

Intranets and Local Community: ‘Yes, an intranet is all very well, but do we still get free beer and a barbeque?’

Michael Arnold

The University of Melbourne, Australia
mvarnold@unimelb.edu.au

Martin R. Gibbs

The University of Melbourne, Australia
m.gibbs@dis.unimelb.edu.au

Philippa Wright

The University of Melbourne, Australia
pawright@pgrad.unimelb.edu.au

Abstract. This paper arises from a three year research project examining the development and implementation of a residential community intranet in Melbourne, Australia. At the time of writing, the level of use of the intranet by residents is low, and the paper explores possible reasons why this may be the case. These reasons include: a) the possibility that the aggregation of potential users and content is not appropriate; b) the possibility that the technology is not appropriate; c) the possibility that the conception of community relations on which the intranet is premised is not appropriate; d) the possibility that residents’ perception of efforts to engineer community relations is not appropriate; and e) the possibility that the identity of the intranet as a domestic artefact has not yet been recognised by the residents. A consideration of these five possibilities using the specific case study raises issues concerning both particular community intranets, and more general socio-technical relations.

Introduction

This paper examines the low uptake of an Australian community intranet called THE RANGE in its first year of operation. One year on from its initial launch in March 2002, there has been negligible site activity. In this paper we construct an argument that draws upon and circulates through information systems and sociological perspectives to account for this underwhelming response. Our account involves an exploration of five questions that we believe are important to understanding this case, and community intranet technologies in other locations.

First, assuming that the technical characteristics of the community intranet are, in principle, capable of facilitating social interaction, what is required of the community intranet as a social entity? In particular, what is an appropriate level of social *aggregation* for a community intranet if it is to achieve a critical mass of uptake and use?

Secondly, assuming that the residents value traditional community norms and will seek to express those norms through whatever socio-technical resources are available to them, what *technical* characteristics of a community intranet are required for it to serve as a convivial medium for the expression of traditional community ties?

Thirdly, assuming that the requirements of a community intranet as a social entity are met, what *forms of community* are shaped by the performance of a community intranet? In particular, is it useful to an understanding of community intranets to distinguish between communities as collectives and communities as networks?

Fourthly, the community intranet is where software engineering meets social relations. Is there a possible *resistance to social engineering* of this sort amongst the residents of our case study?

Finally, the *appropriation and domestication* of any new technology requires that people 'recognise' the system. That is, in order to domesticate the system, residents need to attribute a distinguishing identity and function to the technology. Has the intranet been 'recognised' and 'identified' as a useful domestic artefact?

In the following sections of this paper, we expand on each of these questions and formulate a response that attempts to account for the underwhelming uptake of THE RANGE community intranet in its first year of operation. Each question and its implicit hypotheses is grounded in a different theoretical perspective that makes different assumptions about community intranet technologies, and about the nature of social relations. Each offers a partial account of the phenomena. From the formulations of these accounts, we conclude by proposing a model of community intranet adoption (or lack thereof) that integrates the relationship between these five partial accounts.

THE RANGE

THE RANGE community intranet is located in Williamstown; an established beach-side suburb close to the centre of Melbourne. Williamstown residents, many from families who have lived in the suburb for several generations, have a keen sense of local identity and community and often describing Williamstown as a 'village', or a 'country town', within a city.

At the time of its official launch in March 2002, THE RANGE was only accessible by residents of 51 newly constructed houses in Williams Bay, a housing development situated on the Rifle Range estate in Williamstown. Williams Bay was built by THE STONEHENGE GROUP (STONEHENGE), a medium sized property development and residential construction company who proposed the idea for a community intranet in 1998. Important in their plans was a vision that residential development needed to be about more than merely subdividing land and building houses: it was also about building community. STONEHENGE had a clearly articulated and positive view of the significance of community intranets for helping to transform residential developments into vibrant communities, and it acted on this view in a full-blooded way (Arnold 2003).

Functionality on the intranet includes: community news (from local groups such as the football club and environmental groups), message boards, notices of upcoming events, links to the local council, local classified advertising, newsletters (to be generated by local groups), a general calendar of local events, specific calendars of events for local groups, collections of documents (e.g. those generated by council activities), and so on. This vision of the central place of an intranet is now standard in commercial contexts, but is a novel innovation for residential developments in Australia.

One month after its initial launch, the zone of intranet inclusion was expanded to include the whole of the Rifle Range estate. The expansion doubled the population of the fledgling intranet community to nearly 100 registered households. Membership however, does not equal activity, and thus far the site has seen less than expected online participation. A Community Advisory Committee (CAC) had been formed some months earlier to be a 'focus group' that would deal with both the practical and theoretical concerns of the intranet. Consisting of both residents and STONEHENGE members, the CAC found itself more than once debating what should be done about raising activity – and thus perceived success – on the community intranet.

On the face of it there is good reason to be optimistic about THE RANGE'S prospects for success. The residents of Williams Bay and the Rifle Range are generally well-educated, middle-class and typically have professional careers as what might be called 'symbolic analysts' (Reich 1991) and thus should be 'natural matches for online communities' (Rheingold 2000, 46). Most residents are well accustomed to using information technology. They routinely use the

World-Wide-Web and e-mail in their work, and are able to use THE RANGE without having to climb a steep learning curve to do so.

In addition, the Williams Bay residential development was advertised and sold, in part, on the basis of the technology. At a series of social functions and meetings organised by the developer, and through qualitative interviews undertaken by project researchers, residents have indicated that community relations are important to them and they have expressed a generally positive view of the role THE RANGE can play in fostering their local community. The residential developer has taken the initiative to design, install, promote, maintain and subsidise the communications hardware, and the intranet software is a proven product, displaying all the contemporary features and functionality one might expect. Finally, while Williams Bay is a new housing development, it is located within a suburb with a long and strong history of community interaction and community identity. In all of the above, THE RANGE clearly meets the criteria for successful community development using information technology suggested in Pigg's (2001) review of community information networks.

