. More precisely, at stake is a coming to terms with decentralized, distributed power, ‘its reproduction, its diversification, its growth and multiplication’ (Sassen, 1999). In this article we trace a shift among NGOs from pseudo-autarky to collaboration that enabled their structural role in globalization to become increasingly prominent. This expanded role itself has been enhanced through NGOs’ use of interactive technology, often within the confines of an information broker model. The second part of the article moves beyond the diffusionist model of technology and the limits of information brokering to focus on the recombinatory logic of interactive technology. We highlight the multiplicative properties of the Internet as an example of how NGOs can facilitate knowledge to form incipient knowledge communities – communities that use a logic of what we call ‘link, search, interact’ to sustain themselves and grow.

### **From Autarky to Collaboration**

NGOs are embedded within the oft-described network paradigm that is displacing central-planning and strictly hierarchical thinking (Castells, 1999). Networks operate more fluidly and can improve on accounts of complex social interaction over the methodological individualism of positivist social science. They have the significant effect of enhancing flows and creating a shared acceleration that corresponds to the compressed space-time of our late modern era. This spatio-temporal compression is part and parcel of the function of interactive technologies, which combine real-time and many-to-many communication in ways that fundamentally rearrange the ways firms produce, states fight wars, and people’s lives are structured. This rearranging is, significantly, a form of de-territorialization, both because the electronic space in which power and action are being reconstituted is literally not located in territorial space, and because the institutions that evolved to regulate life within territorial borders are ill-suited to the tasks of regulating transborder flows (Deleuze and Guattari, 1987; Sassen, 1998; Strange, 1996).

De-territorialization is the process at the core of the unbundling of the nation-state. It forces a transformation of the spatial organization of politics away from the single-point perspective that John Ruggie (1993: 159) pegs as the defining doctrinal characteristic of sovereignty. Most of us will have little difficulty agreeing minimally that an increase in flows of money, people

and commodities has challenged the ability of the nation-state to exert its social ordering functions, that global issues exist beyond the control of any one state and that, consequently, the global political system is undergoing a significant transformation. But few will agree on what this is a transformation *to*.

We would be charlatans if we claimed to know what the new spatial organization of politics will be. We can, however, identify elements of the transformation, in particular three shifts (these are ongoing shifts, not completed processes):

- First, there is a shift among states and intergovernmental organizations from a concern about the sanctity of sovereignty to a concern about the enforcement of universal norms. This can be viewed cynically or hopefully, through the lens of empire or Enlightenment. Certainly not all governments embrace such a shift (ironically the United States is foremost among the obstructionists while also one of the greatest proselytizers of universal principles), but a global agenda that prioritizes humanitarian, environmental and even economic justice issues has established itself as a dominant discourse.
- Second, there is a shift from decentralized to distributed structures. Decentralized governing structures emerged to (over)compensate for the inability of centralized forms of government and market to efficiently provide the resources or results deemed necessary for the good life, resulting in privatization or political structures such as subsidiarity and devolution. Decentralized production enabled capital to increase its mobility. But decentralization is an effect. Distribution, on the other hand, is the capacity for a collective actor to act strategically based on an emergent effect of the patterns of association and not on the basis of a single person alone, or even a network of humans (Girard and Stark, 2002; Hutchins, 1995; Law and Hassard, 1999; Suchman, 1987).
- Third, in the analytical methodology that informs (social) scientific development we see a shift from a way of thinking that Latour called a diffusion model to a model of translation (Latour, 1986: 266–9). The diffusion model is a model of inertia and friction, where changes are explained by theorizing about what retards or accelerates an order or an object's trajectory – for example, the idea of the nation-state as a stable, given combination of traits and territory whose trajectory can be explained by a mixture of hard times that slow down its progress (perhaps covetous neighbors who invade their territory) or good times that speed it up (such as economic boom, or the nation-state's own military conquests).<sup>2</sup> The nation is merely transmitted from one generation to the next with a rich history of (and potential for future) friction. A translation model dispenses with inertia and sees an object or order as being continuously transformed by the actors themselves who engage in continuous reinterpretation.<sup>3</sup> In more fashionable terms a translation model could be seen as a process akin to social construction. But we have to remember

that translation is *also always* a misunderstanding. Sites of translation therefore are thus also sites of interpretation, contention and renegotiation.

