Theorizing Community and Networks

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Synopsis

Many case studies have examined Community Networks and we have at hand a good many rich and well grounded accounts of local experiences and outcomes as they have been observed in local circumstances. This sort of detailed, highly contextualized empirical work is essential to an understanding of contingent phenomena such as the performance of a community network. What we also need though, are theoretical approaches that are abstract enough to interpret the character and performance of differently situated community networks. To this end, I suggest that community networks be understood analytically as amodern hybrids that derive their ontological characteristics from a conflation of binaries. From this analytic perspective the community network is seen to be a sociotechnical assemblage, and not a set of technologies brought to bear on the social. The characterization of the assemblage as a "community" and as a "network" is critiqued, and the manner in which Community Networks manifest structures that are at once heterarchic, and hierarchic, are pointed out.

Introduction

A Community Network will typically enable the residents of a particular locale to communicate with one another; organize in groups both traditional and novel; access on-line government and council services; participate in educational groups and cooperatives; create multimedia content; publish personal and local community content; participate in local e-commerce; share informational resources with other groups and communities; develop IT skills, and engage in all sorts of other activities. Though the technology is less than a decade old, hundreds of Community Networks are operating in North America, scores are operating in Europe, and several are operating in Australia. Whilst Community Networks have typically been installed through the collaborative efforts of community organizations, resident groups, local government authorities, corporate sponsors, university based research groups, and welfare and educational agencies, in a more recent trend towards commercialization, property developers in the United States, Australia and other places are installing community intranets in new "green field" urban

development sites. In my country, Australia, for example, property developers such as the Stonehenge Group, Urban Pacific, and Lend Lease, have installed Community Networks in Melbourne (at Williams Bay, and now at Springthorpe), and in Perth and Queensland.

The rationale for building these facilities (in the case of the not-for-profit sector), and for selling them (in the case of the commercial sector), brings together a mix of romantic communitarianism and modernist techno-utopianism, all given new energy by the contested but near universally accepted imperatives for survival and prosperity that gather under the headings "information society" and "knowledge economy"[1]. The techno-utopian thread in the Community Network rationale is clear, and draws upon discourses that emphasize the role of technologies in a range of public goods – including bridging and bonding ties, learning communities, communities of practice, local and global connectedness, systems of trust, wider access to education and to employment opportunities, ameliorating the digital divide, facilitating civic engagement and social participation, providing more efficient access to government services, and to a more participatory form of democratic involvement. In the case of the commercial Community Networks all of this applies, but there is also a parallel profit-seeking imperative that feeds into the need for product differentiation and market advantage in land and house sales. Here, the commercial utility of broadband, the cultural appeal of "high-tech modernity", the promise of differentiated access to informational resources, and above all, the very strong "saleability" of a "good neighborhood", and a "strong community" – packaged as a commodity and delivered through ICTs – suggests that Community Networks can be important in the successful marketing of urban property developments.

Case studies have examined many local examples of not-for-profit community intranets, and have provided well-grounded accounts of their effect in the construction of community, the reconstruction of community, and the strengthening of community. In America, this has tended to be read in terms of social connections, social capital, and the on-going viability of traditional community institutions such as clubs, churches and school groups (see for example Wellman,

[1] For arguments that contest the characterization of our society/economy as being in any meaningful sense "information" based, see Webster, F. (1994) What Information Society?, *The Information Society,* **10,** 1-23, Webster, F. (2002) *Theories of the Information Society,* Routledge, London Na New York, McChesney, R., Wood, E. and Foster, J. (Eds.) (1998) *Capitalism and the Information Age,* Monthly Review Press, New York.