However, THE RANGE has been online and operational since March 2002, and at the time of writing, traffic volumes are low, interactions are concentrated among a handful of residents, and residents have taken few initiatives to commence online discussions, post announcements, form groups, establish their own newsletters and so on. Most of the functional capacity of the system remains under-utilised, especially the capacity for residents to customise and shape the system to suit their own purposes. For example, 'Groups' provides functionality that gives interest groups an online presence. It allows members to communicate details of meetings, events, contact lists, documents, message boards and the like. At the time of writing, THE RANGE had 36 groups listed, under categories such as arts, sporting, children, environmental, recreation and resident groups. Of the 36 listed groups, 19 of these (53%) listed 0 members; five groups (14%) contain 1 member; one group has 2 members; three groups have 3 members; one group has 4 members; and one group has 5 members. In most cases these small groups are composed of STONEHENGE and CAC members, and have been established to 'kick start' intranet use. Of the 36 groups, only six groups (17%) have 6 or more members. Of these six groups, two are large resident groups, the members of which are automatically joined to one or the other upon registration, depending on where in Williamstown they reside; one is administrative; one is for the governing body of the annual Williamstown Festival; and the remaining two groups are for stay-at-home mothers and babysitting.

The Groups function is not alone in its under-utilisation. Similar levels of use (or non-use) can be witnessed in sections such as Neighbourhood Messages, Classifieds, Calendars and Surveys, all of which rely on resident postings and replies for their content.

Theory One: Aggregation and Critical Mass

Assuming that the technical characteristics of the community intranet are, in principle, capable of facilitating social interaction, what is required of the community intranet as a social entity? In particular, what is an appropriate level of social *aggregation* for a community intranet?

There are arguments to be made that, as a social aggregation, the pool of residents in our case (thus far, less than 100 households) is too small to generate a self-sustaining 'critical mass' of interaction. Damsgaard and Scheepers (2000) emphasise the significance of critical mass to intranet institutionalisation. Mahler and Rogers (1999) argue that critical mass is particularly important in the adoption of technologies that are interactive, because of their 'strong network externalities'. This model, also referred to as a 'network effect' (Kelly 1994), or an 'accelerating production function' (Markus 1990), implies that increased numbers of users increases the value of adoption for both new and existing users, such that the adoption decisions of individuals depend heavily on the perceived numbers of others who have also adopted. 'This suggests that, in many situations, the diffusion of an interactive medium in a community may well be an "all or nothing" affair' (Markus 1990, 199).

In an attempt to build upon this work, we suggest that aggregation is important in achieving a critical mass. That is, achieving critical mass is contingent in a necessary but not sufficient way upon appropriate aggregation.

The term 'aggregation' is used here to refer to a metaphorical boundary that might be drawn at the perimeter of the intranet to indicate its zone of inclusion and exclusion, and it has both qualitative and quantitative elements. In quantitative terms, if the boundaries are drawn too tightly, and the zone of inclusion is too small, critical mass will be deficient. If too large (e.g. the Internet as a whole), the boundary is meaningless or arbitrary, and other unstable dynamics will result, such as fragmentation and/or a churning of participation in parallel with a rejection of the mode of communication. We suggest that aggregation also must be appropriate qualitatively. That is, the intranet boundaries must be drawn around users and content along 'natural' community fault lines that distinguish collectives, groupings and institutions that exist independent of the intranet. The structure of the intranet must faithfully reflect and resonate with the social alliances and divisions of its constituents. In organizational and community contexts, an appropriate aggregation to produce and sustain critical mass will thus have appropriate numbers, and appropriate social coherence.

In the context of community intranets these qualitative and quantitative dimensions of aggregation apply to users and their use of the intranet, and to the informational content of the intranet and the functions performed – referred to by Fulk *et al* (1996) as the public goods 'connectivity' and 'communality' respectively. So, the quantitative aggregation of connectivity takes into account

the number of people granted access, the number of people who exercise these access rights, their frequency of access, and the number of people who post messages or initiate other activity. The quantitative aggregation of communality includes the quantity of published documents at any given time and the quantity of document throughput in any given time period. The qualitative aspects of connectivity include the extent to which the intranet reflects the 'natural' social, political, commercial, organisational and cultural boundaries that define aggregations of users and their use, and the extent to which the intranet reflects the characteristics of groups of users and their differential propensity to access, and to post. The intranet may thus bound smaller groupings of more active users and larger groupings of less active users. Finally, qualitative aspects of communality as an intranet based public good take account of the significance of the content to potential users, the services it offers, the way the system handles the epistemological and ontological structure of the content's knowledge domain, the interface's structuring, linking and boundary drawing in relation to content, and its implications for usability.

The suggestion is that although people may wish to express traditional community relations, and although the intranet may be a convivial media for this expression, inappropriate aggregation has resulted in the absence of a critical mass of users and content, and thus a shortfall of traffic and intranet functionality.

Empirical support for this suggestion may be found in the differences in aggregation between reportedly successful community intranets, such as the Blacksburg Electronic Village (BEV) (Kavanaugh 1999, Kavanaugh and Patterson 2001, 2002), and THE RANGE. In quantitative terms, the BEV serves more than 17,000 members, whereas THE RANGE serves 51 households in Williams Bay plus a small number of Rifle Range households. On start up, the BEV was the only ISP in town, and more than 45% of the town of Blacksburg has access to the BEV, whereas a tiny proportion of the suburb of Williamstown has access to THE RANGE, and a still smaller proportion of the surrounding municipal council of Hobson's Bay. In qualitative terms, 85% of those with access to the BEV are affiliated with Virginia Tech., adding another dimension to the commonality of the aggregate. Reflecting the above, qualitative measures of user access to the BEV indicated a 1000 fold increase from 1994 to 1996, whereas use of THE RANGE has not yet taken off. In terms of aggregates of content and functionality, all 20 public schools have a BEV presence, as do 14 community newsgroups, 100 community groups, 200 local businesses and 150 non-profit organizations. Thus far the institutional nodes of local community interaction – schools, sporting clubs, service clubs and the like – do not yet occupy a prominent place on THE RANGE, and have not yet enlisted the intranet as a resource to support their activities, although both the BEV and THE RANGE allow community groups, businesses and individuals to develop and structure their content and interactions around this or that group, this or that event, this or that issue, in situ.

