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THE ROLE OF ICT IN BUILDING COMMUNITIES AND SOCIAL CAPITAL

A Discussion Paper



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Access Branch
Information Economy Division
Department of Communications, Information Technology and the Arts
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Executive Summary

Overview

Information and communications technology (ICT) impacts on the communities in which we live and the way individuals, business, government and civil society interact and develop. Simultaneously, all sectors have shown increased interest in the concept of social capital and the role it can play in building stronger communities, increasing economic productivity and contributing to rural and regional rejuvenation. As the use and impact of ICT increases, so does the prospect that ICT can play a role in shaping the nature of community development and contributing to the building of social capital.

The Information Economy Division within the Department of Communications, Information Technology and the Arts (DCITA) prepared this paper together with the companion paper on the role of ICT in the nonprofit sector and a set of case studies to illustrate the scope and nature of some social and community impacts of ICT.

The papers are intended to stimulate public discussion and provide a basis for consultation. Interested parties are invited to provide comments and submissions on the issues raised in these papers. DCITA anticipates using the results of this consultation to inform future activities and policy directions.

Community and social capital

The idea of building social capital contains within it the implication that the process takes place within a community of some description. This raises some issues.

Firstly, what is 'community' and how do we define it?

Secondly, the notion of building social capital implies a gradual or developmental process.

In considering these matters, this paper explores the concept of community to develop the proposition that communities exist both within and outside of geographic boundaries and that the development of social capital within these communities is dependent on several core elements.

Communities are dynamic and their development is affected by the wider social and political and economic environment. The increasing impact of ICT means that communities are likely to be shaped by it and in turn they will influence the uptake and application of ICT. There is great variation in the needs and demands of communities and the role of ICT in meeting these.

ICT is changing the way that individuals within communities interact, expanding the concept of community to those groups that are not bounded by geography, i.e. so-called virtual communities.

Exploration of the concept of community leads to a framework that incorporates both the geographic and the virtual. Geographic communities are much easier to identify than those in the virtual realm and include

communities located at the local, regional, state and national level. Virtual communities are communities of practice/purpose, circumstance and interest. This paper considers the factors that affect the development and sustainability of both concepts.

The elements of social capital

Rather than debate the merits of social capital or its varying definitions, this paper accepts the substantial work already done by other government agencies and aims instead to identify some key concepts by examining the range of definitions. In terms of a working definition, this paper adopts the Organisation for Economic Co-operation and Development (OECD) definition as endorsed in the earlier discussion papers on social capital from the Productivity Commission and the Australian Bureau of Statistics (ABS). Therefore social capital is defined as ‘networks together with shared norms, values and understandings that facilitate cooperation within and among groups.’

Two of the norms pivotal to social capital are trust and reciprocity. The concepts are inherently linked, with reciprocity an underlying element of trust. Together they underpin our daily interactions and facilitate business, government and social exchanges. While online interaction raises issues in relation to trust it does not negate the presence or fostering of it. Particular challenges include malicious threats (worms, viruses, spam), authentication (or identification), verification and identity and privacy issues.

Social networks, which define our communications in all aspects of daily life, are the second group of concepts associated with social capital investigated in this paper. The central argument around the changing nature of social networks as a result of the impact of technology is that, with the highly portable and ‘always on’ nature of ICT, social networks are increasingly based around individuals rather than groups or place.

Three types of social capital are identified in social networks.

Bonding capital refers to relationships within homogenous groups that strengthen bonds and provide individuals with support and a sense of common identity.

Bridging capital refers to ties between groups that provide access to a diverse range of resources and facilitate cooperation.

Linking capital relates to the networks developed between individuals and groups at different levels of power, status and wealth that provide access to new and increased resources across different social strata.

The typical debate around the impact of ICT frames the Internet in terms of diminishing, supplementing or transforming the social capital of individuals and communities. This paper argues that ICT supplements and to some extent transforms social capital, rather than diminishes it. The availability, capacity, reliability and effective use of bandwidth connectivity—together with attention to issues of online trust and confidence—will determine the quality and frequency of online interactions.

While this paper acknowledges the importance of ICT acceptance, skills development and training, these issues are complex and beyond its scope. Instead, they are treated as underlying factors in the broader use and dissemination of ICT in all areas.

ICT, community and social capital case studies

A series of case studies explore the key issues raised in this paper to assess the impact of ICT on social capital. These are presented within the conceptual framework of geographically based and ICT enabled (or 'wired') communities and online virtual communities of practice/purpose, circumstance and interest. The case studies show how wired communities contribute to increased bonding capital and where ICT acts as an added resource for strengthening community ties. The issues of trust and reciprocity are less problematic as the community is circumscribed by face-to-face interactions that reinforce the virtual.

Online access centres are essential resources for the wired community. They provide, to varying degrees, social and learning support and a sense of community. Most centres offer a conduit to online communities for individuals seeking access rather than operate as interactive forums linking communities or community members. Centres that link to regional hubs appear to provide greater opportunities to build the bridging and linking capital that can stimulate economic growth and activity.

In the exclusively virtual realm, communities of practice/purpose consist of groups that share their knowledge and experience online around a core issue and with a central goal. They usually have a professional focus, are bounded in nature, have formal and informal rules governing interaction and generally have a facilitator. The virtual communities studied for this paper demonstrate a high level of bonding, bridging and potential linking social capital. Trust levels are high due to the factors of reputation, membership, professional ethics, rules and leadership. Such virtual communities allow individuals to overcome the barriers of limited time, distance, accessibility and cost to achieve a common goal with other professionals.

Online communities of circumstance involve individuals who find they share a common position, circumstance or life experience rather than a profession. They can provide members with increased opportunity—regardless of time, location, distance or stigma—to share experiences with others who have faced similar challenges. Issues of trust are central in this type of community. Login membership, facilitation, monitoring and organisational reputation all contribute to community identity.

Virtual communities of interest, where individuals come together around a common recreational interest or hobby, are more informal than other kinds. However, while the bonding around the common interest is evident, identifying the bridging social capital in such organisations is less easy. Boundaries within these groups are less distinct, people tend to come and go more easily and trust appears more problematic but less important.

Key findings from the case studies

Some general findings emerge from study of the use of ICT for social capital and community building.

The first is that ICT supplements and to a lesser extent transforms social capital. Many individuals and organisations use ICT to extend their services and reach. Increased communication capabilities reinforce existing relationships and form and extend new ones.

ICT has a use in the development of community engagement and building social capital. Communities are at different stages of this process and do not always recognise the vast potential of ICT. When it is recognised, barriers may exist in the form of financial support, leadership, professional facilitation, technological development and support and vision.

Trust is central to the development of social capital in both the face-to-face and virtual realm. Trust in online communication can be enhanced by personal reputation, boundary setting, organisational reputation, ongoing interaction, formal and informal rules and leadership.

The sustainability of communities has both economic and social elements. They often lack the resources to continue operations, extend reach and service and to develop increased social capital. Virtual communities backed by the resources of larger organisations are able to draw on these to provide the necessary supportive environment, while others largely rely on volunteer participation. However, reliance on volunteers raises issues of sustaining effort, skill and knowledge levels along with the risk of changing priorities and focus. Funding to sustain many virtual communities is not generally available or accessible.

Conclusions

There is vast potential to use ICT to build social capital and contribute to community development and formation. However, the case studies in this paper indicate that it is largely untapped and unrecognised in many areas. For ICT use to move beyond bonding—to harness its power for bridging and linking to resources that enhance economic and social development—it needs more attention to the type of social capital being developed. The issues of trust and sustainability are central to this development.

This paper raises a range of issues and questions that require further investigation. It is hoped that community members, practitioners, organisations and government agencies will take some time to consider the observations raised throughout the paper and any others related to their own view and experiences.

To participate in the consultation please refer to page 57 for details.

2 Introduction

The past decade has seen a renewed interest by governments, international organisations, civil society and communities in the concept of social capital and its role in economic productivity, community development and social reform.

Concerns about the ailing social health of the population has lead many to consider closely the factors that underpin strong communities and families and that contribute to enhanced individual and community well-being. This has coincided with a revolution in technological developments. In the past decade information and communications technology (ICT) has become enmeshed in the fabric of the Australian economy and society and indeed across all developed nations.

The ubiquitous Internet is impacting on all aspects of peoples' work—learning, communication and recreation. It is transforming the ways in which citizens and consumers interact and engage with each other, with institutions and organisations and with government. This has led to increased attention both in Australia and overseas on the contribution of ICT, in particular the Internet, to community development and social capital building and as a tool for greater social inclusion and cohesion.

During August 2004, some 65 per cent of Australians aged 14 and over used the Internet, with 84 per cent of home users using it for email and 21 per cent for interactive discussions (Nielsen 2004). Australians are also making greater use of the Internet to access the websites of membership based communities and nonprofit organisations and groups. Wider broadband access is enabling many Australians to make increased use of interactive educational, entertainment, retail and financial services.

The Australian Government's original *Strategic Framework for the Information Economy*, released in 1999, canvassed the potential of ICT in community development and social capital building:

Perhaps the most exciting feature of this increased connectivity is its potential to act as a catalyst for greater social interaction and community participation. Online technologies can have a direct role in enhancing community well being. They can provide better links across the local community while at the same enabling access to wider national and international resources.

Existing social infrastructure—schools, hospitals, public libraries, local councils—can be strengthened. Online capacity can help to stimulate and reinvigorate both local communities and communities of interest.

(NOIE 1999)

The updated document—*Australia's Strategic Framework for the Information Economy 2004–2006*, developed by the Department of Communications, Information Technology and the Arts (DCITA) and released in mid-2004—continues to acknowledge the potential for ICT to contribute to positive community and social outcomes for Australia, aiding social cohesion and the building of regional information economies (DCITA 2004a).

This discussion paper considers some of those aspects of ICT adoption and usage. It does not, however, attempt a comprehensive review of the substantial literature on social capital but rather focuses on recent research and developments.