1999, Wellman and Haythornthwaite, 2002). In Britain, studies are more likely to be concerned with social equity variables – such as education, employment and health – as they present in particular locales, or among an otherwise identifiable group (traveling people, single mothers and so on). Studies that examine commercial systems are much less common (for exceptions see (Arnold et al., 2003, Arnold, 2003, Arnold, 2002). The strength of these studies is their ethnographic detail, and their close focus on local sociological outcomes. But whilst valuable general principles emerge from these studies – such as the need to genuinely engage with existing community organizations on their own terms, to look for local champions for the system, and to cultivate local voices in decision making – a weakness in the research to date is the absence of theoretical models that might be used to account for performance across more than one site, and the absence of theoretical models that account for, and assesses, the performance of the community intranet as a sociotechnical system-in-action. As CRACIN[2] points out, "… so far there has been very little systematic research documenting or assessing the effectiveness of these initiatives [community networks], synthesizing 'lessons learned' from these efforts (particularly those that might be of interest in guiding future related programs nationally and globally), or, most importantly, placing these efforts into a wider research and knowledge context so as to determine how these valuable public services can be sustained into the future". (Clement, Gurstein, Moll and Shade 2003, p.1)

An Amodern Approach

As Community Network research emerges as a more mature cross-disciplinary field, and builds from grounded case studies to integrative theory building, theoretical differences become more important to debate. To this end it is argued here that community networks be understood analytically as amodern hybrids that derive their characteristics from a conflation of binaries.

That is to say, Community Networks are both technical devises *and* social arrangements; they invoke the identity of a network *and* a community, and manifest both hierarchic *and* heterarchic structures.

I think it is important not to dissolve these contradictions by arguing them through to middle ground, or by arbitrating between them and dismissing one of the alternatives as being "more

[2] Canadian Research Alliance for Community Innovation and Networking.

true" than the other. The modernist episteme seeks to do this through the construction of three core binaries, and the privileging of one side of the binary in each case (Wise, 1997). They are, the bifurcation of time and space, (privileging time), subject and object, (privileging subject), and cause and effect, (privileging cause). Having made this crucial move, it becomes possible for the modernist to align either the technical or the social with cause, and its binary alternative with effect; either the machine, or the human, with subject, and its binary alternative with object; and either diachronic event sequences (time) or context (space) with cause, and its binary alternative with effect. In this bifurcation, some things are drivers and other things are passengers, some things lead and other things follow – when a more productive analytic strategy may be to resist the bifurcation altogether. I think that an understanding of Community Networks in particular, and our relationship with technology in general, is best pursued not by seeking to arbitrate opposing positions on the above, or by seeking middle ground between opposing positions, but by attending to the tensions and stresses that emerge in the co-presence of contradictory forces. In this sense incoherence and inconsistency is important to maintain in an analysis!

This attempt to analyse Community Networks in abstract terms rather than empirically draws upon an amodern approach developed within STS – Science and Technology Studies (Latour, 1993, Law and Hassard, 1999, Latour, 1999). Ironically, STS has also been criticised for an excessive dependence on case studies (Winner, 1993). As a discipline, STS began with studies of stirrups, microbes, bikes, lathes, vacuum pumps and power stations, has been further developed by studies of Brazilian rainforests, scallops, electric cars, cybernetic organisms, and African numbering systems. But in the course of following the heterogeneous engineers and actors of all kinds, as they seek to enrol one another, problematise goals, purify systems, create monsters, configure users, employ boundary objects, materialize imaginaries, and stabilize heterogeneous networks, Science and Technology Studies has moved our understanding, not just of our relationship with technology, but of epistemological approaches to an understanding of our relationship with technology. Similarly, Community Network studies have relied on case studies that are strong empirically, but have not yet moved forward theoretically. The approach proposed in this paper falls short of this ambition, but gestures in that direction by drawing attention to some of the implications of this picture of a Community Network as social and technical, a network and a community, and hierarchic and heterarchic.

