TECHNOLOGIES OF CIVIL SOCIETY
Communication, participation and mobilization

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Emerging technologies of communication and cooperation are increasingly mediated through flows of connectivity and information, leading to distributed forms of civil participation. In this article I discuss 'technologies of civil society' whereby people who are investing in information-access, increased mobility and knowledge-sharing contribute to multiple networks of co-participation and cooperation. Civil society is increasingly becoming visible through the technologies used to receive, organize and utilize the information flows. In order to sustain cooperation, complex interrelations between individuals and their technically mediated communications must of necessity be deliberate and intentional strategies. I argue that communication technologies are informing strategies of civil participation and cooperation at ever more accelerated rates, aiding bottom-up strategies of organization.

'A society's fitness is determined by its social cognitive map' (Robert Artigiani)

Introduction

Technologies and strategies of cooperation are increasingly invested as deliberate social actions mediated through innovations in information communication technologies. The new networks and interrelations of connectivity and information provided by technology are contributing to a more bottom-up, and distributed, form of civil participation. In this context, aspects of global civil society are facilitated by complex interrelationships of shared informational mobility, such as mobile mapping—*citizen cartography* —and online social bookmarking applications. In this article I discuss 'technologies of civil society' whereby an increasing number of people who are investing in information-access, increased mobility and knowledge-sharing contribute to multiple networks of co-participation and cooperation.

I begin by addressing global civil society and how it can be analyzed within complex flows of information and mobile connectivity. Secondly, I examine the new scapes of mobility and social connectivity that are largely driven by user-created applications and which foster a potential social restructuring through shifting patterns in technological applications and user participation, such as citizen cartography. Thirdly, I focus on specific technologies of cooperation that mediate communications and collaboration between people in physical-digital scapes. Finally, this article examines how communication-

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mediated forms of civil participation in China are being hampered, sabotaged and banned by the hierarchical top-down state structure of the Chinese authorities, and how this contrasts with the more open-access models presented in this article.

Complex Civil Strategies

The form of civil society 'both local and global, is being transformed by new forms of communication that increase people's autonomy to retrieve their own sources of information and to develop their own communication channels' (Castells *et al.*, 2006, p. 283). Global civil society itself occupies a place/space within the interrelations of global information flows that facilitate self-organization, non-hierarchical networks and individual collaborative efforts towards a shared goal. Within emerging networks of physical–digital co-presence much has been achieved in the way of social campaigning, and recent growth in civil society organizations has been staggering:

> there are an estimated 5000 world congresses held annually and some 50,000 non-governmental, not-for-profit organisations operating at the global level. The numbers of these international non-governmental organisations have grown rapidly in recent years; helped along by access to money and communications technology, many thousands have come into being since 1985. Nearly 90 per cent of them have been formed since 1970. (Keane, 2003, p. 5)

Modern civil society, aided by the expansion and rapidity of global communications, is able to operate an integrative policy that sees both multiplicity, diversity, yet unity in their actions; for example, the many and diverse operations of Amnesty International or Greenpeace. At the same time, the actors involved can be said to be more reflexive as they operate as close to real time as possible relative to the timing and accuracy of their information. Examples of the now global civil society include

> bodies like Amnesty International, Sony, Falun Gong, Christian Aid, al Jazeera, the Catholic Relief Services, the indigenous and peoples bio-diversity network, FIFA, transparency International, Sufi networks like Qadiriyya and Naqshabandiyya, the International Red Cross, the Global Coral Reef Monitoring Network . . . these institutions and actors constitute a vast, interconnected and multi-layered non-governmental space that comprises many hundreds of thousands of more-or-less self-directing ways of life. (Keane, 2003, p. 9)

Global civil society is dynamic and eclectic in its relationships due to the very nature of the diverse actors, both geographically and psychologically, that constitute its parts. By the term 'global civil society' this itself is a broad and fuzzy category that, although implying networks of social processes, provides within its fringes the vague spaces where illegal traffickers, arms traders and terrorists hide/hang out. Indeed, the 'spaces of freedom within global civil society also enable individuals and groups to network, in the form of criminal gangs that run World-Wide Industries. An example is the sale and sex trafficking of young girls and boys' (Keane, 2003, p. 13). Networks within global civil society can be stretched both thinly in certain areas, and again clustered into hubs around the more successful, generally Western-funded and publicly known, organizations. Keane understands the dynamics of the global civil society as non-defining its boundaries—'the ''micro'', and the ''meso'' and the ''macro'' dimensions of this society are both interconnected and co-

determinant of each other'—such that any actions, events 'are implicated in loops that produced feedback' leading to complex self-reflexive webs. Keane considers 'we are being drawn into the first genuinely bottom-up transnational order, a global civil society, in which millions of people come to realize, in effect, that they are incarnations of World-Wide Webs of interdependence, whose complexity is so riddled with opportunity, as well as danger' (Keane, 2003, p. 17).