A companion discussion paper, *Information and communications technology transforming the nonprofit sector* (DCITA 2004c), examines the economic and social benefits of ICT for nonprofit organisations. It examines the motivating factors for the sector to develop its ICT capacity and use it to improve social outcomes. The paper uses a series of case studies to illustrate the effective application of ICT by nonprofit organisations in Australia.

Is social capital important?

Both the Organisation for Economic Co-operation and Development (OECD) and the World Bank have acknowledged the importance of social capital for economic and social development:

Trust [social capital] has a role in facilitating productivity ... when embodied in the organisational culture of firms ... and may lead to larger and more effective production units ... as well as enhanced co-operation within firms. Social capital can facilitate regional systems of innovation ... helps people to find jobs.

(OECD 2001, pp. 57–58)

In Australia, senior figures in politics, government agencies and civil organisations have recognised the importance of social capital for economic and social development. There appears to be bi-partisan political support for the building and maintenance of social capital as a basis for social cohesion and economic and social development.

The Productivity Commission, in its study *Social Capital: Reviewing the Concept and its Policy Implications*, further emphasised the importance of social capital:

High levels of trust and social engagement can generate wide ranging benefits, such as reduced need for personal security and policing, improved workplace efficiency and lower costs of doing business ... there is scope for Governments to take more account of social capital in policy development.

(Productivity Commission 2003a, p. 1)

The Australian Bureau of Statistics (ABS) has done considerable work to develop a proposed measurement framework for social capital. It has focused on social capital because of its links to individual and community wellbeing and also because of its interest to those concerned with the developing knowledge-based economy.

The Australian nonprofit sector highlighted the importance of social capital during the *Communities in Control* conference held in May 2003. This event was attended by approximately 1300 representatives from nonprofit organisations around Australia—federal, state, territory and local government agencies and leading Australian and overseas universities.

A key message from the conference was that both the bridging and linking forms of social capital are important for a socially cohesive and inclusive society and for building strong communities and families. Leading experts from the United States (US) and within Australia argued persuasively that strong social connections and an active participation in social activities play a major role in individual health and wellbeing.

This paper attempts to expand on the work already done on social capital by looking at the role for ICT.

ICT and social capital

Governments and communities have committed major resources to ICT projects and programs to foster community development and to assist with networking across groups. However, there has been comparatively little research in Australia of the actual and potential use of ICT as an enabler of community and social capability.

The Productivity Commission made little reference to the role and impact of ICT in its 2003 study of social capital and public policy but the Australian Communications Authority (2004) does raise the issues of changing social networks and the role of ICT in their preliminary report *Vision 20/20: Future Scenarios for the Communications Industry*.

The ABS framework for measuring social capital acknowledges the role played by ICT in social capital formation. Suggested indicators include:

- frequency of email or Internet contact with relatives and friends
- communication through Internet chat rooms
- using the Internet to contact government.

The business sector is now beginning to recognise the importance of transactional trust (by extension, a form of social capital) for increased online trade. The president and chief executive of leading technology company RSA Security, Art Coviello, made the connection between online business and trust at a recent international conference on e-security.

... what's holding back businesses? Why can't they move past the narrow transactional approach of fledgling B2B initiatives? The answer clearly is not about access, ubiquity or cost, nor is it about processing power, storage capacity and bandwidth. It's something more fundamental—confidence. Confidence means trust, it's about confidence [trust] in individual companies, in underlying systems and technologies, and in the people we do business with.

(Coviello, in Dearne 2004, p. 7)

Consumer, small business and institutional concerns with issues such as spam, privacy, identity theft, security, computer viruses and denial of service attacks are likely to be all-impacting on the degree of trust (or confidence) that users have in engaging online with government, business and community. This issue is explored briefly later.

Theoretical framework for social capital

Social capital is a complex, multifaceted and contentious concept. For this reason it is important to explain the theoretical framework for the subsequent discussion—not to debate the merits of the concepts but to set the parameters for this paper.

The next section, ‘Setting the scene’, considers the definition of community and the concept of social capital. There is a particular focus on trust as an implicit aspect of social capital and the interplay between trust and technology as people increasingly use ICT for communication and social connection. This includes the issue of online engagement by citizens with democratic processes and government institutions.

Later discussion links social capital and community development to the changes taking place in society as a result of ICT. It investigates the types of online or virtual relationships and online social networks that form on the Internet. It considers the types of social capital being created online between individuals and between individuals and institutions. Case studies explore how different types of community apply social capital to their needs. There is discussion of how trust, the different forms of social capital (bonding, bridging and linking) and sustainability affect communities bounded by place and geography as well as virtual communities of practice/purpose, circumstance and interest.

This paper strives to stimulate an iterative discussion on the effective use of ICT and its potential contribution towards a more socially inclusive society and in building strong, cohesive communities.

3 Setting the scene

As stated earlier, the main theoretical areas considered in this paper are community development and social capital and the overlap between the two.

Criticisms most often levelled at studies of social capital emphasise the fact that definitions are vague and difficult to conceptualise and measure. The use of imprecise and non-theoretical terms has contributed to the problem. Work in the area of community development suffers from similar criticisms.

The following discussion sets out the theoretical framework, the meanings of terms and marks out the boundaries for this paper.

3.1 Community development

The concept of social capital implies that its development takes place within a community of some description. This raises several issues. Firstly, what is 'community' and how do we define it? Secondly, the notion of building social capital implies a gradual or developmental process.

3.1.1 The nature of community

Traditionally, community has been thought of as place-based—that is, defined by geography. However, with changes to society the nature of community is also changing. Gurstein (2003, p. 4) states that 'communities are in a continuous state of responding and adapting to changes in their external environment and to new elements in their internal activities and methods of operation.' One particular influence is the increasing shift to the use of ICT and the restructuring of social networks.

Quan-Haase and Wellman state that 'useful approaches define community not in terms of locality, but as social networks of interpersonal ties that provide sociability, support, information, a sense of belonging, and social identity' (2002, p. 2).

This expands the definition of community to cover the range of social networks connected by common interests in geographic and non geographic terms. Those bounded by locality are easy to identify and define, while non geographic ones are more problematic. Literature on developmental theory (Cummings, Heeks & Huysman 2003, pp 4–5) uses the terms 'online networks' or 'virtual communities' to identify four types of ICT enabled communities.

1. *Communities of practice* form to share knowledge. In this context, communities are generally constituted as single disciplinary professional networks. This may include doctors, lawyers, nurses, social workers, academics, teachers, etc.
2. *Communities of purpose* relate to communities of practice but form over a particular issue or common cause. Typically, this is an interdisciplinary group with a specific goal for interaction. For example, a

network of researchers in a specialised but professionally diverse field who collaborate and share their findings or formal learning experience.

3. *Communities of circumstance* are online communities in which members share a position, circumstance or life experience rather than profession. This could include people who share a common geographic location, a particular illness or condition or an experience that binds them together (for example loss of a loved one, military service in a particular war, shared illness or disability, gender, age, etc).
4. *Communities of interest* are online communities centred on a common personal interest or hobby. While people may share their experiences around an interest there is no particular common goal to the interaction. Experience and knowledge may contribute to individual rather than collective goals. These networks are more informal in nature than a community of purpose. Many of the chat rooms that have proliferated tend to fall into this category, although some may also constitute communities of circumstance.

The arguments of Quan-Haase, Wellman and others are compelling given our changing society and increasing online social and professional interactions. Therefore, the term 'community' for the purpose of this paper accepts the idea of social networks as its basis and includes both geographically based and online communities. However, it is important to distinguish between those communities that are geographically bounded and those that are not (i.e. the virtual) as very different issues may arise in each. This paper is primarily concerned with the role of ICT as the means to establish, supplement and transform such communities.

Individuals cross from one type of community to another and may operate in several simultaneously. Virtual communities operate on a continuum and many types can overlap. For the sake of clarity of analysis, the paper draws some boundaries around community types and treats them separately.

There is a narrow distinction between communities of practice and purpose. In addition, transparency networks—described as 'inter-networked communities that share information about and scrutinise the policies and practices of firms, industries and government' (Dwyer 2004, p. 114)—could also fall into this section. Investigation reveals variations so similar that to differentiate between them is not particularly useful for the purpose of this paper. They are therefore treated together and identified as communities of practice/purpose.

Individuals who operate in many communities and networks simultaneously may add value to each type. They may use community access centres to link to or provide a platform for virtual communities of practice, circumstance or interest.

To explore and highlight the role of ICT in social capital the paper will confine discussion to the following types of communities:

1. geographic communities at the local, regional, state and national level
2. online communities of practice/purpose organised around a common specified goal and professional networks

3. online communities of circumstance in which members share a common life experience or circumstance except for geographic location
4. online communities of interest, where members share an informal hobby or shared interest.

An additional difficulty in discussing community is that people with common interests and a sense of belonging may form small or large groups and consider themselves as having formed 'communities'. Depending on their focus, these may exist in both the informal and formal realms at a local, state or territory, national or even international level. There are links between the levels and across sectors. Yet the generally accepted idea of community implies boundary and a sense of belonging (Onyx & Bullen 1997; iSociety 2003). This issue of boundaries defining communities has been a primary drawback in exploring the use of ICT in building communities and is an issue the paper will return to later.

What is immediately clear, however, is that 'community' is a dynamic concept—changeable and in flux. A sense of community grows over time and occurs within the context of the broader society, which is itself increasingly complex and affected by technological change. Much of the work carried out in the name of community development aims for a greater sense of community and/or to build on existing strengths for a positive result. The process of learning, use, changing technology and connectivity is common to both ICT and building social capital.

The impetus for change relates to community growth. This may be a top down or bottom up process or a combination of both. A sub-group or committee formed by an organisation to serve its members or itself may subsequently be defined as a community within the parent body. However, this may affect members' sense of belonging if it appears elitist or exclusive to the wider organisation—a point taken up in the related paper *A case for information and communications technology transformation of the nonprofit sector* which examines the economic and social benefits of ICT for nonprofit organisations.