The Social and the Technical

A Community Network assembles together a whole host of things – some of them clearly recognisable as social (community groups, individuals, commercial organizations, arms of government) and others recognised as technical (application software, web-servers, work stations). Having made a distinction that is so much part of the landscape as to pass unremarked, the technology can be placed in a privileged position. People involved with Community Networks are far too sophisticated to assume that ICTs of themselves are of particular benefit to communities, but still, it is the technology that is understood to be the facilitator, the catalyst, the cause of effects, the means to an end; and it is the social, read as the *community* in the "community network", that is the object of this facilitation[3]. For example, concerns with ameliorating the digital divide, and concerns with creating and sustaining Community Networks both take as their departure points an acceptance that ICT use is central to social advantage, and that social disadvantage is best addressed through ICT use (in preference to alternatives). Each accepts that use of high technology is normative, that it causes (facilitates, catalyses, mediates) positive outcomes, and *a priori*, non-use is a disadvantage to be remediated. The social disadvantage may be unemployment, or ill health or social isolation, but these are addressed through a filter that reads society as the information society, the economy as a knowledge economy, education as e-learning, health as medical informatics, and in all this, accepts the late modernist position that reads technology as the driver of progress.

A model that does not separate the technical from the social shifts the ground upon which we stand to think about the world. A given technology – TV, the production line, the Internet, the Community Network, is not a good thing for society (or community), nor a bad thing to be resisted. Rather, the hybridisation of the social and the technical changes the basis upon which we make a judgement about social goods. A Community Network is neither good nor bad for social connectedness, alienation, access to job markets, education, or whatever, rather, it changes what it is to be connected, alienated, in the job market, or educated. There is no ground that stands still to enable a pre and post assessment to be made. The question for researchers and practitioners then changes. The world is enframed in a different way. Reproductive

[3] Of course, it doesn't really affect my argument if one chooses to reverse the respective roles of the social (community) and the technical (network).

technologies do not just provide a different means to the same end – they change our frame for situating maternity and paternity, and the ontology of mother, father, and family. Email doesn't provide a different means to the same end; it changes our frame for situating written correspondence. The Mobile phone doesn't provide a different means to the same end, it changes our frame for situating mobility (in space) and fixity (in the space of flows), and what it is to be connected. Rather than assessing the "good" or "bad" effects of the technical on the social, one looks at *how the ground is changing* as new sociotechnical assemblages cohabit the lifeworld.

The Network and the Community

The network metaphor, as used in the term "Community Network", invokes images of a web or net, whereby nodes (people) are connected together to constitute a larger fabric – a larger entity in the sense that a local area network is a network, or the rail system is a network. As Rheingold famously remarked, when a computer network is used for social purposes, it becomes a social network (Rheingold, 1993). But social networks are not composed of material links in themselves. Our social performances are interactive, collective, responsive, but not connected in threads or cords or lines or wires – though crucial to the Community Network metaphor, the internet is (Pollner, 2002). Our social performances (the community part of "Community Network") consist of a multitude of distributed, local, transient, quasi-independent acts – reflexive, reciprocal acts to be sure, but still, a collection of individual acts that only from an analytic perspective – not a phenomenological perspective – consist of something more structured. A social network doesn't exist as an enduring material artifact, it is only there by virtue of a cascade of articulated sociotechnical performances that make it there, and will only be there so long as these actors choose to act. There are no lines between the nodes of the network – just a multitude of acts (such as responding to email, posting to a list, attending a workshop, chatting in the corridor) that are patterned or structured in the abstract, not phenomenologically. If this is so, there are two conclusions that might be drawn in the context of Community Networks.

Firstly, if the Community Network is built continuously by these acts, not by the consortiums that engineer the network as infrastructure, and certainly not by the network as technology, the center of attention is necessarily dispersed and distributed to the edges – to the network's multitudinous

tips – where the action begins and ends. The focus is on community networking (as a verb; a doing thing), rather than a Community Network (as a noun; an infrastructure thing).