Again, this links complex interdependencies with risks and contestations. Keane also goes so far as to suggest that global civil society is the most complex society in the history of the human species, and as such requires new metaphors in which to 'picture and understand': 'it is better to liken this society to the tens and hundreds of thousands of "nested systems within nested systems" described in certain versions of complexity theory. Certainly, this global society is both integrated and de-centred' (Keane, 2003, p. 19). The striking connections and correspondences between complexity theory and global civil society have been picked up by a number of theorists (Castells *et al.*, 2006; Chesters, 2004; Chesters & Welsh, 2005; Munck, 2002).

The very antagonisms that inform global civil society, the network processes between state and non-state actors, whether individuals or corporate bodies, in regional, national or global clusters, highlight the clash of opposing systems: between one that is top-down hierarchical and the other that is bottom-up and distributed. Although there are multiple links and processes between state and non-state actors, the divide still manifests a conflict that outlines disparities between hierarchical and complex, networked strategies. In this understanding, global civil society is 'connected into global affinity structures maintained by computer mediated communications and reconfigured during intense periods of social interaction around specific protest events or reflexive gatherings' (Chesters, 2004, p. 330). Such dynamic communication-mediated mobile movements, that emerge sporadically and then are gone, and which contest with existing systems/movements, are also recognized by Melucci when he says that 'in complex societies social movements develop only in limited areas and for limited periods of time. When movements mobilize they reveal the other, complementary face of the submerged networks. The hidden networks become visible whenever collective actors confront or come into conflict with a public policy' (Melucci, 1989, p. 70). This description of a global civil society is described by Melucci as a planetary action system, interpreted as a 'system whose complexity increases through systemic feedback facilitated by the assimilation of computer-mediated communications in all aspects of social life and historically unprecedented levels of mobility' (Chesters & Welsh, 2005, p. 191).

In terms of social movements there is a decline in the importance of fixed locations towards relationships that are formed, re-formed and continuously reconstructed in relation to shifting and dynamic environments. It is important then for these shifts to be recognized as social patterns and that the sociology of contemporary social practices 'distinguishes between the abstract and conceptual Cartesian division of location into the grid of longitude and latitude, and the subjective, negotiated social spaces of lived experience' (Lane, 2004). Electronic proximities now facilitate co-presence in simultaneous physical and digital/virtual spaces that serve to foster ties, linkages, and webs of relations over physical and linear restrictions of location. What this trend suggests is that informational-mediated forms of social practices are becoming increasingly in-formed through technologies of connectivity and communication that are showing signs of merging physical and digital/virtual spaces. Such technologies are enabling users to

'weave our own structures of narrative and creation . . . as designers of new conduits for navigating urban experience' (Lane, 2004). Co-presence thus begins to treat connections as conduits of conversation and patterns of information-sharing. In such habitable spaces, and inhabited flows, that encourage both presence and action, both agency and authorship, self-organizing cognitive networks are shifting towards relationships of collaboration and resource sharing. This collaborative mixture of in-formed creativity not only facilitates interaction with an increasingly fluid environment, it also allows for an expanded understanding of interdependent dynamics. I examine now some of these social dynamics and collaborations.

Social Tapestries: Weaving Civil Participation

Emerging trends are showing user-driven forms of mobile communication technology to be significantly influencing, aiding and facilitating, social capacity for collective action. Networks of technologically mediated communications are enabling dispersed and distributed users to engage and participate in complex social webs of presence and action. One of the forms that this complex sociality is taking is that of civil participation. Beth Simone Noveck sees technology as creating the conditions and boundaries for collective action, and the technology she comments upon is that which facilitates collaborative group action:

> The Internet is the locus for social action and activism. But it facilitates not only exclusively online interaction. These new tools can enable groups to wield 'real' power, namely the power to take action, make decisions, solve problems. The underlying technological preconditions to collective action and activism are changing. As a result, groups and webs of groups can become more effective legal actors than they have in the past. (Noveck, 2005)

Noveck sees the emerging phenomenon of complex social grouping as promoting collective action in economic, civic and cultural arenas: in her words, the practice of democracy with a small 'd'. An example of this would be citizen juries. Whilst this issue is still perhaps not a general feasible option, it does hold promise and potential. Noveck asks us to imagine individuals earning bonus points for civic participation; a participation that can take place from the courthouse but also from home via the Internet or 'in interstitial spaces, such as bus stops or subways platforms, using networked kiosks to join and visualize the jury, connect with other members, view information about an ongoing proposal and provide feedback: the so–called ''deliberative bus stop''' (Noveck, 2005).

In a similar manner to Noveck's call for greater civil participation James F. Moore, of Harvard law School, posted an essay on the Net, via his webpage, on 31 March 2003 entitled 'The Second Superpower Rears Its Beautiful Head'.[1] The term 'the second superpower' has often been used in conjunction with global civil society (GCS) and the alternative globalization movement (AGM); however, the term is now more narrowly used to refer to collective, and connected, individuals working towards an emergent democracy that can influence both the mainstream media and government policy. The main ideas expressed in Moore's paper encourages blogging[2] and other communication-mediated technologies to link together a global community that can influence 'first superpower institutions' such as international corporate bodies and international law; also to foster ties of a personal reflective nature in order to maintain bottom-up communality. The paper

received around 50,000 downloads in the first five days, and has remained an active discussion issue since. This links in with the growth, mostly after Moore's paper, of another form of civil participation: that of citizen journalism, in the form of individual and group weblogs.