These shifts are harbingers of a new space-time construct. Again, we cannot know the outcome, but we can identify NGOs as an intriguing actor involved in the co-evolutionary process concomitant with the shifts presented above, since for many NGOs the concept of network is closely intertwined with their operational logic. Indeed, at first glance NGOs possess a superficial isomorphism with the perceived properties of interactive technology. When viewed mainly as a tool for processing information, interactive technology increases NGOs' communication and facilitates networking by enhancing the core tasks of getting information to constituents, channeling and interpreting information from varied sources, aggregating information and demands, transmitting them to diverse audiences, and mobilizing individuals and groups.<sup>4</sup> Interactive technology thus seemed ideal for lowering transaction costs, increasing participation and impact, and streamlining operations. The democratic rhetoric that accompanied the early years of the Internet was also a strong plus – social and organizational change could be seen as complementing each other.

It would be an error, however, to see NGOs as having an elective affinity with interactive technology, and then to use this a priori affinity to claim that NGOs plus IT equals new organizational forms capable of transforming global space if only the forces of friction are sufficiently overcome. This, however, is the sentiment that pervades much popular discussion about NGOs. It is a diffusionist model that presents NGOs as moving under their own inertia. This inertia is connected, often indirectly, to the quasi-mythical view of NGOs from the 1960s and 1970s as an anti-state and anti-market force. Let us take the example of development NGOs.

As Bishwapriya Sanyal explains, NGOs were privileged in the 1970s as 'the most appropriate catalytic agent for fostering development from below because their organizational priorities and procedures are diametrically opposed to those of the institutions at "the top"' (1994: 37). To fulfill this avant garde role Sanyal shows how NGOs valorized a form of pseudo-autarky for two negative and one positive reasons: collaboration with the state was ruled out because it was seen as leading to control or co-option, while collaboration with the market would poison community solidarity bondings. In both cases legitimacy and effectiveness were thought to suffer. These were negative reasons for maintaining independence. A positive reason was that the principles of self-sufficiency, self-reliance and social innovation would become the motor for self-reproduction. The basic analytic unit was the isolated NGO engaged in a form of autopoiesis. There was indeed a self-generating quality to this approach, but what it generated was isolation and contradictions. NGOs competed fiercely with each other for money and avoided forming institutional linkages with government, the commercial sector or even other NGOs. The lack of institutional support

doomed all but the smallest projects and precluded replication or expansion. When they began to fall apart as a result of these incapacities it only intensified competitiveness and isolation and made a mockery of the attempt to create a broad base 'from below' (Sanyal, 1994).

The relative success and high growth of NGOs in the latter part of the 1980s, and especially the 1990s, can be attributed not only, or even primarily, to increased externalities, but to the NGOs' shift from self-imposed isolation to collaboration. NGOs moved to collaboration as they began to recognize that success, when it happened, was because they were already engaging in semi-conscious forms of collaboration that went unacknowledged. For example, NGOs' own leaders were drawn from an elite with informal linkages to all the types of institutions – banks, bureaucracies and parties – that form the 'top'. Sanyal (1994: 45) gives the example of the founders of the Grameen Bank, Doctors Yunus and Latifee, who are mythologized as visionaries whose sole efforts resulted in this paradigmatic development from below. They doubtless possessed great vision, but, as he points out, they also had an institutional association with the top university that provided both salary and legitimacy, and Yunus's efforts to convince the bank to make loans was not made on the strength of his grassroots organizing ability but because of his family's long-standing relationship as a major depositor. As the project expanded and became the famous Grameen Bank, it was on the firm basis of a tripartite alliance between NGOs, government and market institutions.<sup>5</sup>