Important in all of this is the temporal dimension. Achieving critical mass is a process that is clearly time sensitive, and it might well be argued that in this case it is simply too early to have reached this threshold. We have no argument with this, and we note the continuing work of THE RANGE'S Community Advisory Committee (CAC) to increase users, use, and quality and quantity of content – clear examples of an attempt to achieve appropriate aggregation. The CAC has increased the pool of potential users, first from Williams Bay to the Rifle Range, and at the time of writing, efforts are underway to expand further to include the whole of the suburb of Williamstown, reflected in a name change to MYWILLIAMSTOWN. The CAC is also trying to increase intranet usage through promotional activities and by increasing content. More documents are being published, more traders and services listed, and more groups are made available to join. Attempts are being made to increase the quality of the site and to identify 'natural fault lines' within the surrounding area that can be exploited to make the site qualitatively relevant to a larger quantity of potential members. At the time of writing, a marketing push is to occur at the annual Williamstown Festival. In qualitative and quantitative terms therefore, the CAC is actively trying to re-work the aggregation in the hope of creating the critical mass required to overcome its current existential crisis.

Theory Two: Inappropriate Technology

Assuming that residents value traditional community norms and will seek to express those norms through whatever socio-technical resources are available to them, what *technical* characteristics of a community intranet are required for it to serve as a convivial medium for the expression of community ties?

The residents at Williams Bay recognize the benefits associated with community and community values and espouse a desire for a tight-knit neighbourhood community. Throughout the early development phases, interest from residents was strong and many saw positive potential for the intranet to enhance their experience of community in the neighbourhood. Indeed, after a number of delays, some residents became quite impatient for the intranet to be delivered as promised. Against this background, it could be argued that the low uptake of the community intranet is a rejection of the technology itself. That is, community interaction is valued and is pursued in Williams Bay as it is elsewhere, whilst avoiding the intranet. If the intranet is capable of sustaining and/or enhancing community interaction, it would be used. It isn't, so it is not. Why not?

As an example of community intranet software, THE RANGE is state-of-the-art. It is easy to use, robust, customisable, and provides a comprehensive range of functions. However, the intranet as a mode of communication, as opposed to THE RANGE as an application, may not be appropriate for its intended purpose. For

example, much social interaction, particularly of the kind one might find on a street corner or at the supermarket, is banal, casual, spontaneous, flippant and disposable. Its strength and significance in the social sense, and its importance in establishing and maintaining social capital through weak-links (Granovetter 1973, Putnam 2000), is by no means diminished by the 'shallowness' of the content. Small talk is the important stuff of routine social connection, but is it the stuff we want to signoff on, and have posted in a public place available to all of our neighbours for an indeterminate period of time? Anonymous postings to THE RANGE are not accepted, perhaps a sensible rule in this context. However, the absence of anonymity may have the effect of increasing the responsibility that needs to be exercised by posters to a degree that is inappropriate for the social nature of the exchange.

In addition, lack of spontaneity in online interactions may also be a factor that could account for the rejection of the intranet as a convivial medium for sustaining neighbourhood community interaction. To go to the intranet, logon, navigate to a specific location, read the postings, compose a new posting, type, edit and redraft the posting, then signoff on it and hit the submit button, then to be publicly associated with the posting, accountable for it, and known to many other people by these postings, all requires a degree of deliberation that cuts across the very character of neighbourly small talk.

These factors work against the establishment of private discourse between individuals, and limit the opportunity in the online environment for engaging in important community building activities, such as gossip and ephemeral banter. Unlike on the footpath, one doesn't bump into a neighbour, recognise her as a local without knowing her name, and stop to pass the time of day. The abstract 'calculative' nature of text as a communication media and the structured, arboreal and hierarchical arrangement of postings and replies are other factors that would seem, from this perspective, to work against intranet technology acting as a convivial mode for the expression of neighbourhood community ties. While much online communication of this kind has been characterised as 'conversational' (Rheingold 2000), these characteristics of online communication may work against the kinds of spontaneous, ephemeral, and unstructured conversations that neighbours engage in as they build a local community.

And yet, there would appear to be clear existence-proof of successful social interaction and community formation, in terms determined by participants, that is entirely electronically mediated (Kavanaugh and Patterson 2001, Rheingold 2000, Turkle 1995, Wellman and Gulia 1999). What then, are the characteristics of successful use of this mode of communication for social interaction?

Firstly, there are communities of interest that make successful use of listserv, bulletin board and similar electronic forums to sustain ongoing discussion. In these cases, interaction typically occurs around a focused and defined topic of interest; and staying on topic is an aspect that is often closely policed by

participants (Phillips 1996). Postings have permanency, are public, and are often archived as a repository of collective wisdom. The group may thus be regarded as a 'learning community' or virtual 'community of practice' (Brown and Duguid 1991, Wenger 1998). A neighbourhood community intranet displays some aspects of this mode of interaction, and the intranet software is able to support focused groups, but the community intranet as a whole clearly has a different mission to the focused interest group.