Former mainstream and now active online citizen journalist Dan Gillmor wrote: 'this is a golden opportunity for citizen activists to get involved, to help inform others who do care about specific topics. Maybe the masses don't care about all the issues, but individuals care about some of them' (Gillmor, 2004, p. 103). Likewise, Gillmor recognized the value of decentralizing people and data at a time when information flows are beginning to circulate in more complex pathways than can be tapped by central operations alone. In this Gillmor stated that 'we need to find ways to bring the nation's collective energy and brain power to bear on the threat . . . tapping the power of every one is the best approach' (Gillmor, 2004, p. 107). This links in with the recognition of the growing convergence between the professional and amateur realms of reportage, as was mapped out by the recent Demos report 'The Pro-Am Revolution: How enthusiasts are changing our economy and society' (Leadbeater & Miller, 2005).

The signs of a growing civil society are visible through the technologies used to receive, organize and utilize the information flows. These include folksonomy (tagging), Wikis (such as the popular encyclopaedia Wikipedia), blogging, podcasting (a form of audio-post blogging) and now vlogging (video blogging). As the name suggests *folksonomy* is for 'the people', and is a form of tagging individual information posts (whether it be textual, visual, or audio) in a way that allows other users to search for items by related taglines. It is a collective way of organizing massive amounts of information. A popular site that utilizes this system is *del.icio.us* (http://del.icio.us/) whereby users can publish their bookmarked sites on the web to share with other online users. According to the site: ''del.icio.us is a social bookmarks manager. It allows you to easily add sites you like to your personal collection of links, to categorize those sites with keywords, and to share your collection not only between your own browsers and machines, but also with others'' (http://del.icio.us/). Each posted site is then given tagged words with which to define the entry. In this way people can have access to, and share, a multitude of websites that other people have deemed useful, and have organized according to key words. The same has also been done with people posting pictures and images onto the Web, via such sites as the popular photo-hosting site *Flickr* (http://www.flickr.com). Such bookmarking sites are collaborative tools designed to augment human intelligence by allowing, and making visible, storage of data designated to be meaningful, i.e. transparent to other users in order to share links and information.

Today collaborative tools are constantly being created that facilitate a move to a more mobile civil participation and mapping of presence and action. In order for the linking of information-sharing individuals to become effective and efficient, they need to have more precise knowledge about their presence and participation within the whole. In this way individuals within complex networks of information-sharing are not solely nodes, acting as information hubs, but are shifting towards becoming embedded, or enmeshed, agents. One example of creative innovation in this area has been developed by the social research centre Proboscis, which has an emphasis upon what it calls public authoring. For them this term implies using communication technologies to author and share information rather than solely to consume. In this context Proboscis researched software 'for annotating geographic places with content (text, images, sounds) and making

relationships between places' (Lane, 2004). They named this software *Urban Tapestries*[3] and the prototypes developed allowed mobile users (with PDAs, phones) to map and share local knowledge '*in situ*'—whilst on the move. The intention behind this software is to provide better understanding of the relationships between people, places and things. It also provides data on urban social interactions and communications. The latest project coming from the Proboscis research team is a two-year research programme in collaboration with the London School of Economics Media and Communications Department, titled *Social Tapestries*.[4] The project aims to positively exploit the social benefits of local knowledge sharing that has been opened up through new mobile technologies of communication:

> How do we map and make sense of the social tapestries which make up the warp and weft of our daily lives, interweaving with others belonging to the people we share our environment with? . . . The Social Tapestries experiments aim to explore how users might engage with mobile location-specific content in the context of 'civil society'. (Lane, 2004)

Social relations have been impacted upon by mobile and wireless technologies, as well as by web networks, in the way that information is dealt with, and it is becoming increasingly participatory. Using network technologies to 'gather, create, and share knowledge at grassroots—no matter how informal—offers the possibility of profound changes to the way in which we engage with our environment and the people who inhabit it' (Lane, 2004). If content is becoming the prime resource, as Web 2.0 discourse advocates, then local geographical knowledge is perhaps best served by distributed individuals who have, and are, experiencing it rather than through centralized means. This points towards individuals who are deliberately contributing to cooperation through mobile information flows. Further, these social actions are being enacted through local geographical spaces. Resource sharing, in a system of any size, is a feature that is required in order to stave off the tragedy of the commons.[5]

Another striking example of how individuals are contributing to creating dynamic physical–digital social networks is through what is being termed *citizen cartography*. Here, the deliberate strategy is to create an online map of a specific local area, using mobile phone and GPS technology, so that the resultant map can be posted online at an open-source destination[6] and thus be available for creative and dynamic additions, uploads and sharing. Most Internet maps are protected by strict copyright laws that forbid creative utilizations by users. Citizen cartography is a means whereby users 'on the ground' reclaim the digital representations of their local geographical spaces for network-sharing and for negotiating complex relationships of social behaviour and 'meetingness'. One such recent project was that of 'Mapchester' when on Saturday 13 and Sunday 14 May, 2006 over 40 individuals used a GPS receiver to log local streets in Manchester, most of them on foot. The organizers see this event as a collaborative, community exercise:

> Mapchester is an experiment in 'citizen cartography' that we hope will make a significant contribution to wider efforts in so-called 'open-source' mapping. This is an emerging and rapidly growing cartographic activity, driven in part by technology (cheap GPS equipment and online collaboration tools, like OpenStreetMap.org), but also by a very different ethos to knowledge production. Under open-source models the right of authorship are de-centred and the ownership of knowledge is seen as a common resource that can be distributed and re-used without restriction or license. As such

> 'opening' up mapmaking has real potential to empower people to create their own knowledge and encourages re-use of cartographic resources in novel, creative ways. (http://10.futuresonic.com/mapchester.html)

As the above examples of the *Urban Tapestries* and *Mapchester* projects inform, these are explorations into using mobile location-specific content in order to facilitate people, organizations and other actors, within the global civil society. In this context, cooperation can be viewed as a functional and practical tool. It is towards newly emerging forms of socio-technical networks of cooperation that I now turn.

Technologies of Cooperation

Technologies that undergo innovation 'on the street' suggest new opportunities for developing complex cooperative strategies through emerging interrelations of communication. The specific emphasis here is on deliberate and intentional strategies of cooperation, thus viewing cooperative strategies as 'steering mechanisms'. Just as cybernetics is named from the Greek *kybernetes* meaning, amongst other things, *steersman*, so too can collaborative strategies be seen as self-reflexive attempts to steer social networks towards emergent cooperation.

A recent report published by The Institute for the Future (IFTF), which is an independent non-profit research group based in California's Silicon Valley, outlines digital technologies of cooperation. Their report 'Technologies of Cooperation' (published January 2005) opens with the declaration

> When social communication media grow in capability, pace, scope, or scale, people use these media to construct more complex social arrangements—that is, they use communication tools and techniques to increase their capacity to *cooperate* at larger and larger scales. Human history is a story of the co-evolution of tools and social practices to support ever more complex forms of cooperative society. (Rheingold, Saveri and Vian, 2005, p. 3)

This reinforces the notion of deliberate efforts within strategies of cooperative technologies, leaving an outcome that remains dynamic and non-linear. Such systems of relations and processes, as in mobile networks, are always on the move, and meshing in continuously updated arrangements.

The IFTF report on cooperative technologies cites eight key clusters as being: self-organizing mesh networks; community computing grids; peer production networks; social mobile networks; group-forming networks; social software; social accounting tools; and knowledge collectives. Cluster one—self-organizing mesh networks—are 'constellations of devices that can serve as both transceivers and relays or routers, with built-in intelligence to recognize compatible devices and configure themselves as a node in the network' (Rheingold *et al.*, 2005, p. 12). Systems that comprise intelligent nodes can be self-adaptive, thus relinquishing the need for centralized governance. The burden of responsibility for maintaining such networks becomes a shared one as nodes become active participants—they become 'smart'. This is the behaviour that has been described previously in terms of actors within a communications network; this notion of a 'smart' meshwork is a step towards a more ubiquitous, connected social environment. This type of

mesh architecture can be applied to other areas such as governance, commercial and energy organization.

Community computing grids, the second key cluster, refers to the sharing of CPU resource power so that distributed processing, often called 'peer-to-peer' computing, facilitates the sharing of information between individual computers within a network in order to provide an overall increased computational resource. Such examples are the SETI program where hundreds of thousands of computer users worldwide have signed up for their computers to download code from a central server that is scanning for signs of radio signals in space. With so many hands on the job, the task is made that much easier—many hands make light work, as the saying goes. This is a form of computer swarming that is not unlike social swarms whereby social networks and mobile communications can form emergent effects. With technically mediated flows not only can 'millions of people link their social networks through mobile communication devices, but the computing chips inside those mobile devices will soon be capable of communicating with radio-linked chips embedded in the environment' (Rheingold *et al.*, 2005, p. 15). Such multiple flows between people, their devices and the environment may produce the ultimate decentralized civil society that includes this myriad network of nodes—human, technical and social.

Key cluster three—peer production networks—refers to spontaneously formed networks of individual actors who come together to participate cooperatively in a distributed manner, for the creation of a common good. Such self-organized systems form around resource sharing and also involve positive feedback. A technical example of this is open software, which is distributed on the Internet for free and is open for continuing upgrade and modification by its users. In this domain Linux is a striking example. When Beth Noveck, mentioned previously, discusses citizen juries she is referring to these peer production networks. The caveat here is to keep in mind that social encounters are also driven by competition, survival and selfishness. What is being argued is that, as the social domain forms stronger ties with technologically mediated networks, and as more distributed and interconnected relationships are formed, bottom-up networks are strengthened against top-down hierarchical domination.