The need to be self-sustaining caused conflicts within NGOs because of the siren call of alliances with the market as a source of generating independent income, especially as foundations began to require better accountability and plans for sustainability. Over the last 15 years, in the search for self-sustainability, some NGOs have indeed turned to income-generation alternatives that mimic commercial enterprises. For example the 'dot-corg' dual enterprise model combines social and business ventures, separating revenue generation from NGOs' social mission and evaluating it according to business metrics. There is also a minority of NGOs who, from early on, set their long-term goal as evolution into a socially oriented, for-profit venture, such as many Internet Service Providers in Eastern Europe who began as non-profits and grew into viable businesses (Peizer, 2000). When you consider the early resistance of NGOs to allying themselves too closely with the market it is striking (or even shocking) to watch partnerships emerge such as the CARE–Starbucks partnership (Lindenberg and Bryant, 2001: 164–5; see also Austin, 2000) or the 'Libraries Online Partnership' between Microsoft Corporation and the non-profit American Library Association (Sagawa and Segal, 2000).<sup>6</sup>

Alliances with the market certainly do open up new forms of sustainability and even synergy, and cannot be dismissed out of hand. If NGOs reject cooperation with state and market forces too completely they risk slipping into an exclusively oppositional role with diminished opportunities for agenda-setting (though some may relish precisely this oppositional role).

Yet the benefits of collaboration do not mean that old problems of co-option have disappeared – on the contrary, they may even be exacerbated by the new hybrid forms. The values of the market and of the non-profit world remain antagonistic. As NGOs spread their accountability unevenly among constituents, board members, donors and the public they find themselves faced with a proliferation of performance criteria that catches them between the value systems of business (efficiency, solvency) and social mission (adherence to principles, ideological agenda) (Edwards and Hulme, 1996b). In the best case they may exploit these contradictions, but the danger is real that actors who are accountable according to many principles become accountable to none (Stark, 2001).<sup>7</sup>

Most importantly, success for NGOs came less from developing innovative ideas than from basing their efforts:

... on relatively old ideas which may have been tried, even by the government, in another context. ... Successful NGOs did not pursue only a decentralized approach ... their success was due to a skilful blending of centralization and decentralization of decisions, cooperation and competitiveness ... (Sanyal, 1994: 43)

In other words, successful NGOs used logics that are distributed and recombinatory.

This shift from pseudo-autarky to collaboration, rather than the amassing of successes per se, made NGOs increasingly important players at a time when the dominant image of the Cold War gave way to globalization. We can see how NGOs were able to embody (and thereby help define) each of the major shifts we sketched above:

- NGOs were in the forefront in the shift from sovereign sanctity to universal norms, particularly in the realms of the environment and human rights. The stunning successes of Médecins sans Frontières (Doctors without Borders) and the Campaign to Ban Landmines, both of which won the Nobel Peace Prize, gave NGOs publicity and legitimacy that far surpassed previous efforts. From a different angle, the anti-World Trade Organization (WTO) protests in Seattle and similar ‘anti-globalization’ protests from Ottawa to Prague criticized the distributed modes of production and called attention to the new forms of connectedness under globalization. In an intriguingly isomorphic fashion the protesters, especially the more radical of them, also used a distributed logic to achieve their seeming chaotic but well-orchestrated effect: the weird coalitions of the anti-globalization movement, as Katharine Viner (2000) notes, are also wired coalitions.
- It is not only protesters, however, that use distributed logic. This can also be seen in the networks that formed in support of a variety of causes, such as humanitarian relief efforts for earthquake and war victims, preserving the Arctic wildlife reservation from oil drilling or pressing for

minority rights. This does not mean that competition between, or hierarchy within, NGOs has disappeared. But the isolation of NGOs diminishes as networks become increasingly standard operating procedure, especially when linked through the Internet, as most of them are. This allows the leveraging of knowledge across multiple logics and ordering principles, creating new opportunities and conundrums, including the thorny problem of how to make *networks* accountable.<sup>8</sup>

- This leveraging of knowledge through distributed cognition allows NGOs to engage in translation as one of their major functions.<sup>9</sup> However, because translation is always also a misunderstanding, they are sites where negotiations of meaning take place. NGOs occupy a particularly strategic position in this regard: they work upwards with governments and corporations (e.g. through lobbying, media campaigns, protest and participation in policy processes) and downwards with local and marginalized populations (e.g. through in-country projects, training, re-granting and consciousness-raising). They thus are in a position to embody *the tension* between diffusion and translation that has become, in various academic and popular guises, the central debate of postmodernity.