Secondly, if it is so that a sociotechnical network is the abstract reference to an ongoing cascade of acts, and not a network in the sense of a LAN or a railway, and these acts flow from "the bottom up" so as to speak, then Wellman's argument contrasting social networks with community groups gains purchase (Wellman, 1999). It may well be that the Toennian notion of a located *Gemeinschaft* community is outmoded, if indeed it ever applied. The notion of a geographically based community, constituted in recognition of common identity, interests, and obligations, might need to give way to an "ego-based" or "personal network" construction of community. In this construction, a social network, one's community, is not a shared public good but a private asset, a personal store of social capital actively built and maintained by individuals to suit their own individual sense of identity, desires, needs and interests. This representation of community networks has little in common with traditional representations of community.

Yet "community" is so often called upon to serve ideological and rhetorical purposes, where other collectives or named groupings are not.

The rise and rise of individualism as a political resource, and the actions of the market as the arbiter of societal relations – now read as relations between individuals – has done terrible damage to other named groupings such as Society, Union, Class, Neighbourhood, Gender – even Nations, Races and Religions. In many first-world, post-war societies, these forms of defined collective interest have been subject to sustained criticism. First the Left and more recently the New-Right or "neo-cons" have argued positions which attacked public or communal activity on the grounds of both efficiency and legitimacy (Kumar, 1992), and in the 1980's in particular, the withdrawal of "the public good" as a target for social policy was speeded by a neo-conservative, New-Right or economic rationalist ideological hegemony. The popular ethos over this time has been to increasingly demand private consumption, mediated through the market, for the satisfaction of personal rather than communal ideals or objectives (McLean and Voskresenskaya, 1992). The public institutions and public utilities established in the last half of the 19th century and the first half of the 20th century to provide education, power, health services, transport, communications and so on, were informed and constituted by a modernist discourse

which centred on the virtues of centralised decision-making, public service, public good and public responsibility, have in recent times become increasingly fragmented, decentralised, privatised, self-managing and entrepreneurial, and are redefining their mission in ways which do not privilege broadly conceived social good, except as a derivative of market performance. Institutionalised social relations have thus been reconstituted around a discourse which valorises private benefit, individual responsibility and consumer sovereignty. In the sphere of personal social relations the individual is no less privileged, and constructions of needs, rights, desires, responsibilities, tastes, and opinions are all read as attributes of individual agency. Digital technologies are of course deeply implicated in the construction of this changed ground. We build our own community networks, and within these networks obligation and reciprocation coexists, often uneasily, with individualism – which remains the dominant mode of relations. Indeed, "[n]o longer do *we*, as members of the group, belong to the community, rather the community belongs to *us*." (Jones, 1997)

At a policy level, this particular representation of a Community Network as a collection of "ego-based" social networks brings the Community Network project into line with the 50 year political drift from public service, funded by the taxpayer, and provided through central governmental agencies, to the position that devolves service provision to the private and non-profit sectors, and asks that people and communities bootstrap their own way out of their difficulties.

Meredith, Ewing and Thomas make the point very well in their study of an Australian neighbourhood renewal project, and its implications for governance (Meredyth et al., 2004). The authors remind us that the shift away from the central role of state agencies and professionals to community groups, volunteers and not for profit groups is a new response to an old problem of legitimising governance. The modernist state is founded on rationality, and needs to provide conditions of prosperity and security, at least at certain minimum levels, which requires it to penetrate and assert influence over civil domains that are beyond its immediate reach – commercial, familial, domestic and social domains. Last century's answer was the school, the hospital and the prison provided by the State, and this century's answer is the Community Network we build ourselves.

The Hierarchic and the Heterarchic

Whilst a Community Network articulates and hybridises the social and the technical, the community and a network, it similarly articulates and hybridises hierarchy and heterarchy. It is the material arrangements, the technical mediation of the social interaction that is hierarchical, whilst the social arrangements emergent through technical mediation give rise to heterarchy.