Secondly, electronic communities may make successful use of 'chat-rooms', Multi-User Dungeons (MUDs) and the like. In these cases interaction is not focused, perhaps to the point of banality. These interactions are essentially ephemeral, in that they are only readily available to those virtually present at the time of posting, and thus encourage/support spontaneous trivial discussions (gossip) that are 'of the moment' and are the building blocks of community interaction. A neighbourhood community intranet also displays some aspects of this mode for interaction, but a residential community and its intranet clearly has a sense of permanence and a located sense of purpose not reflected in a typical chat-room or MUD.

Both kinds of virtual community rely on a very large pool of potential contributors. Communities of interest seek to find the small subset of people with a specific interest in common, and MUDs rely on a large enough pool of participants for there to be a high probability of there being someone online to engage with when one is also online. In neither case is neighbourhood important. Indeed, the appeal of the technology in these examples is the irrelevance of distance and the possibilities created by the technology to interact with people that one is unlikely to ever meet face-to-face. These examples stand in stark contrast to THE RANGE where the pool of contributors is small, their commonality is geographical and not interest-based, and encountering each other off-line is a highly likely occurrence.

Thirdly, there are the cases of intranet technologies that have been successful in geographically located community settings (for example, Netville, BEV, Amsterdam's DDS) that point to a clear need for further research to identify salient factors that distinguish the experience of these cases from THE RANGE.

The title of this paper is drawn from a comment made by a resident at one of a series 'town-meetings' hosted by the developer to discuss and promote the intranet. All residents were invited to these meetings, which usually involved the provision of food and drink. The most popular meetings were held on weekend afternoons and involved spit-roast barbeques and ample supplies of alcohol. Many residents found these events to be a significant means of meeting their neighbours, and they have become social gatherings that residents value. The comment – 'Yes, an intranet is all very well, but do we still get free beer and a barbeque?' – expressed a concern over the community building value of the intranet in-and-of itself, versus the community building value of the face-to-face

social gatherings that were part of the process of creating the intranet. Ironically, despite the low uptake of the technology itself, the process of soliciting support for it, and attempting to gather resident's design requirements, has encouraged residential interaction and helped promote community formation.

Theory Three: Forms of Community

Assuming that the requirements of a community intranet as a social entity are met, what *forms of community* are shaped by the performance of a community intranet? In particular, is it useful to an understanding of community intranets to distinguish between communities as collectives and communities as networks?

To value community is normative, and many people are distressed about what they see as a loss of community and community values. Putnam (2000) and Etzioni (1995) are among many to use empirical and anecdotal evidence to argue the continuing collective and individual value of community. Putnam (2000) for example, provides exhaustive empirical data to suggest that in the United States strong communities, characterised by dense networks of weak links, are associated with a variety of positive outcomes including: better educational outcomes for children; reduced criminality and a greater sense of personal security; wider job and business opportunities; improved health; better governance, and more efficient and effective use of public and private resources.

Community interactions occur in the context of built environments or infrastructures that are in part ancient – towns and villages, pathways and their intersections, doorways and porches, parks, markets and village squares and the like – and are in part new – telephones, freeways, email, aeroplanes, and so on (Wertheim 1999, Dodge and Kitchin 2001, Kitchin and Blades 2001). Like all contexts, the characteristics of this environment or infrastructure in any given case, facilitate certain modes and forms of interaction, whilst discouraging others. THE RANGE community intranet anticipates and seeks to facilitate community interactions between geographically proximate individuals and groups.

Support is widespread for the view that place, propinquity or locale remain significant contingencies in the conduct of social, economic and community relations. Whereas space (i.e. distance) may well have been progressively erased by modernist and contemporary transport and communications technologies (at least for some), this should not be confused with an erasure of place. In economic and cultural terms Paris, New York, Mumbai, London remain important centres; as they have been for hundreds of years (Graeme and Marvin 1996, Castells 1997). In terms of an individual's social relations – including community relations – place also attracts significant support. Walmsley (2000) for example, argues that there are a dozen reasons to reject the 'end of geography thesis':

information is only actionable in a situated context; much use of CMC is to facilitate face-to-face meetings; place is a significant site for consumption and is a consumer item in its own right. He concludes that 'place and local community are, and will continue to be, fundamental to the functioning of society' (2000, 17).

Support for the view that an intranet is capable of fostering traditional community interactions can be found in a number of case studies, the Blacksburg Electronic Village (BEV) and Toronto's Netville being the best known. In Blacksburg, research indicates that 'computer networks are not just reinforcing – but even expanding – existing social networks within an existing geographic community' (Kavanaugh 1999, 2). Kavanaugh and Patterson report 'frequent and increasing use of the BEV and Internet for local, social-capital-building activities' (2001, 496). Wellman, although foremost in developing the network model, acknowledges that distance still matters. The empirical evidence from the East Yorkers of Toronto reports that 22% of all active social ties are with people living within one mile of the informant, and 42% of frequent active social ties (face to face or telephone communication three times per week or more) are with people living within one mile of the informant (Wellman 1996). Hampton and Wellman report that in Netville, 'contrary to expectation that the Internet encourages a global village those ties that previously were just out of reach geographically experience the greatest increase in contact and support' (2001, 476). It was found that on average those who are online know 25 neighbours; the unwired know only eight. Moreover, the ties of those online range farther through the neighbourhood instead of clustering on the same block (Wellman and Hampton 2000). Wired homes in Netville are over three and a half times more connected in terms of talking to one another, compared to non-wired homes (Hampton 2003).

However, as Wellman (1988) argues, the Töennian notion of a located *Gemeinschaft* community may be outmoded in the current era, if indeed it was ever an appropriate analysis of this form of social interaction. The notion of a geographically based community constituted in broadly based common interests and obligations, and shared 'third spaces', might need to give over to a different construction of the relations between non-intimates.