### **From Knowledge – via Associations – to Power: The Logic of Link, Search, Interact**

The shift from pseudo-autarky to collaboration enabled the structural role of NGOs in globalization to become increasingly prominent. This expanded role itself has been enhanced through NGOs' use of interactive technology within the confines of an information broker model. This model is a reasonable and conditioned reaction from the age of mass communication and mass production. Modern society is organized along lines of access to quantifiable information brokered between those who have information and those who want or need it. It has an hourglass structure, with information passing through the broker in the middle on the way from A to B, similar to Burt's (1992) bridges across structural holes or Latour's (1987) obligatory passage points. This can take the ruthless form of a monopolistic corporation or the benevolent form of an NGO seeking to spread formerly guarded information. Structurally, however, brokers work in the same way by exploiting gaps and, accordingly, gaining rents. They have a vested interest in maintaining the gap between information producers and consumers. The affordances of interactive technology can be used to maximize this brokering role, along with the power (and perils) that come with it.

NGOs do not mimic those who 'hold' power in principle, such as states or rulers (whose claim to power can be tautological and often chimerical). But in their enhanced brokering role NGOs do gain power in Latour's sense, where power accrues to 'those who practically define or redefine what "holds" everyone together' (1986: 273). Engaging in this practical redefinition enhances NGOs' power. Transnational NGOs are particularly important in this respect. To the extent that NGOs become obligatory passage points, power can be exerted through the discursive production of the



subjects they claim to represent, be they aid recipients, organizations to be included in a civil society database, or the creation of a regional identity.<sup>10</sup> As Paige West documents in her study of environmental NGOs in Papua New Guinea, NGOs use their structural and rhetorical power ‘to discursively produce “local peoples,” “indigenous peoples,” “peasants” . . . and have their productions taken very seriously’ (2001: 29).<sup>11</sup>

But since translation is always also misunderstanding, NGOs do not only produce identities but also renegotiate them. And since interactive technology affords the ability to shift from information as a discrete property to ‘knowledge’ that requires a knowing subject, there is more out there than the brokerage model. Here the emphasis is not on information per se but communication and distributed intelligence. Knowledge, unlike ‘information’, cannot exist independently of a subject and cannot be conceived of independent of the communication network in which it is both produced and consumed (thus blurring the notion itself of producer and consumer). This does not displace or solve the practical and epistemological problems occasioned by ‘information’ (e.g. how to process large amounts of data, how to ensure data protection, how to ascribe meaning to data), but raises different questions of an ontological nature. These question the very a priori (diffusionist) assumptions of the institutional and organizational forms that order our world.

NGOs themselves transform when shifting their emphasis from brokering information to facilitating knowledge. This could make a difference for their potential to be genuinely transformative of social structure. Facilitating knowledge is powerful for forming associations that are not just linked communities, but what we can call knowledge communities – communities that use a recombinant and multiplicative logic of link, search, interact to sustain themselves and grow.

We refer to this as the logic of ‘link, search, interact’ to express concisely what it is about interactive technology – particularly its most widespread instantiation in the Internet – that makes it resonate deeply in the NGO community and in so many registers across the globe. This is certainly not the first technology to enable each of these functions: using a telephone you can search by dialing the operator to get ‘information’ and can then use the same phone to link you with a party with whom you interact. But consider the popular search engine Google: when it suggests sites to match your query it is also performing a search and establishing a link. To prioritize your answer it considers all the other sites that have linked to the potentially relevant sites that match your query and ranks them, based on patterns of links (i.e. the site with the highest number of links to it is considered more relevant). In other words it searches based on the pattern of links. For the telephone the process of link, search and interact is merely additive.<sup>12</sup> For Google they are multiplicative and recombinatory: each of these processes forms the basis for the other.