3.1.2 Sustainability

The concept of sustainability, while not explicitly mentioned in the literature on social capital, figures prominently in the area of community development. One-off funding, particularly in relation to infrastructure development, can benefit a community but longer term programs require sustainable models to ensure lasting change. Funding from agencies and government programs is generally time-limited and designed to build resources that support enduring change. Sustainability derives directly from the nature of community and so needs will vary over time.

To be sustainable, programs and changes must fit with the needs of individual communities with appropriate support throughout development. One of the great benefits of ICT is that, given adequate infrastructure, various platforms, software and applications can be moulded to individual purposes. Therefore it is necessary to explore how sustainability applies to a variety of community settings—to ensure that particular groups are not marginalised by change, sustainability must be considered as context dependent and dynamic.

Collaboration between business, industry, government and community is an important factor in creating greater sustainability. However collaboration is both dependent on and a subsequent facilitator of trust, one of the foundations of social capital.

3.2 Social capital

The Productivity Commission (2003b) and ABS (2002) have provided comprehensive literature reviews of the concept and measurement of social capital and the reader is directed to them for further detail. To look at how ICT relates to social capital, it is important at this stage to provide a general background on social capital that highlights the key elements and provides a frame of reference and rationale for the investigation undertaken.

The concept of social capital is complex and multi-dimensional and therefore difficult to define and measure. However, the varying theoretical frameworks provide a basis for legitimately linking the term to a range of concepts and interests. The Productivity Commission (2003b, p. 7) considered four separate discourses on social capital, summarised as follows.

1. Economics—which ‘focuses on individuals’ incentives to interact with others and, out of self interest, to invest in social capital resources’ while some studies ‘explore the design and effects of formal and informal institutions.’
2. Political science—an emphasis on the role of institutions and political and social norms in shaping human behaviour.
3. Sociological—‘features of social organisation such as trust, reciprocity and networks in civic engagement.’
4. Anthropological—‘the notion that humans have natural instincts for association, providing a biological basis for social order.’

The concepts of human capital, cultural capital and social capital have their theoretical underpinnings in Marxist theory. (For a comprehensive discussion of these links see Lin 2002). Extension of these concepts to various disciplines explains the similarities and disparities between the discourses.

Several important points arise from consideration of social capital as an extension of economic capital.

One of these is the underlying notion of value and exchange. Economic theory embeds social capital in an economic framework and clearly acknowledges the economic value of its development. Temple (2001, p. 22) states that social capital ‘provides a useful umbrella term for those aspects of societies which, though difficult to measure and incorporate into formal models, are widely thought to be an important determinant of long-run economic success.’

In exploring its foundations, Lin (2001) emphasises the fact that capital is both a process and a result—a point often highlighted by social capital literature as contributing to problems of clarity and measurement. As a process it involves the investment of effort, social activity and exchange that adds value to the initial capital (Lin 2001, p. 7).

Some commentators have argued that social capital is a recent construct—artificial in nature and highly problematic when divorced from more fundamental notions of community and broad factors such as class, gender, ethnicity and race that impact on social relations (Scanlon 2004). This paper does not seek to explore such criticisms but it has found that the communities that arise around the use of ICT are in fact heavily influenced by issues such as gender, ethnicity, race and socio-economic status. As Scanlon (2004) suggests, social capital is highly contextual and social connectedness is embedded in these broader factors.

Elsewhere, Scanlon (2004b) has suggested the need to differentiate between various kinds of trust, making a useful distinction between social trust (i.e. that which is personal and emotional) and transactional trust (i.e. that which underlies a business or government transaction). The paper will explore both forms when discussing social capital.

3.2.1 Definition of social capital

Given that social capital is explored in several disciplines, definitions and emphases will vary. Some of the predominant definitions, drawn from the Productivity Commission's report, are as follows.

... the aggregate of the actual or potential resources which are linked to the possession of a durable network of more or less institutionalised relationships of mutual acquaintance or recognition

(Bourdieu 1985, in Productivity Commission 2003b, p. 7)

...social capital is defined by its function. It is not a single entity but a variety of entities with two elements in common: they all consist of some aspects of social structures, and they facilitate certain actions of actors—whether persons or corporate actions—within the structure

(Coleman 1988, *ibid.*)

... features of social organisation such as trust, norms, and networks that can improve the efficiency of society by facilitating coordinated actions

(Putnam 1993, *ibid.*)

Social capital is networks together with shared norms, values and understandings that facilitate cooperation within or among groups.

(OECD 2001, *ibid.*)

Rather than debate the merits of these definitions, this paper accepts the substantial work in this area by other agencies and prefers to identify some of the key concepts. For practical purposes, this paper adopts the OECD definition of social capital as endorsed in the discussion papers from the Productivity Commission and the ABS:

... networks together with shared norms, values and understandings that facilitate cooperation within or among groups.

(OECD 2001, p. 41)

The rationale for acceptance of the definition is that:

1. it was supported by stakeholders in the case of the ABS paper
2. it highlights key elements identified by a range of the literature on social capital
3. it allows consideration of social capital at a variety of levels
4. the OECD has a prestigious record of research in the field
5. there is benefit in consistency of measurement and discussion with other major government agencies (particularly the ABS) and at an international level.

In addition, acceptance of and work based on the OECD definition of social capital is supported by *Australia's Strategic Framework for the Information Economy 2004–2006*. Of particular importance is the emphasis that the OECD places on facilitation and cooperation within and among groups. By working with a definition developed by the OECD and accepted by the ABS and their stakeholders, it becomes possible to work across, between and with organisations, industry and government to provide national and international coherence. This paper helps to make more explicit the role of ICT in the pursuit of wider international priorities as recognised by the OECD and the UN.

3.2.2 The elements of social capital

Generally the elements of social norms, social networks and trust are vital to considering and measuring social capital. In this framework trust is a shared value and norm along with the idea of reciprocity. Social networks, while related, are treated separately.

3.2.2.1 Shared values and norms

The Productivity Commission defines social norms as 'shared understandings, informal rules and conventions that prescribe, proscribe or modulate certain behaviours in various circumstances' (Productivity Commission 2003b, p. 9). Norms vary, but there is the implication that they will be observed.

Stone and Hughes (2002, p. 2) further noted that norms vary between the informal, the organisational and the general realm. Therefore the informal rules that govern interactions with family are likely to be different to those that govern interactions within the workplace, with government agencies or in the broader community. Additionally, the cultural background in which an individual operates will impact on the rules that govern behaviour.

As norms are informal rules that involve shared assumptions about how people should behave in a particular circumstance, this raises the question of compliance. Essentially compliance with social norms is encouraged through internal psychological sanctions or external sanctions (Productivity Commission 2003b, p. 9). In various settings, sanctions may be less easily identified and more easily avoided at both the internal and external levels. For example, external sanctions are more easily ignored in an exclusively online community than in a community that is ICT enabled but geographically based.

The online world holds less likelihood of repercussion for those who venture outside acceptable normative behaviour. This is not to say that the online world does not possess its own body of sanctions for unacceptable behaviour or breaches of protocols, whether specific to an online community or generally across the Internet domain (so-called 'netiquette'). Moreover, there is an extent (perhaps quite large) to which the online world mirrors the values and norms of the offline world. Generally, however, sanctions in the online environment are less immediate and less severe and often those who transgress (e.g. hackers, spammers) are difficult to locate and prosecute.

On the positive side, however, extended social networks between groups build shared understanding by providing access to a range of views beyond one's immediate surroundings. This may promote understanding of differences, facilitate a broader sense of community and promote tolerance and respect. A later section of this paper considers the role of ICT in supporting such extended networks.

Two of the norms pivotal to social capital are trust and reciprocity. The two terms are inherently linked, with reciprocity implicit in trust. Reciprocal trust in a relationship leads to the ongoing development of it while a break in trust can undermine relationships.

Trust and reciprocity

Whatever its precise relationship to social capital, trust and trustworthiness proffer many benefits. They are the bedrock of most personal relationships, facilitate various day-to-day interactions, and play an important role in commerce.

(Productivity Commission 2003b, p. 11).

If social capital is embedded in social networks that build personal relationships then trust is as essential to online relationships as elsewhere.

The literature on social capital discusses several types and levels of trust. The Productivity Commission defines trust as '...the level of confidence that people have that others will act as they say or are expected to act, or that what they say is reliable' while social or generalised trust 'refers to the general level of trust in a society—for example, how much one can trust strangers and previously encountered institutions' (Productivity Commission 2003b, p. x).

Sullivan (2002, p. 4) states that 'social trust can thus be viewed as the individual-level internalisation of norms of reciprocity, which facilitates collective action by allowing people to take risks and to trust that fellow citizens will not take advantage of them.'

Trust can operate at a number of levels in relation to an individual, a group or an organisation. There is also a distinction between trust based on personal experience and that based on a general community norm (Productivity Commission 2003b). Adding to this complexity is the fact that trust is a developmental process.

Individual trust is embedded in the personal experience and relations formed over time and through interaction:

... norms of trust and reciprocity, level of generalised trust and reciprocity is predicted by age, relationship status, the extent to which networks are locally based, ethnicity, health, voluntary activity, tolerance of ethnic diversity, whether live in an urban or rural area, satisfaction with the safety of one's neighbourhood and level of knowledge of local affairs.

(Stone & Hughes 2002, p. 32)

This idea is particularly important when considering the initial level of trust. The process required to build trust will vary according to an organisation's needs. In terms of community development generalised and individual trust will require greater attention for communities and individuals whose experiences make them wary of other individuals, organisations or government. This may include those from low socioeconomic groups, people from a variety of ethnic backgrounds, Indigenous Australians, older people and people with a disability.

For some communities, particularly those in remote areas, the characteristics of ICT delivery and service can impact on levels of trust in the technology and service providers and government agencies. Factors likely to undermine trust include lack of access, lack of reliable or adequate bandwidth, insufficient technical support services, privacy and security concerns, low levels of computer literacy and training and the lack of online services that meet the needs of the communities. Additionally, the sustainability of services and support affects the ongoing development of trust.