In this new 'ego-based' or 'network' construction, social relations between non-intimates are private assets, built and maintained by individuals to serve their particular assemblage of social interests. A person's portfolio of non-intimate social relations may include acquaintances with shared sporting interests, work colleagues, others from whom one borrows tools, others with children of the same age, and so on (Wellman 1988). These geographically extensive ego-based social networks bear little relation to Tönnies' *Gemeinschaft*, and are not rooted in shared place.

From this perspective, it can be hypothesised that the Internet is well suited to the above ego-based model, but local community intranets, such as THE RANGE, are not. On the one hand, local community intranets are place-based, while ego-

based relations are not. Although a traditional view locates community geographically, communications and transport technologies have significantly weakened whatever relevance geography might have had to community. People value community relations but ego-based communities have nothing much to do with where one lives, and nothing much to do with a place-based network. Therefore, local community intranets which privilege and attempt to define, bound and ground relationships within a place-based geography are working on the wrong assumptions about social relations and are doomed to failure. On the other hand, the Internet is not place-based but is arborescent and global (Ostwald 1997). As such, it provides a vast pool of people from which relations may be built and maintained. Such a pool vastly extends one's reach in building an ego-based network and is particularly useful for finding a close fit of interests with other individuals.

If this hypothesis is accepted, the notion of an intranet based on a grouping of neighbours is fundamentally flawed. And this 'network model' of social relations does resonate with much of our experience of contemporary life. As Wellman (1988) points out, the population is mobile; in a day to day sense, and through a lifetime. At any one time, friends, family and work-associates are as likely to be on the other side of the world as they are to be on the other side of the street. Work has replaced neighbourhood as a point of social gravity. The community as a coherent and stable pastoral village has probably always been a myth. People are individualistic in the pursuit of their interests, and their social capital is a private accumulation to be found in each individual's Teledex and fast-dial numbers, rather than in their neighbourhoods.

Members of THE RANGE are characteristically well-educated, upper-middle class 'information workers' (Bell 1973) who move comfortably in 'the space of flows' (Castells 1997). They have money, careers, easily accessible transport and the ability to indulge in leisure activities. Personal 'portfolios' of social relations are extensive and widespread, and not limited by geography.

Such is the postmodern condition, but, as argued above, there are contradictory indications and existence-proof examples suggesting that locale remains significant. If nothing else, and regardless of communication and transport conveniences, locale remains a strong indicator of shared class, occupational groupings, income, age, political leaning and cultural values, which in turn imply shared subjectivities and shared objective interests. Our social relations may not be constrained by geography, but they are not blind to geography.

Theory Four: Social Engineering

The community intranet is where software engineering meets social relations. Is there a possible *resistance to social engineering* of this sort amongst the residents of our case study?

Social engineering, or a possible resistance thereto, is important to consider when examining reasons why systems such as community intranets are adopted or not, as the systems themselves are engineered forums intended to structure and host communities. In 'Seeing Like a State', Scott sets out to account for the logic behind failed schemes of social engineering in the past century, in particular, schemes that 'were animated by a genuine desire to improve the human condition – a desire with a fatal flaw' (1998, 342). THE RANGE fits this category, as it was developed and sold with a genuine utopic desire to improve the community and the social relations of its members. Given this desire, Scott's views on such forays into social engineering, inform our account of the low uptake of THE RANGE. Although the focus of Scott's work is state schemes, we find parallels between it and our private enterprise, community intranet that provides an interesting point of departure for exploration. He outlines four elements which, in combination, make for a full-fledged disaster of state-initiated social engineering. These four elements are: 1) The administrative ordering of nature and society; 2) A high-modernist ideology: a twentieth-century phenomenon in which entire social orders are engineered to adhere to often unrealistic utopic ideals; 3) An authoritarian state that is willing and able to use the full weight of its coercive power to bring these high-modernist designs into being; 4) A prostrate civil society that lacks the capacity to resist these plans (Scott 1998, 4-5).

In the example of THE RANGE, we can see that the administrative ordering of nature and society occurs through the intranet system itself, and its online subsets, functions, groups and categories that hope to order social interaction. As argued earlier, this mode of communication is structured, rather than unstructured, and requires deliberative rather than spontaneous forms of communication. A high-modernist ideology may be recognised in the vision of the Managing Director of STONEHENGE, who grew up in Williamstown, and wished to create something positive, innovative and long-lasting when putting forward the tender to develop the Williams Bay parcel of land. The Managing Director is a progressive 'who [has] come to power with a comprehensive critique of existing society and a popular mandate (at least initially) to transform it' (Scott 1998, 89) and he often cites 'lack of vision' and a 'woefully inadequate provision for future enhancement within the building industry' (STONEHENGE 1998, 5).

Scott's third element refers to the rule of an authoritarian state, and whilst we make no claim that this horror is reproduced, neither is an intranet a Habermassian public sphere. While residents are free to form groups, make postings and in other ways modify and control the system, the system administrator controls the system's basic structure down to the level of data definitions, interface designs, and all user privileges. No dictator exercises power over a domain as absolute as the systems administrator. Like all computer based systems, THE RANGE is structured, formatted, rule and procedure bound, and has a very defined visual aesthetic that immediately places its members within a higher

authoritative context. To post a message on a message board, members must enter all information into a formatting device. To see a calendar for a particular group, they must first make sure they are a member of that group so that they may be allowed access to its information. Entry into the site is user ID and password protected and anonymous postings are not possible. The community intranet is a constructed and extremely structured world; an embodiment of an authoritarian state and its respective technical, ideological and commercial engines writ small.