Key cluster number four—social mobile computing—can be viewed in terms of strategies of mobile mapping, such as 'citizen cartography', as well as grassroots demonstrations organized around texting and mobile emailing. Clusters six and seven—social software and social accounting systems, respectively—are software and mechanisms/tools that enable social systems to emerge that facilitate transaction and trust. Examples include blogging, social bookmarking, social communities online, the use of RSS syndication for ease of transactions and the reputation system for signalling trust. The final eighth cluster is knowledge collectives. Here, the ability of systems to hunt and gather information in order to provide common resource pools of knowledge is emphasized. In other words, a decentralized, distributed complex network of information flows with open access and participation. Earlier I referred to folksonomies and social bookmarking as providing means of ordering information in the emerging Web 2.0. Just as Google's mission statement is 'to organize the world's information and make it universally accessible and useful'[7] so too are the emerging social networks striving through collaboration to facilitate participation and access to collective resources.

Although it is difficult to assess empirically, the signs are that such collaborations are on the increase, especially if the social sphere is required to maintain and develop its

complex arrangements. As Derrick de Kerckhove, Director of the McLuhan Program at the University of Toronto, has noted:

> The increase in human interactions—personal, social, and institutional—through integrated networks is concentrating and multiplying human mental energy . . . conse- consequently, the degree of collaboration among individual people's minds is about to become vastly increased. (De Kerckhove 1998, p. 143)

In the examples presented, looking at social tapestries and technological strategies of mobile communications, it has been shown that the path of cooperation is a functional step in facilitating coordination among a denser array of distributed participants in ever increasing socio-technical networks. Yet cooperation is not a certainty, and there is no guarantee that the strategies will be successful. There exist numerous cases where collaborative processes are deliberately blocked, hampered and firewalled. I now turn to a brief discussion of performances of non-cooperation.

Technologies of Non-cooperation

For the most part this article has engaged with technology as a facilitating force and/or commodity for furthering social ties and fostering complex spatio-temporal relations. However, technology, like most other systems, inherently contains both positive and negative implications and/or consequences. In order to provide a more balanced coverage of these distributed communicative technologies I turn now to discuss instances where cooperation is being hampered, and manipulated, by hierarchical top-down control use of technology.

Tampering with connectivity, complex flows and cooperation requires an understanding and practical knowledge of these technologies. It requires, to varying degrees, a working knowledge of such issues as: regulation of the Internet; open-source software and democratic innovation; dynamics of complex connectivity, networking and online communities (including blogging); the interpersonal and social effects of mobile technology; digital and physical spaces and the propensity for civil protest; and access to bandwidth (including Wi-Fi). This list is not exhaustive. Even though there are numerous organizations available to defend cooperative strategies, such as the Electronic Frontier Foundation,[8] there are severe restrictions within digital territories manned by such state authorities as China, Iran and North Korea, for example. Recent events have focused to a large degree upon the restrictions placed upon citizen access, and freedom of speech and movement, within Chinese controlled territories. This is in part a contradiction to China's expansion of its telecommunications industry over the last two decades as part of their modernization program.

Since 1993 China has been laying fibre optic cables in a grid-like network across the country so that now '80% of China's communications backbone and 40% of its urban networks now use fibre-optic cables' (Deibert, 2002, p. 146). By 2000 China was estimated to have 22.5 million Internet users. By 2006 this had risen to 123 million users—a use growth of 446.7%.[9] By any terms, this is phenomenal growth. China is also reputed to have from 5–6 million bloggers, which is still relatively small in comparison to its number of Internet users, yet is a significant number when one considers that the Chinese authorities are constantly engaged in Internet crackdown, with the closures of hundreds of websites and Internet cafes and the arrests of those online commentators disapproved of. In 2002

Isaac Mao and Zheng Yunsheng published China's first online discussion forum about blogging technology 'CNBlog.org' (Qiang, 2004). Since then blogging as a means of distributing citizen and grassroots information has grown dramatically, with implications for Chinese authorities in terms of censorship. According to Reporters Sans Frontières, at least 63 bloggers have now been arrested, and most of those are publishing articles outside of the country (BBC, 2005). David Reid, author of the BBC report, sees how some authoritative regimes might regard blogging as a threat because it is 'so virulent . . . In the same way that spammers can reach millions of people in an easy way, ideas deemed dangerously democratic by many regimes can spread faster than bacteria on a petri-dish' (BBC, 2005). In the same report, Julien Pain, of Reporters Sans Frontières, says: 'These are people who are really resisting government oppression . . . Blogging is a very, very important tool in terms of freedom of expression . . . That's why it is so interesting. It is a kind of a revolution now' (BBC, 2005).