While online interaction raises particular challenges in relation to trust, it does not negate the presence or building of social trust. As the case studies illustrate, personal and emotional exchanges online are very real.

Transactional trust

Transactional trust is far more purpose driven, essentially removed from any one-to-one personal or social interactions. It is generally characterised by dealings between the individual and an organisation, whether government or business, to complete a particular task or transaction. Transactional trust in this respect will vary according to the transaction because an organisation may be trusted to deliver a particular service but not others. This theme is highlighted in The Smith Family case study (DCITA 2004b) incorporated in the paper on ICT in the nonprofit sector.

Transactional trust constitutes a relationship with some of the defining features of social capital (i.e. a set of social norms surrounding the intervention, the role of trust and reciprocity and a network of users). However, the purpose and nature of this relationship is likely to differ fundamentally from online relationships with a more social purpose.

The US business consultancy Accenture (Fano, Mathur & Shah 2003, p. 39) proposes that trust in the context of business development:

1. is earned over time
2. can be monitored by governments but not established by them
3. is an aggregation of many people's experiences
4. can take years to establish but can be lost in an instant
5. extends throughout the value chain.

In addition, once lost trust it is difficult to regain. In this discussion it is evident that trust exists in several planes, it is both a process and outcome and requires sustainable development.

Accenture notes the tensions between the need for business to access consumer data and information and the individual's right to privacy and control over personal information. To balance this tension Accenture advocates a proactive effort to comply with current laws while also earning trust. The latter becomes more important as technological change challenges the ability of most current laws and regulations to protect privacy.

Accenture defines business trust as 'the confidence consumers or organisations have that a company will respect their privacy concerns and handle their information responsibly' (Fano, Mathur & Shah 2003, p. 38). In this context, the dimensions of trust include:

1. **security** where personal information is protected against theft
2. **data control** where the individual controls who gains legal access to personal information and when they get that access
3. **personal access** where the individual controls over who contacts them and how
4. **accountability** so that if access to information is granted it will be used responsibly and in the best interests of the individual
5. **benefit that is reciprocal** so that the individual gets a return for use of data.

These issues apply equally to other organisations and government and will affect the developmental cycle for trust.

Accenture (2003, p. 7) sees e-government maturing through five plateaus of development.

1. **Online presence**—in this early stage of development there is a passive-passive relationship between the government and the customer. Information is provided by agencies and read by customers with no interaction in electronic form.

2. **Basic capability**—the second stage involves a central plan for e-government with a broader online presence across government. ‘Quick win’ transactions are enabled particularly in revenue generating sectors.
3. **Service availability**—in this stage there is a push for as many services as possible to be available online with limited sophisticated transactions available. There is an initial customer focus and some cross-agency cooperation.
4. **Mature delivery**—at this more advanced stage, service clusters are developed and intra-agency cooperation and collaboration across levels of government are present. A value-added approach is taken with customer service objectives in place.
5. **Service transformation**—improved customer service delivery is a key objective with service take-up a key measure. Integration between services is achieved with organisational, process and technology changes taking place throughout agencies.

There is a sense, supported by the earlier work of Accenture (2001, p. 5), that these stages progress from a passive-passive relationship between government and citizen to a transaction stage where both parties are actively involved with each other online. Accenture (2003, p. 8) later notes that as governments move through this cycle they reach critical plateaus at each stage. Each plateau takes some time to overcome.

Trust in government and trust in the online environment are essential for the later transformation stage of reciprocal transaction. These two separate but related issues need clear identification and articulation. Trust in government needs further clarification as it applies broadly to specific agencies and the services they provide. These factors combine to create the more complex issue of trust in e-government.

A study by the Pew Internet & American Life Project, *How Americans Get in Touch with Government*, showed that US citizens require and will use different methods for contact and interaction with government depending on the nature of the problem, issue or service required (Pew 2004a). However, it found Internet users contact government more often than non-users. Despite the fact that it has no independent effect on the success of their engagement, users also believe that the Internet improves their relationships with government. Pew (2004a, p. 25) notes Internet user find ‘online interactions with government seem to improve their perceptions about how they relate to government, particularly for the federal and state governments.’

The central question of gaining trust (both transactional and social) for increased citizen e-participation is also the focus of some recent Australian research. Stanton (2004, p. 22) notes ‘It is evident that development of trust between both internal collaborative and external participative e-government stakeholders must be a condition for effective interaction in this vital environment.’ Stanton makes reference to the work of Pavlou (2001), where trust is one of four important variables (the others being perceived risk, perceived usefulness and perceived care of use) for predicting the intention to use online transactions.

Dwyer (2004) proposes a model for greater transparency in government networks, which has at its centre the building of trust and the creation of an iterative process that reinforce values through appropriate behaviours and transparent processes.

The Australian Government has carried out a range of projects in the areas of trust, security, authentication and related issues (see www.agimo.gov.au and www.dcita.gov.au). Trust and security continue to be one of the priorities in *Australia's Strategic Framework for the Information Economy 2004–2006* which notes the ongoing need to address 'online authentication, privacy and consumer protection issues to promote confidence in online transactions' (DCITA 2004a, p. 23).

Threats to building trust and relationships online

Spam

Spam exploits the openness of the Internet—and the presence of trust—to send unwelcome messages and transmit computer viruses and other online threats.

Spammers cull email addresses and send out commercial messages to thousands or even millions of addresses, with the expectation that even a few positive responses will make their efforts profitable. They are uninterested in the negative repercussions of their actions—such as the expense to users of downloading endless unwanted advertisements, the exposure of children to pornographic material or fraudulent transactions and offers. The consequences of spam for the recipients can include diminished trust in the Internet or even the decision to close their email accounts.

Spammers are increasingly exploiting poorly protected home computers. Users visit websites and are unknowingly infected by viruses programmed to set up proxies on home computers that relay spam not only to that user but also to others they contact.

The Australian Government has taken action to address this rising threat by introducing the Spam Act (Commonwealth of Australia 2003) to protect Australians from spammers and their techniques while protecting the right to free speech. The legislation plays an important role in the Government's multi-layered approach to fighting the global nuisance of spam.

Home users should take their own precautions including the use of anti-virus and firewall programs to safeguard their home PCs. They should use caution in opening unsolicited emails (especially if they contain attachments) and download software only from trusted sites or trusted organisations (NOIE 2002b, p. 18).

Other online threats

Variations on traditional spam, but which have the same intent and also threaten to undermine online user trust and confidence, are:

- phishing—emails purporting to be from a bank or other financial institution to lure users to a website that will harvest logon details for financial deception
- Trojans—viruses or other pieces of hidden code that automatically download onto the user's PC from emails or certain websites to record user details (e.g. online banking passwords) for financial deception or identity theft.

Many viruses are directly malicious in nature, designed to infect and damage the operating systems and files of individuals and organisations. These and other threats, such as the Melissa and Love Bug worms, can be transmitted as email attachments, from software downloads or through use of an infected floppy disk or CD.

Large corporations and government agencies are particular targets for hackers or their networks. Activities carried out by hackers include:

- denial of service attacks, where hackers bombard a website with requests for information, making it difficult for other users to gain access
- dumping, where control is taken of a user's modem to place calls to high-cost premium or international numbers.

These issues challenge agencies and their customers alike to establish and maintain confidence in the identity of parties to online transactions. Further information on spam and government initiatives to combat it is available online at www.dcita.gov.au/ie/spam_home.

Authentication

The Australian Government considers that authentication policies and technologies are essential for a trusted online environment (NOIE 2002b, p. i). This is also a major priority for the Australian business sector, which relies on trust in relationships between customers and businesses. In the physical world, people's identities can be confirmed (or authenticated) using physical information. These checks are not possible on the Internet and so require other means (NOIE 2002b, p. 4).

A familiar form of electronic authentication is the use of passwords to restrict access to PCs or computer networks. Enhanced options for authenticating identities and communications include encryption systems, public key infrastructure (PKI), virtual private networks and secure managed systems. These are explained in further detail in the publication *Trusting the Internet* (2002b). Australian Government agencies plan to use PKI to support secure online exchanges with individual clients.

Advice to home users to download only from trusted sites leads to the question 'what is a trusted or secure site?' Many businesses have established secure payment gateways on their websites for customers. Some businesses also display on their websites 'web seals' (or 'trustmarks') of approval—for example, the Verisign tick logo. Online traders use these web seals or trustmarks to show their credentials have been assessed by an appropriate independent organisation or that they subscribe to an industry code of conduct. Web seals can reassure consumers that they are dealing with businesses that care about providing reliable services.

The Australian Competition and Consumer Commission (ACCC) has, however, warned consumers not to rely on the mere presence of a web seal when deciding whether or not to buy from a web trader. The ACCC recommends that consumers always go to the website of the organisation originating the seal or code of conduct to verify that the trader is a member.

Many businesses and agencies have moved to install encrypted digital certificates on their servers that ensure secure communications with customers. Digital certificates issued by trusted third parties, called Certificate Authorities (CAs), authenticate the identity of an organisation before a certificate is issued (NOIE 2002b, p. 40).

Gatekeeper® is the Australian Government's PKI strategy. It provides a mechanism for government agencies to implement PKI technology and enables them to choose from accredited service providers. The *Gatekeeper*®

evaluation and interoperability (recognition) processes ensure that the products of and methods of delivery used by CAs and Registration Authorities comply with appropriate Australian Government policies and meet prescribed standards for integrity and trust (NOIE 1998).

Agencies and business can use digital signatures to satisfy their authentication needs. A digital signature is a cryptographic technique that applies a mathematical algorithm to a document based on a certificate holder's private key. This creates a unique identifier that cannot be forged and can be checked by the receiver to verify authenticity and integrity. It provides non-repudiation (i.e. neither party can deny that a transmission was sent or received) and confirms that the document or file has not been altered or interfered with. (NOIE 2002a, p. 8)

Australian Government agencies are required to comply with a range of online security mandates and guidelines (NOIE 2000) to ensure their websites and online networks are secure and so ensure public confidence in government online services.