Finally, Scott's prostrate civil society can be seen in the residents themselves, both those who are signed-up members of the intranet and (just as importantly) those who are not members, but who nonetheless live in the designated geographic boundaries of inclusion. Interviews with residents have provided an almost universally positive response when asked the question of whether they *like* the idea of the community intranet. After all, who could not like and agree with anything that hopes to promote the values of community and society as a whole? To say that one dislikes the thought of the community intranet is akin to saying that one dislikes community itself. In this fashion, the residential members of the community intranet lack the capacity to resist the plans of the authoritarian state, as it is ideologically incorrect to naysay the notion of community.

While unable to naysay the notion of community and the community intranet, residents have exhibited an uneasy with the community intranet and have expressed an ambivalent relationship to it. While generally positive about the idea of a community intranet, residents also see THE RANGE as a curiosity; an oddity of sorts. Residents often speak of the 'funny reactions' from friends and relatives when told of the intranet they belong to. Comments such as 'how strange', 'what an odd idea', 'god, I'd never use it' and 'do you think it will last' all featured heavily in these reported conversations. The intranet is dealt with as a curiosity by others perhaps because it is seen as a curiosity by residents themselves. It is something not found within 'normal' life and 'normal' neighbourly relations. THE RANGE has been established from the top down, while more 'natural' communities are emergent phenomena and develop, as it were, 'bottom-up'. The residents' unease with the form of community relations inscribed in THE RANGE supports the theory that this particular type of social engineering is being passively resisted. The opening quote, 'Yes, an intranet is all very well, but do we still get free beer and a barbeque?' suggests that the familiar, emergent forms of community interaction are what residents of THE RANGE feel most comfortable with, not the engineered 'curiosity' of the current system.

Manuel Castells also has much to say about issues of governance and the formal structuring of community. In 'The Internet Galaxy', Castells (2001) describes a community intranet in Amsterdam: *De Digital Stade* (DDS). At first, DDS was an enormous success, described by Castells as 'the most famous citizen computer network [that] instantly became an extraordinary success in terms of its public appeal' (Castells 2001, 146). Following its initial success, there were many

requests for sponsorship, commercialisation and membership, so much so that what began as a ten week trial turned into an official foundation with a formal managerial structure. This formalisation coincided with the downturn of its popularity. Castells argues that the irony of DDS was that the formalized structure, created due to its initial success, led to its eventual failure (2001).

Building on Scott's work, it would seem that passive resistance to perceived attempts on the part of the systems developer to 'engineer' a community and to formalise its operation have contributed to the benign neglect of THE RANGE by residents.

Theory Five: Domestication of Technology

The *appropriation and domestication* of any new technology requires that people 'recognise' the system. That is, in order to domesticate the system, residents need to attribute a distinguishing identity and function to the technology. Has the intranet been 'recognised' and 'identified' as a useful domestic artefact?

'Domestication' is a form of social learning, in which users find a way to incorporate an introduced technology into their lives (Williams *et al* 2000). New technologies are 'learnt' through both practice and interaction – 'learning by doing', and 'learning by interacting' (Williams *et al* 2000, 29). Through a process of negotiation and translation, practical local activity and local knowledge are utilised to position the relevance, use, and benefit of an introduced technology so that it 'fits' within the lives of its intended users.

Domestication is clearly a process, and any observation one might make is strongly contingent on the time of the observation. Nevertheless, an early and necessary stage is to recognise a new technology, often through a metaphor or an analogy, that acts to place the new and unusual in a more familiar context, such as the automobile as a 'horseless carriage', the television as 'radio with pictures', and the computer 'desktop'. When THE RANGE was expanded to include the whole of Williamstown in March 2003, residents were offered free registration as a way of enticing them to become members of the community intranet. Common responses were: 'Oh, I already have the Internet', or 'What is an intranet?', suggesting that recognition of intranet technology does not exist by default, and needs to be learnt. Residents need to construct an image of *what it is* before they will adopt and domesticate the technology.

However it is not just the residents who are required to participate in domesticating THE RANGE. The system implementers must also partake in the process. The transferral and application of local knowledge essential to domestication creates a 'learning economy' around new technologies, in which suppliers and users jointly interact to successfully appropriate the introduced

technology. It is through this mutual reciprocity that the technology becomes domesticated. Since the creation of THE RANGE, STONEHENGE has actively tried to familiarise residents with the intranet through a series of social functions, demonstrations and pamphlet distribution, in which the features and the benefits of the system have been promoted.

What THE RANGE *has*, and what THE RANGE *does* has been thoroughly explained. What THE RANGE *is* however, has been all but neglected, perhaps because the developers are approaching the task of education from a different perspective. The developers know what an intranet *is*, and to them, the concept of an intranet is self evident. When they present THE RANGE to residents, their approach is one of *features* and *functionality*, and not one of *identification*. While hearing about features and functionality may be interesting to potential users, the information is almost useless unless they have somewhere to either metaphorically or practically place this information. The technology of THE RANGE is 'domesticated' for the developers, yet remains 'wild' and 'elusive' for the residents. From a residents' perspective, THE RANGE has function without purpose, and is a solution without a problem. This ontological misalignment between resident and developer creates a 'chasm of misunderstanding' that must be addressed before recognition and domestication can occur.

Conclusion

It has been argued that five factors have the potential to contribute to the low rate of intranet uptake at Williams Bay. In short, these five factors are: inappropriate aggregation and an absence of critical mass; inappropriate technology for the purpose; a misreading of the shape of community relations; a passive resistance to social engineering; and inadequate recognition and domestication of the technology. No one will be startled by our first conclusion that all five factors have played a part, and that builders and students of intranets need to be mindful of the mix of each of these five factors in any given case.

Beyond this, it might also be concluded that all five factors are interrelated, and a number of points might be made in an effort to draw out the relations between the five, and their respective contributions.