In China, being a blogger can have serious consequences, especially when the main content under discussion is news. The official China Internet Network Information Centre in Beijing estimates that 62% of Internet users go online primarily to read news. Since 2000 China's police force has set-up Internet departments in more than 700 cities and provinces (Qiang, 2004). The Chinese authorities are aware of the power inherent in the masses, and an online blogosphere can manifest potentially significant consequences in terms of social activist organization. In January 2003 the Chinese authorities blocked all access to *Blogger* which is one of the most popular blog hosts on the Net. Within a short time three small blogging servers were offering a new gateway into the blogosphere: Blogcn.com, Blogdriver.com and Blogbus.com. All blog-hosting services were based within China, and by people who had first gathered on Mao and Yunsheng's CNBlog.org. The term *bo ke* has come to mean 'blogger' in China. The blog revolution, if one is to call it that, is sweeping through China, with blog-hosts popping up constantly. Xiao Qiang, director of the China Internet Project at the University of California at Berkeley, and host of China Digital Times, has followed this blogosphere explosion. He notes how, by the end of October 2004, China had more than 45 large blog-hosting providers and that 'a Google search for *bo ke* will return more than two million results, from blogs for football fans to blogs for Christians . . . Blogs play an important role in republishing and spreading information as quickly as it is banned from official websites' (Qiang, 2004). A newer application for blogging is moblogging: moblogging being a combination of mobile and blog, with posts sent mainly by mobile phone, using SMS or MMS messages. Users of China's 300 million mobile phones are beginning to find that their service providers are now offering 'moblogging' services whereby both text and photos can be sent directly from their phones to their blogs. As Qiang notes, 'for now, most blogs are personal, but their potential for building networks or people and disseminating news cannot be underestimated' (Qiang, 2004).

Alongside internal modernization Chinese Internet start-ups and portals have received significantly increasing overseas financial investments. In contrast to how global Internet access is promoted, Chinese authorities are territorializing Internet traffic by funnelling network connections first via their localized intranet, thus leading to what has been dubbed as 'The Great Firewall'. These macro measures are counter-balanced by more aggressive micro-measures of control and surveillance within the Chinese Internet and blogosphere.

A recent, and highly publicized, restriction placed upon the Google search engine operating inside China forced Google to accept the condition of creating a self-censored search site. Its previous search engine for China's fast-growing market was subject to government blocks. The new site—Google.cn—censors itself to satisfy Beijing (BBC News, 2006). China's euphemistically titled 'Great Firewall' restricts the BBC news site and, for example, if a search were to be done on Google.cn for the controversial Falun Gong spiritual movement the user would be directed to a list of critical and anti-Falun Gong articles. Yet Google is not alone: both Yahoo and Microsoft utilize their own forms of censorship in order to comply with the Chinese authorities, and it seems that this 'Great Firewall' is not only preventing access to 'unacceptable information', it is also restricting strategies of cooperation. Chinese authorities, it seems, are anxious about connections that lead to civil spaces and/or meetings; and they have good reason. Chinese authorities are becoming worried that social unrest is reaching 'alarming levels':

> Not long ago, the mainland's top cop, Zhou Yongkang, said that 74,000 major protests took place last year, up from 58,000 in 2003. More than 3.7 million people took to the streets in 2004—angry about such issues as official corruption, health problems, environmental degradation, mistreatment by employers, and home evictions. (Liu, 2005b)

It does not require much imagination to conceive how this situation could be exacerbated through the use of 'smart mob' technologies, blogging and other connective strategies aimed towards dissent. Because of this such lines of communication—networks of strategies—are being closely monitored and interfered with behind the 'Great Firewall'. Networks of cooperation rely, to some degree, upon notions of trust and reputation. In some corners of online space this is a cause for concern, especially when shared presence cannot distinguish between user and official state abuser. In this respect, China is perhaps at the forefront of such technologically deceptive strategies of online misrepresentation. According to recent estimates there are between 30,000 and 40,000 Chinese e-police who constantly surf online chat communities and lead a double-life as noted online contributors (Liu, 2005a). The job of the e-police is to block and/or delete undesirable content, and to locate and detain those users deemed 'troublemakers', also to

> proactively influence web content in ways beneficial to the regime—and pre-empt people from organizing politically. The aim is not simply to stifle dissent or to control the free flow of information, but increasingly to shape public opinion in cyberspace. In fact, Chinese propagandists worry less about the Web as an information source than as a tool for mobilizing mass movements. (Liu, 2005a)

The Chinese authorities are concerned more with the issue of social organization, with how the information is used, rather than the information itself. In late 2005 the Chinese authorities released a new set of 'web-rules'; in these, two new categories forbade content: one bans 'inciting illegal assemblies, associations, marches, demonstrations or gatherings that disturb social order'; whilst the second 'forbids conducting activities in the name of an "illegal civil organization"' (Liu, 2005a). The authorities have hired thousands of covert e-police to act as 'moles' to infiltrate popular chat-rooms and to pose as grassroots activists, as well as prominent bloggers.