Privacy

Another major issue for government and business is ensuring privacy in the online environment for citizen and consumer confidence and trust. Businesses recognise the value of posting privacy policies on their websites to describe the manner in which personal information may be collected and used and to whom it may be disclosed. Associated with this is the effort by government and business to keep personal information secure. Standards and principles in this area are described in a set of National Privacy Principles contained in the *Privacy Act 1988*.¹

Offensive content

The proliferation of illegal and restricted (offensive) content on the Internet has created concerns among many users, especially parents, about Internet access for children and young people. The Australian Government enacted the *Broadcasting Services Amendment (Online Services) Act 1999* to address some of these concerns. Mechanisms that complement the legislation include:

- enabling community members to make complaints to the Australian Broadcasting Authority about online material they think may be prohibited by law
- a community advisory body called NetAlert (www.netalert.net.au) to provide education and awareness-raising activities
- the launch of a new website (www.nettysworld.com.au) to help educate children about safer Internet practices.

Industry has also sought to address concerns by introducing codes of practice for the treatment of online content by Internet service providers. Those that register with the code receive the 'Family Friendly' Ladybird seal of endorsement from the peak industry body, the Australian Internet Industry Association (www.ii.net.au/guideuser.html). Home Internet users with children are encouraged to use content filtering software on their PCs.

1 www.privacy.gov.au/act/privacyact/index.html

Consumer rights

The Australian Government recognises that for consumers to understand the benefits and risks of shopping online they require facts that enable informed decisions regarding online purchases. It provides consumer information through the Treasury website *ConsumersOnline* (www.consumersonline.gov.au). Information is also provided through the ACCC website (www.accc.gov.au) on such issues as Internet auctions, Internet scams, Internet dumping, consumer rights and web seals.

Building trust in communities

Threats to online trust and relationships are clearly significant in relation to the use of ICT to build social capital. Threats that undermine trust in the online realm reduce the willingness of individuals to engage with others in a meaningful way and subsequently increase their networks.

Relating online trust to what is known about communities makes it evident that boundaries play a key role. Trust in an online community depends on the things that create a sense of belonging to a group and so build confidence in interactions. This includes boundaries on the size of the group as well as boundaries in terms of behavioural norms.

Open, unmoderated chat rooms do not build community, trust or subsequent social capital. Without the boundaries, people can come and go too easily without any sense of responsibility (known colloquially as Internet 'trawling').

A UK study found that 'reducing the size of online networks is done primarily to make reputations and trust possible' although 'different sized social networks achieve different outcomes' (iSociety 2003, pp. 30–34). The lesson here is that specific online communities must have clear objectives and set boundaries accordingly. Additionally, a trusted organisation that supports or hosts the online community is likely to engender greater trust than an unknown group.

Despite these issues, there is evidence that the Internet can contribute to the development of trust. Pierce and Lovrich (2003, p. 49) found, overall, that 'Internet technology use at both the aggregate and the individual level is associated with higher levels of trust, even when controlling for the demographics of the city and the personal characteristics of individuals.' Further, they observed a 'significant association between higher levels of Internet penetration and higher levels of social trust' (*ibid.*, p. 49).

Discussion points

We know that trust is an essential element of and is required to build social capital. It is also something that develops over time and operates at a number of levels.

- How can different forms of trust (i.e. transactional trust, social trust) be developed and maintained:
 - in relation to business, organisational and government online engagement and access to online services?
 - in the various types of online communities?
- What undermines trust in each of these contexts?

- What role (if any) should business and government play in developing and sustaining different forms of trust in each of these contexts?
- What other (if any) values and norms have a significant impact in the online world?
- Are citizens and consumers sufficiently aware of the online threats that they need to consider and safeguard against? If not, what practical measures might address this?
- Are there effective sanctions for those who transgress online against shared values and norms?

3.2.2.2 Social networks

Social networks are the foundation of personal and business interactions. They define who people communicate with and how. Wellman *et al.* (2002) argue that social networks are changing in current society. This transformation follows revolutions in technology that have resulted in a move from densely knit and tightly bound networks (with strong geographic ties) to sparsely knit and loosely bound networks. Underlying this shift is the nature of the World Wide Web itself as a network of networks. These changes have vast implications for how people relate to each other and to institutions.

To highlight the importance of social networks in the social capital debate Lin (2001, p. 41) asserts that 'social capital is rooted in social networks and social relations and is conceived of as resources embedded in a social structure that are accessed and/or mobilised in purposive actions'. In addition, the Productivity Commission (2003b, p. 10) noted 'Networks can also play an important role in the provision of other aspects of social capital. Social norms are more likely to be spread and observed in a more connected society.' It is therefore important to understand the basics of social networks.

The Productivity Commission (2003b, p. 10) defines a network as 'an interconnected group of people who usually have an attribute in common.' Social network theory (Mitchell 1969) discusses networks in terms of:

- density (the proportion of people in the network who know each other)
- reachability (the reach of any individual in the network by virtue of the links within the network)
- range (the number and diversity of contacts)
- content (the meaning ascribed to the relationships)
- directness of the relationship and interaction
- durability (endurance of links)
- intensity (the degree to which individuals feel bound to honour obligations or rights in relation to the contact)
- frequency of contact.

Researchers use these factors to assess the many dynamics and interactions of social networks. For example, the ABS (2004) in its work on the measurement of social capital considers questions related to network size, frequency, duration, range and density while combining these with the mode of communication.

Social capital literature tends to synthesise (and simplify) key elements from social networks theory and discusses a higher level typology of bonding, bridging and linking capital. These three primary types of social capital can be described as follows:

1. 'Bonding social capital refers to relations among relatively homogenous groups (such as an ethnic, religious or socioeconomic group) and it strengthens the social ties within the particular group' (Productivity Commission 2003b, p. 18). It builds a sense of close knit community that provides the individual with a sense of belonging and identity and social support and conforms most closely with the more traditional idea of community.
2. 'Bridging capital refers to relations between heterogenous groups, and it strengthens ties across such groups. Examples of bridging social capital include the civil rights movement and ecumenical religious organisations' (*ibid.*). It develops ties between diverse groups under a common network. This allows the individual to access different resources, promotes shared understanding between groups, increases the flow of information and develops a broader sense of community
3. 'Linking social capital refers to relations between individuals and groups in different social strata in a hierarchy where power, social status and wealth are accessed by different groups' (*ibid.*). This is differentiated from bridging capital because it allows people to draw on the different levels of power and status that operate across society rather than simply those across different networks. It can be the foundation of cooperative development where power and status play a key role in accessing the necessary resources.

Lin (2001) argues, in line with Wellman's work, that social networks increasingly rely on and develop through electronic mediums. Without diminishing the importance of face-to-face contact, ICT transforms social networks through 'cybernetworks [that] are defined as the social networks in cyberspace and specifically the Internet' (Lin 2001, p. 212). The Internet provides increased opportunity for connections across different types of networks and to reinforce existing networks and therefore can build all three types of social capital.

Individuals and groups construct cybernetworks through the use of what is sometimes termed 'social software' (iSociety 2003). Social software 'refers to any software which enables groups of people to communicate and to collaborate' (iSociety 2003, p. 11). It includes email, chat rooms, listservs, weblogs, etc. These tools allow the individual to keep in contact and nurture existing social networks and to form others that may not have been possible under traditional geographically based social networks.

This paper regards ICT as integral to the wider infrastructure of society with a role to play in building social capital, consistent with the view of iSociety in the United Kingdom (UK):

What is misunderstood about the possibilities for building social capital through social software is that the latter cannot and will not replicate or replace face-to-face relationships. To say that social software can be integrated into our everyday social lives is entirely different from saying that social software can recreate our everyday social lives, or replace them.

(iSociety 2003, p. 45)

Discussion points

- How is the Internet (and ICT generally) impacting on the building and development of social networks?
- What is the role of government (if any) in the ways that the Internet is used to build and develop social networks?

3.3 Building social capital

As with communities, social capital operates at several levels. It can be considered at the individual (micro), the community or organisational (meso) or the national (macro) level. These interact with and build on one another. Just as a community's social capital is often measured by the social capital of individuals within it, an organisation with many members or staff with good social capital is more likely to become an organisation with good social capital.

Onyx and Leonard (2000, p. 7) observe that 'collective action that uses and creates social capital is at a local level. It is the operation of networks and norms at the local level that makes an empirically demonstrable difference to economic and social outcomes.' The State is the context in which social capital develops—it provides agreed national norms, values and formal institutions within which local practice is placed.

Fukuyama (2002, p. 30), in discussing some of the problems of the social capital concept, notes 'it is a private good that produces extensive positive and negative externalities.' In this sense the individual is the basic level at which measurement should be done. Yet to sustain this as the basis for building wider social capital many individuals must have many links and a high level of shared trust.

A process for measuring social capital combined with dialogues on its benefits can contribute to the promotion of it. Yet Fukuyama (2002) states that it is not clear how to generate social capital in societies where it is lacking. Speculating on the need for underlying social structures, Fukuyama emphasises pre-existing requirements such as the rule of law and trusted institutions. The adequate provision of infrastructure (for the supply of food, water, sewerage, power, education, health care and more recently telecommunications) that meets the needs of individuals and communities invariably adds to the trust levels of a community.

Fukuyama believes networks may impact on social capital generation:

What is needed in these cases (where social capital is low) is to increase the radius of trust among individuals in the various small, inward looking groups that comprise these societies, and to facilitate the building of cooperative relationships, in both economic and political spheres, between groups that typically have had little to do with one another.

(Fukuyama 2002, p. 32)

Therefore, in many instances of perceived low social capital in communities, the bridging capital needs strengthening. Woolcott and Narayan (2000, cited in Onyx & Leonard 2000, p. 6) agree that 'while localised, bonding social capital operates as effective defensive strategies against poverty, the necessary condition for real development entails a shift to other, looser networks, thus a shift from "getting by" to "getting ahead" entails a shift from bonding to bridging networks.' ICT has a key role to play in building and maintaining

bridging capital as it provides greater opportunity for extending social networks, particularly for communities and disadvantaged groups isolated by geography or circumstance.