This recombinant technology allows search not only on the pattern of links, but also on the pattern of interactions. If you are even a casual user

of Amazon.com the web site will suggest titles to you based on a book or CD you are looking at. This is done not by matching terms in the title or abstract of the book, which would entail a high degree of potentially humorous error, but by tracking patterns of purchase and preferences and then using an algorithm to determine that ‘people who bought this book also bought . . .’.<sup>13</sup> The output of Google or Amazon, of course, is web sites or books, while the output of the telephone is interaction with a person. What if you could harness the properties of the Web’s recombinatory logic to suggest interaction with people?

This would be desirable even at a merely practical level; the glut of information available on the web is such that even if you know what you are looking for, you need a way to find the most relevant information expeditiously. Since the creators of all this content are *people*, not machines, it stands to reason that asking the right person might be the best way to find the information you are looking for. Researchers have developed such ‘word of mouth’ software (one is appropriately named ‘gab’, as in talk, but also for Group Asynchronous Browsing) (Wittenburg et al., 1998). But there is an even more compelling reason to prefer a recombinatory over an additive approach – when you *don’t* know what you are looking for but would recognize it when you find it (e.g. what happens every night at a singles bar). Unlike finding a phone number from ‘information’, this way you find things you didn’t know and come into contact with people whom you don’t know. Most people would probably balk at interacting directly with other customers of Amazon, but there are communities where direct interaction would be quite an asset. For example, a doctor who wants to know who else is treating patients for similar rare diseases, or a member of an NGO community that wants to share best practices. Paul Mylea, the editor of an NGO website called Alternet.org that facilitates collaboration among humanitarian aid agencies, recounts how:

During the Gujarat earthquake a member was based very close to the center – and they were experienced in drought relief rather than earthquake relief. A member from our advisory board contacted the member on the ground because he had experience of earthquake relief and was able to offer advice and guidance on how to deal with the crisis. They went off site and spoke on the phone. (Lewis, 2001)

Using the patterns of search or interact, one can link social structures (who knows who) and knowledge networks (who knows what). Amazon.com’s collaborative filtering software is a commercial variant of similar programs such as the aptly named Yenta, Beehive or the browser Alexa.<sup>14</sup> For members of an NGO or non-profit community this could help develop and promote their respective knowledge networks. Working with a group of 285 such organizations in the Midwest, researchers at the University of Illinois at Urbana-Champaign developed a software program that could help the organizations identify those in the community who shared common or complementary interests and show how they may be directly or indirectly

connected.<sup>15</sup> This software, based on a tool called IKNOW, is distinctive because the users can find out not only ‘who knows who’ and ‘who knows what’, but also ‘*who* knows who knows who’ and ‘*who* knows who knows what’ (Contractor et al., 1998).<sup>16</sup> This works by capturing network data of both knowledge networks (based on links between actors’ web sites, on common links from their web sites to third-party sites, on similarity in content between different web sites, and on an inventory of skills and expertise provided by the actors) and communication networks (based on an inventory of existing task and project links between them).

From social structures and knowledge networks we thus get at cognitive social structures and cognitive knowledge networks (*who* knows whom or what). The cognitive perceptions of the members of a knowledge community taken individually may be incomplete or inaccurate, but together they form a transactive memory system that shares domains of knowledge (Contractor, 2000; Contractor et al., 1998). This hints at a larger significance for what at first might seem like just a good way to sell books: communities of knowledge can not only be identified, but also created. IKNOW does not just enable dyadic relationships in the manner of personal ads, but also facilitates communities of knowledge.