According to Xiao Quing, head of the China Internet Project at the University of California, Berkeley,[10] roughly one-tenth of all sites accessed through Chinese cyberspace

are set up and run by the state authorities. Also, according to Paris-based *Reporters Sans Frontières*, in their annual report, at least 64 known web 'dissidents' are serving long jail sentences[11] with the authorities having closed 12,575 Internet cafes within a three-month period in late 2005 (Liu, 2005a). In the first worldwide index of press freedom, published by *Reporters Sans Frontières*[12] out of a list of 139 countries (ranging from 1 to 139 in decreasing order of press freedom) China came in at 138, beaten only by North Korea. At the same time China is recognized as one of the fastest growing technologically developing nations. Such figures may appear contradictory, yet somehow fail to surprise. According to OpenNet Initiative, a project that involves researchers from Cambridge, Harvard and Toronto universities, 'China operates the most extensive, technologically sophisticated, and broad-reaching system of Internet filtering in the world. The implications of this distorted on-line information environment for China's users are profound, and disturbing'.[13]

It was only recently that anti-Japanese sentiment, which was promoted by the Chinese authorities by online bulletin-board postings and SMS messages, induced thousands of Chinese people into physical rioting, catching the authorities somewhat off-guard by the ferocity of the event. In an attempt to stem and quell the protests, the authorities engaged in overt SMS messages this time 'warning residents to avoid illegal demonstrations and to focus their patriotism on their studies and jobs' (Liu, 2005a). The capacity of text-mobbing within mainland China is significant, and according to the Chinese Ministry of Information Industry (as reported by *China Daily*[14]), there is expected to be a rise to 440 million mobile phone subscribers by the end of 2006. With such colossal numbers, complex strategies of cooperation and mobile networking are something the Chinese authorities do not wish for.

Against the civil push for blogging, online networking and strategies for complex interrelations, there is a similar push for building up firewalls that actively seek to form strategies of non-cooperation, where trust is invalidated through e-police 'moles', and information is either eradicated or actively swapped for influential misinformation. In such an environment civil collectives are barred from forming; networks are not distributed evenly but tied to top-down hierarchies of control and containment. This arrangement displays characteristics of the typical conflict between hierarchical and network architectures. Information flows are restricted and centralized by the Chinese authorities, with access becoming secretive and compartmentalized, as is the structure of top-down control (Deibert, 2003). Another example of Chinese state control mechanisms is the ban on Chinese individuals or companies from using foreign encryption software, placed in 1999 by the State Encryption Management Commission (Deibert, 2002). This regulation forces all those wishing to use encryption software to apply to use only that which is provided by the state, thus also enabling all encrypted software to be unlocked by state authorities if they wish to survey it. On the other hand, Chinese bloggers are attempting to form bypass networks of information dissemination that are unfiltered and open, thus causing consternation with the state authorities. Security analyst Deibert notes how, paradoxically

> the more that citizen networks are targeted by traditional state intelligence agencies the more the security of their information flows will harden, pushing citizen networks deeper into the subterranean layers of the Internet . . . There is a contradiction, in other words, between the operating procedures and the object of state intelligence—in this case, of

> citizen networks. Together these two constraints will make the job of monitoring citizen networks by state intelligence agencies an increasingly formidable task. (Deibert, 2003, p. 188)

Again this highlights the difficulty in hierarchical structures trying to maintain control over distributed actors. As in complex systems, when a route or pathway becomes blocked, other linkages are formed, emphasizing the process-orientated feature of complexity's interrelations. An example of this is that a significant number of Chinese bloggers and Internet users are sidestepping imposed firewalls by use of proxy servers that reconnect users to sites that have been banned:

> A good example is the proxy servers that are maintained by a news site, *China News Digest*, which each day provides a list of thousands of different proxy servers that are available to Internet users in mainland China as well as detailed instructions on how to sidestep China's firewall technology. (Deibert, 2002, p. 11)

This example of the contestations erupting between the clash of different systems coming together—that of distributed bottom-up networks that constitute complex processes and top-down hierarchical control architecture—is at present part of the core infractions being played out between the Chinese authorities and the rapidly increasing number of bloggers and mobile-communication users in China. It is a clash that has been fuelled by China's recent policies toward increased investment in telecommunications and technological modernization. In contrast to China's industrial modernization program the state authorities have shown only tentative movements towards accepting, and allowing, a burgeoning civil society to manifest and develop.

According to Dr Wang Yizhou, Deputy Director of the Institute of World Economics and Politics at the Chinese Academy of Social Sciences in Beijing, civil society 'in People's Republic of China (PRC) is a rather new phenomenon, both as an concept and as a reality, especially comparing with modern Western world' (Yizhou, 2005). Yizhou states that national departmentalism and totalitarianism have set the limitations for the existing social structure over a long period of time, with the result being that what remains of civil society today is extremely weak. Also, that the contemporary intellectual and political elite in China today mostly rely upon the influence and support of the state. Thus, Yizhou concludes, many of the social organizations operating close to the state share these similar features. However, the situation is not without movement. Zhang Ye, Country Director of the Asia Foundation in Beijing, recently reported to the Brookings Institution in the US that

> China's drive toward economic reform and modernization in the past 25 years has created new opportunities for citizen participation. The Chinese people are seeking ways to organize their own institutions to respond to social needs and convey grievances and concerns in a way which influences the policy-making process. One of the significant developments of Chinese society in the past two decades is the emergence of non-governmental organizations. (Ye, 2003)

In a survey report of the NGO Centre of Tsinghua University in 2000, a wide array of emerging NGO activities were seen as operating, including environmental protection, poverty alleviation and academic protection (Ye, 2003). Ye refers to this shift as the 'quiet revolution'. However, the survey does not detail the degree of activity, or to what depth of engagement, these emerging NGOs are allowed. Where perhaps the real 'quiet revolution'

is occurring is in the spaces behind the Great Firewall, where strategies of connectivity are being sabotaged by state e-police and chatroom moles. In these networks, quiet connectivity produces longevity, and open communication and collaboration comes at a price. Yet with an estimated blogging culture of more than 6 million bloggers,[15] the future of such a silent mass remains uncertain. Uncertain and indeed complex.