Electronic space is meticulously structured in a detailed and rigorously hierarchical fashion. Flows of digital signals have a structure determined at various levels, from the deeply embedded structures of logic gates, to operating systems and machine-language architecture, to the surfaces of interface design. In this sense digital flows can be said to have a material character that Ostwald (following Deleuse and Gualtari) calls the “arborescent schema” (Ostwald, 1997). High modernist architecture, modernist organizational theorists, and the designers of many computer environments share this common conceptual framework, whereby the world is represented as an inverted tree or semi-lattice structure which is hierarchical (rather than say, rhizomic), and is binary rather than analogue. An arborescent schema is a form of power that functions by situating its constituent entities in hierarchical relation to one another, some near the trunk, others out on the edge, and in so doing, positions subjugation and domination. As Ostwald argues, arborescent structures are subject to critical attack. They manifest a desire to discipline movement and location on the basis of a reductionist categorisation embedded in the very structure of the space inhabited by people, or data. In the case of the Internet for example, the expression of a will to power that suffuses latent arboreal structures is evident at the number of levels. At the global level Microsoft, AOL, Yahoo, Amazon and company, occupy a position near the centre of the “Bow Tie” (Broder et al., 2000), on the main trunk of the arboreal structure. These companies are thus passage-points for huge volumes of electronic traffic, and potentially discipline that traffic by structuring the “space of flows” from there. At the other extreme, one might take a point far out on the extremity, where the leaves of the tree consist of, say, postings on a Community Network site. These too are subject to the discipline of an arboreal structure where lateral links are problematic, and each post is an appendage of the node to which it is attached, which in turn has its place on the hierarchy. Postings neither exist in their own terms (but in hierarchical connection to other nodes) nor in interdependent terms (as say, a lattice of connected contributions). An online discussion conducted via email for example, is the

hierarchically structured, serial exchange of textually expressed monologues. A “Bulletin Board” type of on-line discussion makes the arborescent hierarchy clear in its graphical representation of threads. Real-time Internet chat on the other hand, is a somewhat speeded up serial exchange of textual monologues. One chunk of text follows the other as the tree grows (‘The computer textualizes everything’ (Barrett and Redmond, 1995), though many posts drift in cyberspace unread and unanswered, like notes in bottles, floating on the sea (Holmes, 1997).

List-servers and discussion groups also display a valence for order and discipline in so much as they define and bound areas of social interest. Each discussion group is a branch, usually organised around a quite narrow topic, stemming from a larger branch supporting many narrow topics, stemming from a still larger branch, all the way to a handful of main topic categories. List-server groups are similarly focused and narrowly defined. Ostwald aptly describes this arrangement as bureaucratic; as an isomorph for the space of social interaction, it clearly fails, and it is difficult to characterise it as a space convivial to community primitives as traditionally conceived, though it is quite consistent with community relations as private social assets.

Social relations in such a space are goal-oriented, purposeful, and disciplined by the space as well as the social norms of the group, such that our presence at the same discussion group has something of an instrumental character about it. I may be interested in fish and may converse with you on *rec.aquaria.freshwater* on a hobby centre in a Community Network, but it is the Guppyies I'm interested in, not you. On W*illiamstownOnLine/GoodBuys* it is the price of the coffee and the quality of the fruit that is interesting, not you. In contrast, when we meet at the tram-stop and exchange words about fish tanks and fruit, it is not the fish tanks and fruit that is at the heart of the exchange, it is the exchange itself. The social exchange is phatic, not instrumental. The exchange involves a “transcendence”, a “beside-each-otherness” (Jones, 1997), which takes it beyond its subject matter or informational content. In the world of ICTs the space of social relations is ordered, rational, ruled – reflecting a heritage and an architecture that is inspired more by Le Corbusier’s Stalinist fantasies than the Tonnes’ fantasies of the village green, or Habermas’s coffee house. The space for calculation, data-storage, file transfer and remote computer use then became a space for the management of a work-force, the transfer of funds, and the commercial exchange of goods and services, and is now a space for communities.