In a similar vein, a group of researchers are working on Augmented Social Networks, or ASN. Unlike IKNOW, ASN is not software, and unlike Altnet.org, it is not a web site. Rather ASN seeks to establish a model for a ‘persistent online identity’ for individuals moving between different Internet communities. This identity can be the centerpiece for enhancing:

. . . the power of social networks by using interactive digital media to exploit the transitive nature of trust through the principle of six degrees of connection. As a result, people will be able to inform themselves and self-organize more effectively – in non-hierarchical, rhizomatic social formations – leading to more opportunities for engaged citizenship. (Jordan et al., 2003: 2)

The idea for ASN builds on the work of Robert Metcalfe, whose Metcalfe’s Law holds that: ‘The total value of a network where each node can reach every other node grows with the square of the number of nodes’, and on research on Group Forming Networks by David Reed, who studied the exponential growth in new, and previously unknown, types of value created by the online interconnection of social networks. ASN seeks specifically to support civil society and citizen participation in governance structures through its model, and is developing software, protocols, open standards and principles of implementation (Jordan et al., 2003).

### **Conclusion: Translation and Transformation**

Whether idealistic, as with ASN, or practical, as with Altnet, the rise of knowledge communities opens up a space – let us call it a ‘knowledge space’ – that is dissimilar to the established means of communication because it integrates discursive and non-discursive elements (see Levy, 1997). This is

as much a space *within* which something happens, as it is a space *for* something to happen (Johnson, 1997). As a space within which something happens we can trace empirically the creation and circulation of knowledge communities. As a space for something to happen we can speculate that new forms of social organization, including new social bonds (Levy, 1997: 10–13), will develop on the basis of a relation to knowledge (for example, by the re-locating of ties in social structures such as the family or the workplace, the valorization of programming skills and the mobility of electronic labor, and so forth). Such a transformation does not imply that knowledge is a function of interactive technology, any more than exchange is a function of capitalism. But just as exchange acquired specific characteristics under capitalism that became the basis for a complex system, so does knowledge acquire new characteristics in our (infelicitously but popularly titled) information age.

For NGOs in particular, knowledge communities engender deliberative associations that involve negotiations across ordering principles and multiple logics (Stark and Bruszt, 1998: 109–36). As Charles Sabel (1992) points out in his study of economic developmental associations, no state can possibly have superior knowledge to the economic actors, or coordinate restructuring better than regional developmental associations – it is the associations, not the states, that do the developing. Likewise, as NGOs become deliberative associations they can play a greater role in both *development* (in the traditional sense) and *developing* global, regional and national structures and institutions. This is because deliberative association leads to new associations, both in the literal sense of new networks and in the figurative sense of a mental connection between ideas.

An example is the now-famous moment during the 1999 anti-WTO protests in Seattle, when, as William Greider (2000) recounts it, ‘a squad of activists dressed as sea turtles was marching alongside members of the Teamsters union. “Turtles love Teamsters,” the turtles began to chant. “Teamsters love turtles,” the truck drivers replied.’ One associative outcome was the (partial) mental morphing of labor unions’ and environmentalists’ respective ideas on the environment and economics. Another was the creation of coalitions that turned the ‘anti-globalization’ movement that emerged from the protests in Seattle into a community of deliberative associations where the lines between environment, economic development and human rights increasingly blurred. A much smaller-scale example of an associative solution is a Roma rights organization in Hungary, which began solely by trying to link disparate organizations and individuals to each other. As a result of the subsequent interaction, the one-time clients moved from being serviced by the organization to claiming the organization as their own, eventually becoming involved in the governance of the organization. From its origins as an information broker, the organization transformed into a knowledge community (Bach and Stark, 2002).