Linking social capital, while less often discussed, provides access not only to information and contacts in different social networks but to the power and status, both informal and formal, that they represent. Dialogues on e-democracy and e-governance highlight the role of ICT in developing linking capital. This does not mean simply voting online—the key is in the interaction and the process of achieving beneficial outcomes for both citizens and government, rather than a one-way provision of information or services.

The complicating factor is that not all social capital is inherently good for a community or the wider society. The negatives of social capital occur mainly in relation to bonding capital where very strong ties within a group can lead to the exclusion of others, negative norms, a lack of concern for building other kinds of ties and social liabilities. These problems may arise when strong bonding is combined with a lack of bridging capital.

By way of illustration, Granovetter (1973) discusses the differences between two suburbs in Boston in response to urban renewal by the city council. In one, bonding capital was very strong among sub-groups but bridging capital between them was almost non-existent. As a result the community was unable to work together to fight the council's plans. In the other, bridging capital between groups was quite good and the community was able to work together and affect the development plans.

Terrorist networks provide evidence of the power of bonding, bridging and linking capital to generate negative social capital. Strong social capital in such a community of purpose does not work for the benefit of the larger community or contribute to good social capital at a broader level.

Where the primary barriers to social networks once were distance and capability, improved transport and communication (largely in the form of the telephone) have helped to overcome them. However, social networks and relationships continued to rely traditionally on place-based synchronous (same time) communication for improvement. ICT has significant potential to change the nature of communication. Wellman *et al.* (2002) argue that ICT has created individual networks, unrestricted by time, that can communicate in an asynchronous manner.

These structural and technological changes enable flexible responses by social networks to the needs of individuals—providing they have equal access to technology and the ability, knowledge and skill to use it. Those excluded by deficiencies in these attributes need particular attention.

Other structural factors that play a role in such exclusion include the predominance of the English language in use and design of technology, a lack of understanding and support around cultural differences in communication patterns and the inherent bias in software development that generally limits the use of technology to those with mainstream physical abilities. The World Summit on the Information Society (2003) acknowledged these issues and highlighted the need to acknowledge differences in culture, language and physical ability in the design and use of ICT.

Discussion points

- What is the potential (and limit) of the Internet (and ICT generally) to build and maintain bridging social capital?
- Are there potential (and actual) negative aspects of the building of social capital online? If so, what are they?
- What is the role of government (if any) in addressing the potentially negative aspects of building social capital online?

4 Some social and community aspects of ICT use

The Internet and the emergence of new technologies are producing new forms of social interaction and changing ways that people as citizens and consumers engage with government and business. There are numerous prominent examples of these developments.

- A new generation of user-friendly, handheld wireless devices that provide 'always-on' access to email, telephony, real-time payments and other multimedia services.
- Advances in micro-chip technology affording far greater processing power and data storage capacity and in turn enabling the increased embedding of ICT into machines and smart devices (e.g. onboard computers in motor vehicles).
- Moves toward interoperability between systems and the convergence of technologies (e.g. digital radio, Internet radio).
- 'Web services' technologies designed to connect the ICT systems of multiple enterprises or industries and deliver more efficient and user-friendly coordinated services to consumers and citizens. These include distributed computing and data management services for research and business, more efficient industry supply chains and easier government service delivery for citizens.
- High-capacity broadband links that support web services and content-rich and interactive services for entertainment, e-commerce, research, and collaborative work environments.

This paper mainly focuses on the role of the Internet and the World Wide Web on social capital formation. This is not to disregard the importance of other aspects of technology and their impact on society but rather to focus the discussion in a manageable way. Mobile phones and their applications (e.g. SMS text messaging) are clearly important means of communication that do facilitate social changes (see Rheingold 2002). However, of particular importance is the potential of high capacity broadband to increase online interactivity and subsequently its capacity to build social capital.

Broadband capabilities

The availability, capacity and reliability of bandwidth connectivity are essential elements in the quality and frequency of online interactions between individuals and between individuals and organisations.

Australia's National Broadband Strategy highlights the social benefits of broadband connectivity:

A high level of community connectivity can serve to break down isolation, aid the acquisition and transfer of knowledge and skills, and promote the creation of mutually beneficial partnerships

and alliances. Community [electronic] networks also have positive implications for the development of social capital within communities.

(NOIE 2004, p. 14)

Narrowband, dial-up connection to the Internet via a standard telephone line—usually 28–56 kilobits per second (kbps)—is generally sufficient for people to engage in such online activities as email, e-banking, online shopping and downloading text and low quality graphics. However, higher bandwidth enables the same functions at higher speeds and is required for many advanced applications including video-conferencing and video-telephony that may benefit particular groups.

With the development of technological capabilities, second and third generations of Internet connection have developed. Bandwidth in the order of 200 kbps with an always on connection is considered the second ‘broadband’ generation while third generation is considered to apply to connection speeds of 10 megabits per second (Mbps) or greater. While accepting both of these levels as broadband, the definition provided in *Australia’s National Broadband Strategy* focuses on the functionality rather than the speed of the connection:

Broadband allows users fast, ‘always-on’ online access to digital content, applications and a range of services, some or all of which can occur simultaneously. Broadband access is of critical importance to take full advantage of new communication tools and next generation applications.

(NOIE 2004, p. 7)

A minimum of 128 kbps is required for video-conferencing or video-telephony and generally broadband connectivity in the order of around 384 kbps is needed for a reliable, good quality service. Videoconferencing or video-telephony can offer a range of benefits for individuals with specific needs and for particular purposes. This may include Indigenous people in remote communities, deaf and hearing impaired users and other online consultations (such as tele-medicine) where face-to-face contact is desirable but prevented by distance.

Higher and more reliable bandwidth connections are often important requirements for people working from home (teleworking) to interact with other staff, customers or organisations. Similarly, while a narrowband connection supports email communication and participation in online chat, it limits the ‘value add’ of these interactions. The ability to exchange/download high quality graphics, photographs, software, files and audio and video-clips over narrowband dial-up connections is seriously restricted. Research suggests that the presence, or absence, of an ‘always on’ connection is a significant factor in the frequency of online contacts between individuals (Pew 2004b; Hampton & Wellman 2003).

Factors such as line drop-outs (in the case of dial-up connections), high latency (i.e. slow response and download/upload times) and data loss in transmission (resulting in poor picture quality in the case of video applications and corruption of downloaded text, images or software) may also hinder effective online relationship building between individuals and the quality of engagement between citizens and consumers with government and business.

The benefits of broadband connections for a wide range of business, work, study, health, cultural, entertainment and social purposes is explored in further detail in the Broadband Resources Kit available at www.dcita.gov.au/ie/broadband

What is the impact of the Internet on communities?

While technological changes have created vast potential for the Internet to affect everyday life (Wellman *et al.* 2002), there has been little direct examination in Australia of the social and community impacts of the Internet. It is noted that most research on the creation of social capital in online communities mainly comes from the Canada and the US and there is little known about the Australian situation (Merkes 2002).

There has however, been public acknowledgement of the potential of ICT to build community. Hundreds of ICT projects in regional, rural and remote communities across Australia have received funding through the Australian Government's *Networking the Nation* program.² State and territory governments have focused on the potential for new communication technologies to foster community development, support regional and neighbourhood renewal programs and to assist with networking across groups. Two notable examples include the Victorian Government's 'My Connected Community' initiative and the New South Wales Government's 'E-communities' project.

Despite this, the Productivity Commission made little reference to the role and impact of ICT on social capital, only hinting at its potential:

This need not mean that social capital is unable to be generated more rapidly in particular contexts or with particular means. Indeed, the ABS (2002) cites an example—the Welink Queensland Rural Women's Network information and communications network—in which new infrastructure combined with structured links with government departments was used to support the reportedly rapid development of social capital among rural and Indigenous women.

(Productivity Commission 2003b, p. 14)

The ABS, however, makes a stronger connection:

Networks may involve relations within the household, in the local community or neighbourhood, or global or virtual relations, such as Internet chatroom relationships, that exist over vast distances. [...] Through chat rooms and subscribing to or linking in with email networks, it is also possible to establish new contacts and networks of relationships around common interests, including support groups. This form of communication is particularly important to those who may be excluded from meeting others [face-to-face] due to physical difficulties, child care responsibilities, or living in remote locations.

(ABS 2004, pp. 67–71)

² See www.dcita.gov.au/Article/0,,0_1-2_3-4_106337,00.html

The benefits of online networks can also extend to people for whom face-to-face contact is limited by distance or circumstance—for example, people who have caring responsibilities, are frail or have family members living in distant areas.

Overseas research (Wellman *et al.* 2002) has indicated three principal ways for broadly conceptualising the impact of the Internet on social capital.

1. The *Internet diminishes social capital* as it draws people away from family and friends. As global communication and involvement increases interest in local community and politics decreases.
2. The *Internet supplements social capital* as it 'blends into people's lives. It is another means of communication to facilitate existing social relationships and follows patterns of civic engagement and socialisation' (*ibid.*, p. 3). People use electronic mediums to supplement their usual telephone and face-to-face contact.
3. The *Internet transforms social capital* by providing 'means for inexpensive and convenient communication with far-flung communities of shared interest.' Its ubiquitous accessibility and flexibility 'leads to a major transformation in social contact and civic involvement away from local and group-based solidarities and towards more spatially-dispersed and sparsely-knit interest based social networks' (*ibid.*, p. 3).

DiMaggio *et al.* (2001) state that the impact of the Internet is more limited than utopian or dystopian views suggest, depending on how economic factors, government regulation and users influence evolving technology.

The study by the Pew Internet & American Life Project—*Tracking online life: how women use the Internet to cultivate relationships with family and friends*—found that email contributes to the building of bonding social capital:

The use of email reinforces Internet users' social connectedness to family and friends; the longer a user is online, the more likely she is to cite the positive effect email has on her social ties.