We begin at the centre of Figure 1 by asserting that there is a relation between participation rates and critical mass. Whilst an absence of a critical mass of users and content clearly bears a relation to a low intranet participation rate, the two are not synonymous. A 'low participation rate' indicates an empirical observation, whereas an 'absence of critical mass' indicates an analytical construct that seeks to account for the former. The arrows connecting the two indicate a direct proximal cause. That is, the simplest and most immediate account for the empirical observation of low participation rates is provided by the critical mass analytical construct.

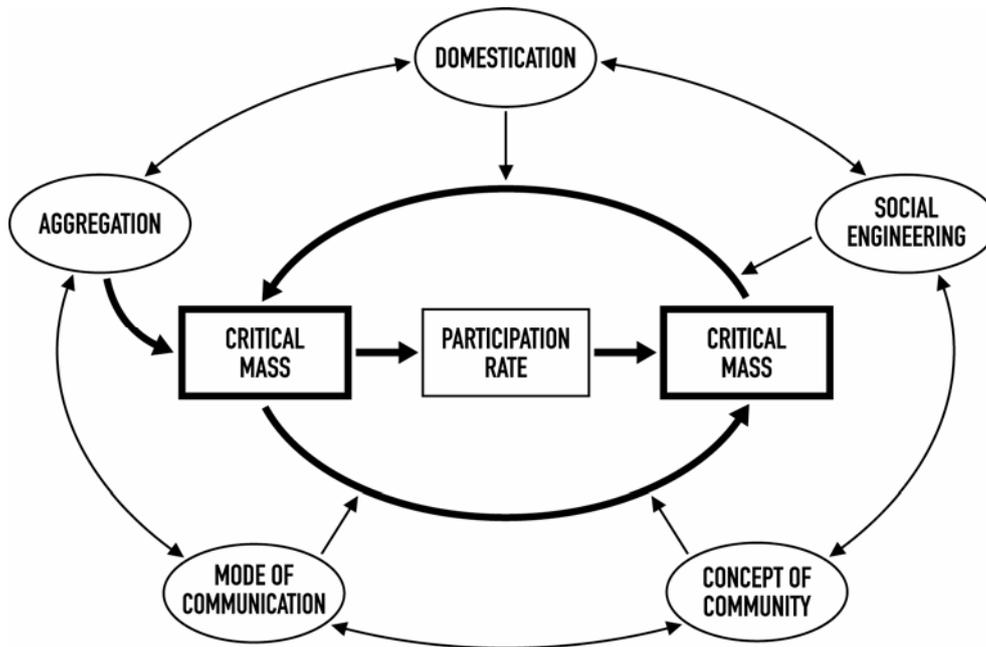


Figure 1

In our case study, whilst the absence of critical mass provides a theoretical account for the low participation rate, the low participation rate provides the empirical evidence by which an *a priori* judgment is made about critical mass. In essence, a quantum threshold is theorized, and participation rates are placed in relation to that threshold. Moving out from this immediate and direct relation is the loop of causality that leads *from* a critical mass of participation to a critical mass of participation. The identification of critical mass of participation as both a cause and effect of itself implies the existence of a self-fueling ‘virtuous loop’ of upwardly spiraling participation rates when critical mass is achieved, and a self-fueling ‘degenerative loop’ of downwardly spiraling participation rates when short of critical mass. If critical mass is never achieved, the loop may lock-in a low or negligible participation rate.

The next level of mediation is represented in Figure 1 by the radial arrows that connect inappropriate aggregation, passive resistance to social engineering, inappropriate concepts of community, inappropriate modes of communication, and inadequate domestication, to the critical mass spiral (and through to participation rate).

The diagram implies that each of these separately, and all of them together, influence the building of a critical mass of users, use and content, and thus participation. Different intranets will display different characteristics and operate within different environments, meaning that the relative influence of each of the five will vary. In the particular case of THE RANGE we have formed the opinion

that although all five factors contribute, inappropriate aggregation contributed the most, on the basis that aggregation of users was very distant from optimal.

Finally, and most removed from immediate causes of low participation, but in a sense at the root of these causes of low participation, is the reflexive relation between the five. The double-headed arrows indicate that in addition to an individual and collective influence on the critical mass spiral, each of the five factors contributes to the constitution of the others. Thus, the boundaries of inclusion and exclusion that define the characteristics of aggregation are reflected in the mode of communication (decisions made about who can and cannot do this or that on the intranet), which in turn informs a concept of what a community is and what it is not, which flows through to a recognition of an attempt to engineer a set of community practices and an inclination to embrace or resist that attempt, which ultimately implies inadequate recognition and domestication of the technology.

Or, we might begin with the concept of community held by developers or residents, and trace that through to the shape of the mode of communication (forged in intranet design and use decisions), which flows through to the patterns of inclusion and exclusion that define aggregation, and thus the engineered and undomesticated nature of the social project. It matters little where one starts the analysis – each would seem to be both input and output to the others, in a tangled web indeed.

Acknowledgments

The authors would like to acknowledge the generosity and spirit of THE STONEHENGE GROUP in allowing us full and open access to their work and the Australian Research Council for their financial support of the project. We would also like to thank the anonymous reviewers for their constructive comments, Peter Asprey for graphic design, and Kerry Carmody, who is an invaluable member of the *Wired Homes* research team.

References

- Arnold, M. 2003. 'Intranets, Community and Social Capital: The Case of Williams Bay' *Bulletin of Science, Technology and Society*, 23(2): 78-87.
- Bell, D. 1973. *The Coming of Post-Industrial Society: a Venture in Social Forecasting*. New York: Basic Books.
- Brown, J. and P. Duguid 1991. 'Organizational Learning and Communities of Practice.' *Organization Science* 2(1): 40-57.
- Castells, M. (1997) *The Information Age: Economy, Society and Culture*. Malden, MA: Blackwell.
- Castells, M. (2001) *The Internet Galaxy: Reflections on the Internet, Business, and Society*. Oxford: Oxford University Press.