When we employ analytical concepts that bridge the society/technology divide, NGOs appear as a molecular technology, a large,

self-organizing community of deliberative associations (Latour, 1991; Levy, 1997: 41). They translate (i.e. misunderstand, interpret and renegotiate) between multiple logics, such as indigenous peoples and government bureaucrats. They also translate between an older spatio-temporal order (the Cold War, the sovereign state system, Fordism, etc.) and what we have provisionally marked as a knowledge space.<sup>17</sup> It would be a mistake to assume this form predetermines any a priori normative outcome for NGOs – as we mentioned earlier the problems of accountability alone present substantial challenges to future development. NGOs could quite conceivably operate nefariously as the moral instruments of a new global society of control precisely *because* they are networked, molecular structures, functioning as ‘the capillary ends of the contemporary networks of power’ (Hardt and Negri, 2000: 313). This shift in form, however, makes NGOs axial organizations whose import extends beyond the negotiation of specific issues (e.g. carbon dioxide emissions or landmines) to the re-negotiation of justificatory regimes upon which the global temporal-spatial order is based. This, more than any particular event, accounts for NGOs’ growing prominence. NGOs’ use of recombinatory logics allows them to go beyond service provision and function as a global navigational resource for exploring a knowledge space full of uncertainties and unknowns. The best advice for observers of global transformation is to follow that of the old advertisements: watch this space.

#### Notes

1. This approach draws on the work of French sociologists Michel Callon (1998) and Bruno Latour (1991), and other social scientists in the United States who have been working with similar concepts. Hutchins (1995), for example, argues that cognition is distributed across a network of persons and instruments. Suchman’s (1987) path-breaking work on human–machine interaction similarly resonates with the work of Callon and Latour, and provides the basis for further studies on distributed design.
2. See here Appadurai’s (2000) notion of process geographies and trait geographies, and Stephen Toulmin’s (1990) notion of a Newtonian image of power exerted with a central force through sovereign agencies.
3. Latour (1986: 266–7) uses the example of rugby players and a rugby ball:

The initial force of the first in the chain is no more important than that of the second, or the fortieth, or of the four hundredth person. Consequently, it is clear that the energy cannot be hoarded or capitalized; if you want the token to move on you have to find fresh sources of energy all the time; you can never rest on what you did before, no more than rugby players can rest for the whole game after the *first* player has given the ball its *first kick*.

Latour’s preference for a translation model is that it allows power to be seen as a consequence and not a cause of collective action, a point we will return to later.

4. Increased communication, however, is in itself not a good. Not everything works better with email (O’Mahony and Barley, 1999).

5. See also Sanyal's (1994) accounts of the Bangladeshi NGO Proshika, and the Indian NGO SEWA (the Self-employed Women's Association).
6. Of course Microsoft and Starbucks were themselves once upon a time anti-establishment upstarts. On the phenomenon of voluntary–commercial cooperation and its attendant challenges, see Edwards and Hulme (1996a) and Bendell (2000).
7. Because the state and market themselves are not static but are undergoing fundamental changes, an even bigger problem may be distinguishing cooperation from co-optation in certain cases (Bach and Stark, 2002).
8. Because authority is distributed, accountability becomes highly problematic, especially when thought of in the juridical sense of locating responsibility in a figure or specific institution of authority (see Stark and Bruszt, 1998).
9. Compare the concept of translation with Fox and Brown's (1998) 'bridging individuals'.
10. This bears similarities to how non-profits in the US helped construct the categories and stigma of welfare recipients (Cruikshank, 1999).
11. See also our discussion of meta-NGOs in Bach and Stark (2002).
12. Which is not to downplay linking by itself – after all, we do have a very real use for the one-to-one technology of the telephone.
13. This form of search is known as collaborative filtering (Gladwell, 1999).
14. See, respectively, <http://foner.www.media.mit.edu/people/foner/Yenta/>; <http://info.alex.com/>; <ftp://parcftp.xerox.com/pub/dynamics/beehive.html>.
15. PrairieNet communityware can be seen at <http://www.tec.spcomm.uiuc.edu/nosh/prairienet>.
16. IKNOW stands for Inquiring Knowledge Networks On the Web. The IKNOW web site is: <http://www.tec.spcomm.uiuc.edu/nosh/IKNOW>.
17. This space controls what came before, in the sense of paradigm, rather than eliminates it (see Levy, 1997).

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