(Pew 2000, p. 20)

This research reinforces the need for studies of social capital and Internet use to define the type of community under investigation (an issue addressed earlier in this paper in discussion on the definition of both geographically based and online communities).

Other evidence (Quan-Haase & Wellman 2002; Sullivan *et al.* 2002) suggests that rather than diminishing social capital ICT is more likely to be supplementing it.

An analysis of the impact of the Internet needs to consider that the Internet may be contributing to new forms of interaction and community that cannot be measured using standard indicators of social capital. The fact that people are not interacting in visible public spaces does not mean that they are in isolation. They may be going online to create new online worlds, using instant messaging to chat with old and new friends, visiting online communities, or playing multi-user games. [...] The Internet makes it necessary to redefine our understanding of what social capital

is. We believe that the Internet will intensify the interpersonal transformation from 'door-to-door' to 'place-to-place' and individualised 'person-to-person' networks.

(Quan-Hasse & Wellman 2002, pp. 10–11)

However, much of the existing research seems concerned mainly with geographically based ICT enabled communities. In this respect, ICT fosters increased bonding social capital.

Yet the variety among online communities suggests that ICT may transform social capital in some spheres. Individuals have a much greater opportunity to join groups that bring them in contact with others whom they were unlikely to encounter under traditional offline forms of communication. For example, the Commonwealth of Learning (www.col.org), an organisation formed by the Commonwealth Heads of State, provides virtual international conferences of practitioners, researchers and academics. While this supplements regular face-to-face conferences, many more people have access to and participate in the virtual realm where the practical difficulties and costs of travel are eliminated.

Similar obstacles are irrelevant in online communities of circumstances that bring together people from regional and remote areas or those with a disability. As explored in the next section of this paper, ICT can both supplement and transform social capital depending on the nature of the community.

A related discussion is the potential of ICT to revolutionise the way citizens engage with government generally. Again, little direct evidence exists of substantial changes in the behaviour of citizens as the result of online interaction with government but governments in Australia and internationally are increasingly recognising and acting on that potential. The OECD puts it thus:

New forms of ICT, alongside more traditional media, can be used to help connect people to their local neighbourhoods as well as more distant communities. ICT offers new opportunities for government to consult and communicate with citizens, and to open up its own actions to public scrutiny.

(OECD 2001, p. 69)

DiMaggio *et al.* (2001) state that there is a gradual realisation that web based interaction does have a unique and politically significant property but that much of the focus has been on increasing political knowledge. Those who are already interested in politics use the Internet to supplement their existing resources. However, Han (2002) noted that the dynamic impact of ICT on political and social movements in Korea provides evidence of the use of ICT to mobilise citizens for political action. Rheingold (2002) has also highlighted examples of the role of ICT in facilitating citizen cooperation and collaboration on a mass scale (the 'smart mobs' that use mobile phones and websites for rapid mobilisation of protests or other actions). The evidence to date suggests that the value of ICT as a political tool, as with other functions, depends on the underlying need at the time.

Discussion points

- What other evidence is there that ICT can and is both supplementing and transforming social capital?
- What factors might be restricting the potential of ICT to supplement and transform social capital?
- What is the role of government (if any) in supporting the potential of ICT to supplement and transform social capital?

4.1 Social capital, community and ICT

Discussions of the theoretical frameworks suggest that ICT plays a role in building social capital. Yet research in this area remains largely undeveloped. To advance, it is necessary to venture beyond generalities as much as possible in analysing that role and how it may vary across different forms of community.

It was suggested earlier that the impact of ICT in building social capital will vary according to community type. This section uses a series of Australian and international case studies to examine the key elements of trust, social networks and sustainability as they apply in four key ICT enabled contexts:

1. geographically based communities
2. communities of practice/purpose
3. communities of circumstance
4. communities of interest.

The selected case studies are distributed throughout these categories and demonstrate instances of best practice and innovation.

Methodologies used to develop the studies included desk research, qualitative interviews with representatives of the organisation around a common set of questions or the use of similar questions to elicit responses from the stakeholder community. Participants were asked to discuss questions related to the key themes of social capital and community in terms of:

- the developmental process of the community
- barriers encountered
- the nature and type of relationships formed within the community
- social and economic sustainability
- the development of trust within the community

Some of the studies presented imply particular outcomes or processes but do not explicitly relate to the themes of this paper. Therefore there is a need to 'read between the lines' to some extent and this may pose as many questions as provide answers. More detailed descriptions of the individual case studies presented in this paper are available in the companion publication *Community ICT Transformation: Case Studies* (DCITA 2004b).

4.1.1 Geographically based ICT enabled communities

4.1.1.1. Wired communities

Netville

The 'Netville' wired neighbourhood study, the work of Professors Keith Hampton and Barry Wellman of the University of Toronto, was one of the first to reveal the positive social impacts of Internet use on relationships with friends, relatives and neighbourhoods.

Sixty five per cent (109) of the homes in Netville (a pseudonym for a suburban housing development just outside Toronto) were equipped with free Internet access at more than 300 times the speed of normal household telephone connections (28–56 kilobytes per second). This provided them with access to email neighbourhood discussion groups, video phones, video mail and various other technologies. The remaining households, which formed a control group, did not have access to the enhanced technologies.

The three year study found the following.

- Contrary to predictions that the Internet encourages social isolation, the Netville experiment stimulated greater civic involvement and neighbourly contact.
- Wired residents were 2–3 times more likely than non-wired residents to recognise and talk with their neighbours and also had more contact with friends and relatives outside the neighbourhood.
- The neighbourhood email list increased the amount of socialising through parties, BBQs and other local events.
- The same neighbourhood email list aided collective action and political involvement. Wired residents organised to protest housing concerns, collectively purchase goods, share information about burglaries and discuss a local teachers' strike.

Conclusions based on this case study and a range of papers written by Wellman and Hampton suggest that Netville promoted the building of bonding capital. In this sense, ICT supplemented current contacts but increased the rate of interaction. Wellman and Hampton make little mention of trust, although there is the implication that trust developed due to the bounded nature of the community and previous interactions between residents. Netville appeared largely homogeneous in nature without divisions along ethnic or income lines. This may not be the case in many ICT enabled geographic communities where the focus is on urban renewal of economically depressed regions or run-down neighbourhoods.

Key lessons

- Wired technology can increase bonding social capital in homogeneous communities.
- Higher bandwidth connections can increase social interaction in terms of frequency, intensity and range.
- The addition of wired technology to homogenous communities can supplement and to a lesser extent transform social capital.

electronic-Atherton Community Enterprise (e-ACE)

The electronic-Atherton Community Enterprise (e-ACE) project (www.atherton.org.au) established a wired community in a low income, multi-ethnic public housing estate, Atherton Gardens, in Fitzroy in inner Melbourne. The estate comprises 800 apartments in four tower blocks with around 2000 residents who are predominantly immigrants—from Vietnam, China and some 30 other countries. Unemployment is high and a range of social issues exist.

The project was initiated by Infoxchange Australia, a Melbourne based nonprofit social enterprise company that focuses on community development using ICT.

In initial planning for e-ACE, Infoxchange set the following objectives:

- to improve the social, economic and environmental circumstances of the Atherton Gardens estate
- to strengthen the capacity and cohesiveness of the community and its network.

Infoxchange secured support from a number of Victorian agencies, firms and community organisations and obtained a three year grant from the Community Support Fund. When this grant expires in 2005 the project will need to find alternative sources of funding.

The Swinburne University of Technology Institute for Social Research supported the Atherton Gardens project with research funded by an Australian Research Council grant. Surveys of residents by the Swinburne team provided valuable insights. An assessment that preceded the project concluded that:

- there was no real sense among residents of a single community identity—social connections and ties existed within language and ethnic groups, within kinship and friendship networks and, to a limited extent, within individual floors of each tower
- within these groupings, very high levels of mutual support, friendship, trust and reciprocity could exist.

In a paper to the Building an E-nation Symposium in April 2003, Swinburne researcher Denise Meredyth reported:

The emerging pattern is one in which existing groups on the estate, primarily language groups, are likely to have more to do with one another, both online and face to face, as the network establishes itself and as training activities take off. Whether this will lead to greater trust and co-operation on the estate remains to be seen. [...] The complex social and cultural composition of the residents themselves is likely to defeat any expectation that the 'community' will use the network to knit itself together into a cohesive social body stocking up social capital.

(Meredyth 2003, p. 5)

To date, the main impact of the Internet and ICT skills has been to replicate existing patterns of formal and informal associations on the estate (especially language and ethnic based), rather than to build an inclusive community. The primary result is bonding social capital, rather than the bridging and linking forms. However, there are indications that activities such as training are starting to build networks that cross these traditional associations. Over time, these may increase the low level of trust that exists across the estate.

Infoxchange is examining options that could sustain the initiative beyond 2005. One option is establishing e-ACE as a sustainable social enterprise based on a business model that builds on the community culture, skills and initiatives of this and other projects.

While the project is still at an early stage of development in addressing the broader community building objectives, a number of lessons have emerged. These include the key role of intermediary that Infoxchange has fulfilled, the value of research in monitoring progress and the importance of a local infrastructure to build partnership and collaboration. The Atherton Gardens project points significantly towards new forms of public and private partnership in addressing the needs of low income, disadvantaged communities, as well as identifying barriers.

Key lessons

- Timeframes for building social capital are long. e-ACE is at an early stage of development.
- Due to developmental timeframes, the economic sustainability of projects can be problematic and requires innovative strategies for support.
- Organisational support is vital to coordinated project development and evaluation.
- Existing social divisions are reflected in the communication and interaction patterns via ICT. Bonding social capital has been developed and enhanced along existing social groupings. However, broader bonding, bridging and linking capital is likely to require purposeful and directed facilitation.

Networked Neighbourhoods

Networked Neighbourhoods is both a theory and a technology. According to the theory, ICT can help build stronger communities that can decrease their reliance on a range of government services. To prove the theory it was necessary to develop purpose-built technology.