Conclusion

Todays' forms of civil society suggest that lives are increasingly lived in fluid relations where electronic information flows, material and virtual bodies, and physical locations are intersecting and integrating in more prolific, engaging and interesting ways. As networks of movements and relations move beyond boundaries, the issue is whether the 'social' can remain fixed —whether by conception or imagination. Social relations then are becoming increasingly in-formed through emerging technologies that allow for distributed connectivity and information sharing and cooperation.

Technologies of cooperation, especially within global civil society, are both in-formed and contested through the mediation of information communication technologies. Such strategies of cooperation as discussed here involve a complexification of mobile connectivity, and social locatedness 'on-the-move.' Innovative digital technologies have formed applications that facilitate the tagging, storage, recording and dissemination of information through such sites as *del.icio.us, flickr* and other social bookmarking programs, and through blogging, podcasting and moblogging and vlogging (mobile phone and video blogging respectively). Also, mobile and wireless technologies, as well as by web networks, have impacted upon social relations by creating information *in-situ* that tags and informs on local environments. This has led to the phenomenon of *citizen cartography* that develops a participatory culture which allows individuals 'on the ground' to map their local area with the information they consider of importance to users, and to provide this via open source software rather than through copyrighted and controlled media. Blogging too has become a recent cultural phenomenon that has unleashed a multitude of hitherto unknown online commentators that are increasingly engaging upon local and global social and political events. However, the distributed networks of connection and contribution are not evenly spread, nor are they immune from being curtailed and fire-walled.

Cooperation is also liable to result in conflict, as discussed in global civil society literature (Keane, 2003; Munck, 2002; Taylor, 2002). Further, as listed on the *Reporters Sans Frontières* index of press freedom, networks of information are being hampered, blocked and sabotaged by state and hierarchical interference. This especially applies to such nations as China and Iran. The contestation between bottom-up and distributed connectivity as opposed to hierarchical top-down architectures of control was highlighted in reference to Chinese bloggers and state authorities and is a central issue of friction within civil society. It was also inferred within the discussion on the features of some NGOs and global civil society.

I have intended to examine technologies of cooperation and civil strategies of connectivity and communication through the emerging convergences of physical-digital scapes, movements and locatedness, as exemplified in mobile information flows, digital mappings and online networks. This views the ubiquitous and pervasive nature of embedded physical-digital networks as being benevolent to existing and emerging

grassroots and civil movements. I have argued that changes in social communications and technically mediated information flows and connectivity, whilst still being contested and hampered, are of primary importance to a burgeoning of social awareness and need for increased social participation and collaboration.

NOTES

1. http://cyber.law.harvard.edu/people/jmoore/secondsuperpower.html
2. Blogging: blogs are regularly updated websites or parts of websites, with entries, or posts, in chronological order. Weblog posts usually link to news articles, other weblogs, or other websites, and are accompanied by the blogger's commentary, which can include personal opinions. See http://en.wikipedia.org/wiki/Blogging
3. See http://urbantapestries.net/
4. Proboscis is also in partnership with Ordinance Survey, Creative Partnerships Hull and Kingswood School, and The Public, for this project.
5. This phrase—'tragedy of the commons' —is used to refer to a set of events/circumstances that involves a conflict for resources between individual interests and the common good.
6. In this case the open-source destination was OpenStreetMap at http://www.openstreetmap.org/
7. Available at: www.google.com/intl/en/corporate/
8. This is a non-profit organiZation that works on behalf of citizens' rights online.
9. Latest statistics from: http://www.internetworldstats.com—accessed 16 November 2006.
10. Whose mission statement is 'To explore interactive digital media and communication technologies in order to advance the world's understanding of China, and to promote the knowledge, culture and social practices of those technologies which will facilitate China's democratic transition'—http://journalism.berkeley.edu/program/china-internet/.
11. Details at: http://www.rsf.org/article.php3?id_article = 13426&var_recherche = china
12. http://www.rsf.org/article.php3?id_article = 4116
13. Source at: http://www.opennetinitiative.net/studies/china/
14. 'Mobile phone subscribers to hit 440m in 2006'—http://www.chinadaily.com.cn/english/doc/2006-02/02/content_516771.htm (accessed 3 February 2006).
15. A radio podcast titled 'In China, blogs are revolutionary tool of opinion'—http://www.npr.org/templates/story/story.php?storyId = 5250144

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