So, a Community Network shares hierarchy with its digital cousins and ancestors, but, as I shall argue, its sociotechnology also gives rise to heterarchic arrangements.

The conceptual foundations for the notion of a heterarchy were laid down in the natural sciences and in management theory (Grabher and Stark, 1997), and have since found wider application. Unlike a hierarchic system which rises to a single point, has a single trajectory, or equilibrium, or center of gravity, (depending on the preferred metaphor) a heterarchic system has many (Grabher, 2001, Grabher and Stark, 1997). Rather than a single trunk in a hierarchical tree structure, a heterarchy is ryzomic, and has a number of points that act as centers. In the case of a Community Network, these clusters of circulation may be individuals, projects, or issues, for example. Each is at the center for the actors that circulate around it – and there is therefore more than one point of circulation in any given system. A heterarchy is a self-organizing, autopoietic system, and the centers of action are emergent in action, not established structurally. It is what it does, and what it does is structurally underdetermined. In these circumstances, where centres of social action, resourcing, and decision-making are multiple, the balance between integrative and disintegrative processes, between conditions of stability and instability, is fine. Heterarchies are characterized by high tolerance for diversity, evident in the presence of multiple centres, and provided by the presence of multiple centres. This plurality allows resources to be devolved rather than concentrated, it allows energies and actions to head in different directions simultaneously, it allows different priorities, objectives and strategies to coexist. But as Grabher (2001) asks, how much inefficiency can the aggregation of centres tolerate for the sake of adaptability and heterogeneity, without sacrificing capacity for production?

These tensions between the relative efficiency and stability of a “top down” hierarchy, and the “bottom-up” groundedness and flexibility of the heterarchy, are played out in the sociotechnical space created by Community Networks. Policy makers, ICT system designers and Community Network coordinators have a “top down” interest in stability, coherence and efficiency across the system, whereas users and local groups have a “bottom up” self-defined interest. Holding on to this binary and playing out the tensions that emerge is one manner in which the Community Network shapes itself, and is one manner in which it can be understood.

Conclusion

To get a grip on a Community Network as a social-technical, network-community, hierachic-heterarchic hybrid, is to focus an assessment on the hybridity itself. That is, the implications of the Community Network flow from the reflexivity of binaries – not from the effects of either one separately, or the effects of both in parallel, but from the hybrid "monster" (Law, 1991) that emerges from a conflation of the two. A Community Network is not (technical, network, hierarchic), or (social, community, heterarchic), and is not in some respects one, and in other respects the other, in some contexts one, and in other contexts another, but is in all respects a hybrid, in so much as the social/technical, network/community, and heterarchy/hierarchy are codependent in the same system. A community Network should not be theorised in terms of a technology that moves a society towards a good. If seen as a hybrid, everything changes – including what is good. A Community Network should not be theorised as a public good infrastructure supporting *gemeinschaft* community. In an important sense a Community Network is a resource for building private assets. A Community Network should not be theorised as hierarchical, (though its sociotechnical structure is), nor should it be seen as heterarchical, (though its sociotechnical structure is). Rather, its peculiar characteristics arise from both. This theoretical strategy does not lead to a simple answer – either utopian, dystopian, or in the middle. Instead, it argues that a Community Network, like all technologies, enframes the world: that is to say, it does not answer this or that question, satisfy this or that demand, extend this or that capacity. Rather, technologies such as Community Networks work at a more fundamental level; they enframe the world such that the question is changed along with the answer, the need is changed along with its gratification, and direction is changed along with the mechanism. The calculator, the word processor, are not more effective, efficient or convivial methods of doing mathematics or writing – they change what it is to do mathematics and to write. The Internet does not provide a more efficient way of doing the same things – it does different things. A Community Network is not just a means of meeting desires, it also changes the cultural, social, economic and emotional frames that give rise to desire, and situate desire. A Community Network is thus metaphysical, and not simply instrumental, or technical, or social, or hierarchical, or heterarchical, or …..

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