- Damsgaard, J. and R. Scheepers 2000. 'Managing the Stage Crisis in Intranet Implementation: a Stage Model' *Information Systems Journal* 10(2): 131-49.
- Dodge, M. and R. Kitchin 2001. *Mapping Cyberspace*. London, Routledge.
- Etzioni, A. 1995. *Rights and the Common Good: The Communitarian Perspective*. New York: St. Martin's Press.
- Fulk, J., A. Flanagin, M. Kalman, P. Monge and T. Ryan 1996. 'Connective and Communal Public Goods in Interactive Communication Systems' *Communication Theory* 6(1): 60-87.
- Graham, S. and S. Marvin 1996. *Telecommunications and the City: Electronic Spaces, Urban Places*. London: Routledge.
- Granovetter, M. 1973. 'The Strength of Weak Ties' *American Journal of Sociology* 78(6): 1360-80.
- Hampton, K. 2003. 'Grieving for a Lost Network: Collective Action in a Wired Suburb' *The Information Society* 19(5): forthcoming.
- Hampton, K. and B. Wellman 2000. 'Examining Community in the Digital Neighbourhood: Early Results from Canada's Wired Suburb,' in *Digital Cities: Technologies, Experiences and Future Perspectives*, edited by T.I.K. Isbister. Berlin: Springer.
- Hampton, K. and B. Wellman 2001. 'Long Distance Community in the Network Society: Contact and Support Beyond Netville.' *American Behavioral Scientist* 45(3): 477-96.
- Kavanaugh, A. 1999. 'The Impact of Computer Networking on Community: A Social Network Analysis Approach.' Paper presented at the *Telecommunications Policy Research Conference, 27-29 September, 1999*. <http://www.bev.net/about/research/reports/docs/TPRC.UserStudy.Kavanaugh.pdf> Last accessed 11/3/2003.
- Kavanaugh, A. and S. Patterson 2001. 'The Impact of Community: Computer Networks on Social Capital and Community Involvement.' *American Behavioral Scientist* 45(3): 496-509.
- Kavanaugh, A. and M. Patterson 2002. 'The Impact of Community Computer Networks on Social Capital and Community Involvement in Blacksburg,' in *The Internet in Everyday Life*, edited by B. Wellman and C. Haythornthwaite. Malden, MA: Blackwell.
- Kelly, K. 1994. *Out of Control: The New Biology of Machines*. London: Fourth Estate.
- Kitchin, R. and M. Blades 2001. *The Cognition of Geographic Space*. London: I.B. Tauris.
- Mahler, A. and E.M. Rogers 1999. 'The Diffusion of Interactive Communication Innovations and the Critical Mass: The Adoption of Telecommunications Services by German Banks.' *Telecommunications Policy* 23: 719-40.
- Marcus, M. 1990. 'Toward a "Critical Mass" Theory of Interactive Media,' in *Organizations and Communication Technology*, edited by J. Fulk and C. Steinfield. London: Sage Publications.

- Ostwald, M. 1997. 'Structuring Virtual Urban Space: Arborescent Schemas,' in *Intelligent Environments: Spatial Aspects of the Information Revolution*, edited by P. Droege. Amsterdam: NH Elsevier.
- Phillips, D. 1996. 'Defending the Boundaries: Identifying and Countering Threats in A Usenet Newsgroup.' *Information Society* 12(1): 39-62.
- Pigg, K. 2001. 'Applications of Community Informatics for Building Community and Enhancing Civic Society.' *Information, Communication and Society* 4(4): 507-27.
- Putnam, R. 2000. *Bowling Alone: The Collapse and Revival of American Community*. New York: Touchstone.
- Reich, R. (1991) *The Work of Nations: Preparing Ourselves for the 21st-Century*, New York, Random House.
- Rheingold, H. 2000. *The Virtual Community: Homesteading on the Electronic Frontier*. Cambridge, MA: MIT Press.
- Scott, J.C. 1998. *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*. New Haven: Yale University Press.
- STONEHENGE 1998. 'Integrated Housing: the Integration of Technology in Residential Housing in the Next Millennium.' Tender Bid, July 1998.
- Turkle, S. 1995. *Life on the Screen: Identity in the Age of the Internet*. New York: Simon & Schuster.
- Walmsley, D. 2000. 'Community, Place and Cyberspace.' *Australian Geographer* 31(1): 5-19.
- Wellman, B. 1988. 'The Community Question Re-Evaluated,' in *Power, Community and the City*, edited by M.P. Smith. New Brunswick, NJ: Transaction Books.
- Wellman, B. 1996. 'Are Personal Communities Local? A Dumptarian Reconsideration.' *Social Networks* 18(3): 347-54.
- Wellman, B. (ed.) 1999. *Networks in the Global Village: Life in Contemporary Communities*. Colorado: Westview Press.
- Wellman, B. and M. Gulia 1999. 'Net-Surfers Don't Ride Alone: Virtual Communities as Communities,' in *Communities in Cyberspace*, edited by M.A. Smith and P. Kollock. London: Routledge.
- Wellman, B. and K. Hampton 2000. 'Examining Community in the Digital Neighbourhood: Early Results from Canada's Wired Suburb.' in *Digital Cities: Technologies, Experiences and Future Perspectives*, edited by T.I.K. Isbister. Berlin: Springer.
- Wenger, E. 1998. *Communities of Practice: Learning, Meaning, and Identity*. Cambridge: Cambridge University Press.
- Wertheim, M. 1999. *The Pearly Gates of Cyberspace: A History of Space from Dante to the Internet*. Sydney: Doubleday.
- Williams, R., R. Slack and J. Stewart 2000. *Social Learning in Multimedia: Final Report*. Research Centre for Social Sciences, The University of Edinburgh. <http://www.rcss.ed.ac.uk/research/slim.html> Last accessed 14/3/2003.