The Networked Neighbourhoods technology is designed to build community self-reliance, resilience and support networks and as a result decrease social isolation. The prototype technology allows individuals to establish a networked environment that enables them to:

- contact people who share their interests in the local area
- discover useful businesses and services close by
- find groups and organisations they might like to join
- keep in touch with family and friends
- organise events and details in their everyday life
- access information with personal relevance
- keep a calendar.

Project deployment, in May 2003, included three to seven staff and more than 250 community participants. The deployment hub was at Picton Waters, a new development of 35 houses in the southwest of Western Australia, with the secondary hub consisting of the surrounding suburbs and the local primary school.

Building trust in the project and the administrators was a slow process. A multi-faceted approach used traditional marketing tools, face-to-face and telephone contact. Each of some 500 households in the target group received newsletters, letters of introduction and a survey with small prizes offered as incentives for its return. Each returned survey included signed permission for future email contact, which was used to generate interest in the Networked Neighbourhoods project.

The technology itself is based on a 'networking' approach—people must opt in to become members of the Networked Neighbourhoods environment and can then create new communities and join those created by others. The system is designed to be self-populating with members inviting other people to join. As members of the Networked Neighbourhoods community individuals can receive messages and information

Membership was a key element of building trust in the community. The fact that Networked Neighbourhoods was a closed community helped to develop the trust individuals and businesses had in each other. Additionally, its geographic base facilitated the development of trust and allowed for increased face-to-face contact to supplement the online experience.

Support from the state government and corporate sector for Networked Neighbourhoods was limited to the pilot project.

Key lessons

- Trust is facilitated via geographic boundaries and membership.
- The wired community builds and focuses on bonding social capital.
- The developmental model of Networked Neighbourhoods as a pilot project has not addressed issues of sustainability.

Camfield Estates/Creating Community Connections

One of the most valuable aspects of ICT enabled geographic communities is the subsequent connection of individuals to online communities in the broader society. An example comes from the Camfield Estates/MIT Creating Community Connections (C3) Project, conceived as an online resource for building social capital. The main architect of the project, Dr Randall Pinkett of the Massachusetts Institute of Technology, contends that community technology has transformed the estate (a low income housing development consisting mainly of African-American single mothers) and individual residents.

Pinkett has some compelling examples of positive personal transformation from the introduction of technology to households, although Meredyth (2003) notes that the Camfield Estates experiment has not shown improvements in community interaction or local activity or measurable increases in trust and social capital. Such assessment relates to the geographically based community and not social capital of the individual. However, Pinkett's example of 'Edna Jackson' shows an increase in individual social capital.

Edna (a formidable resident of the Camfield Estates) initially opposed the C3 project but was converted to computer use and the Internet when shown how to use them to stay in touch with her family and to investigate her health problems.

On the day that Edna made a comment to an online chat room for cancer survivors and was validated by the others 'everything changed'. She had a 'renewed faith in her capacity to learn' and experienced a 'metacognitive shift'. She found a 'community of interest' and made global ties with a community that 'reached out to her' giving her better quality of life (Pinkett 2002).

It is not unreasonable to expect comparable individual gains for individual residents in projects such as e-ACE, even though bridging capital may be far less visible.

Key lessons

- ICT enabled geographic communities can facilitate connection to a range of extended services and communities in the online realm.
- Individuals can increase the frequency and intensity of their contact with family and friends increasing their bonding capital.
- Bridging and linking capital may increase through individual connections to virtual communities external to the wired community.

Family Community Network Initiative

The Family and Community Network Initiative (FCNI), administered by the Australian Government Department of Family and Community Services (FACS), aims to develop the capacity of families and communities to respond effectively to local issues. FCNI's primary purpose is to support Indigenous communities and some projects have an ICT focus.

Four of the FCNI projects specifically support 'IT networking' (Black *et al.* 2002) through the following organisations:

- Rockhampton City Council, Qld (Communities on the Internet, or COIN, to improve community ICT access in the Rockhampton District)
- Gungahlin Regional Community Service, ACT (ICT access for disadvantaged and 'at risk' young people and community groups)
- Para West Adult Campus, SA (ICT transfer scoping project)
- St Saviour's Neighbourhood Centre, ACT (Internet café targeting 'at risk' youth).

Seven other 'community networking' projects incorporated IT as a central or contributing feature:

- Carers NSW (families of people with developmental disabilities)
- Long Gully Community House, Vic (community information service)
- Coonalyph Communications Network Inc, SA (community information)
- Durri Aboriginal Corporation Medical Service, NSW (community website)
- Macarthur Disability Service, NSW (interactive information services for families)
- City of Salisbury, SA (Salisbury North community youth IT project)
- Northern Area Community and Youth Services, SA (Spirit of Peachey youth project).

Evaluation of the FCNI program in June 2002 found overall that it had successfully improved the capacity of communities and families through better access to information and services and improved coordination of existing services. There were no broad conclusions about the overall effectiveness of ICT as a tool for social capital and community capacity building, although the report noted:

Without minimising the value of FCNI projects that have focussed on information technology, it could be argued that a lack of access to information or to information technology is not generally the greatest need of many communities in which there is a high level of social or economic disadvantage.

(Black *et al.* 2002, p. 50)

Key lessons

- ICT can provide improved access to information and services for communities.
- Attention to fundamental social and economic issues must take precedence over ICT, which can play a supportive or complementary role within a comprehensive response to those needs.

4.1.1.2 Online access centres

Issues around community use of ICT often focus on physical access and/or training. Many access centres are based in existing communities, run by volunteers and funded by a range of grants (often through the Networking the Nation program). The centres vary considerably in nature and sustainability according to a range of factors including the needs, location and resources of the geographic community.

These centres face inherent difficulties as well as many potential benefits, generally related to community development. Their function is to provide a place to use or learn about computers and the Internet rather than build community within the online sphere. Their contribution to building social capital is in bringing people together around a common interest. In addition, computing and Internet access is an interest that spans age groups, occupations and life circumstances thus increasing bridging capital to some extent.

Some of the centres also have a presence in the online realm—depending on developmental stage, resources and the individuals involved. With this progression the community access centre is likely to increase its impact on the bridging and linking capital of communities through online links to external organisations and services.

Numerous examples of this include the Port Elliot IT Access Centre (www.peitac.org.au) and the Queensland Rural Women's Network BridgIT program (www.qrwn.org.au/bridgit/services/index.htm). The value of these online access centres increased dramatically through their links to other centres, local organisations and businesses. Opportunities for bridging and linking capital began to occur, as well as the benefits of centralised support for administrative, management and technical requirements. For this reason Gurstein (2003) advocates the need for 'technology hubs' and 'regional hubs' to provide a network of access centres. The role of ICT to the transforming rather than supplementary stage as it increases bridging and linking capital.

The Regional Connectivity Project in western Victoria (www.regionalconnectivity.org), a Networking the Nation project with support from Multimedia Victoria and the University of Ballarat, is an example of such a hub.

It began in 1999 with six Community Enterprise Centres (CECs) across the region and has now expanded to 25 centres. These mostly comprise a co-location of community activities, managed in each case by a local steering committee, and aim to foster growth and development in the town and (through the integration of a hub network) the broader region. A Project Coordinator works across the centres assisting with local development and providing a link between the centres.

The joint emphasis on local and regional development and coordination is a defining feature of the project:

The Project sees itself as a regional network, not a series of stand alone centres. This enables a significant amount of interaction between communities, both in learning and development of ideas. Because we have this regional network a number of government departments and other service providers are utilising the Project as a vehicle for the local delivery of their services.

(Regional Connectivity 2002, p. 3)

Harnessing the power of a network provides additional benefits to individual communities. These include the ability to aggregate demand for services, funding and training with improved outcomes for all communities involved. Some benefits accrued through this include:

- access to funding through the Victorian Government Community Jobs Program, which provided ICT skills training for 65 long-term unemployed people throughout the region resulting in employment for 52
- contracts secured with the Australian Taxation Office and Australian Competition and Consumer Commission
- a trial of service delivery through the centres by the Australian Government Department of Veteran's Affairs and the Wimmera Veteran's Support Network.

The Regional Connectivity model has several other features critical to maximising the benefits of the CEC and the regional hub. These include employment of 'knowledge navigators' who provide 'the critical link between technology and people' (Regional Connectivity 2002, p. 2), acknowledgement of community ownership of projects and the emphasis on inclusion of all community sectors in the project.

The model not only develops a sense of community but also increases the use of ICT. The most recent evaluation report indicates that 'Internet and computer usage by business in CEC communities is considerably higher than ABS estimates for the nation.' In the broader community 'computer and internet usage in CEC towns has grown considerably since the Project began, and continues to grow, overtaking the targets set for each Centre' (Regional Connectivity 2002, pp. 2-3).

Another Networking the Nation example is the Maffra Community Resource Centre. In this case online access is embedded within the infrastructure of the community rather than stand alone. Computer and Internet access operates alongside and supplements the range of services available within the centre. Such a model increases the sustainability and acceptability of the service with reduced overheads and integrated services. The range of services available through the Maffra Community Resource Centre include adult education, Internet and computer access, local council offices, community service information and support, assistance with information and referral for social services. There are linkages with the local irrigated agri-businesses.

All the sites supported by Networking the Nation in Victoria have been encouraged to become part of the local community infrastructure, co-locating to assist sustainability.

Wyndham Telecentre

The small town of Wyndham in the remote Kimberley region of Western Australia faces the challenge of a declining population and employment opportunities. With consequent loss of services, it is seeking to establish a new economic base to sustain the community in a difficult period of transition and adjustment.

The role of the Wyndham Telecentre has assumed increased significance in this context. The Telecentre is part of the Western Australian Telecentre Network and is one of 17 in the Kimberley. The Network itself has developed beyond its access objectives to provide broader services in rural and remote communities since the first Telecentres were established in the state in the early 1990s.

In the case of Wyndham, the Telecentre's roles have included the production of the community newspaper *The Clarion*, a growing number of fee-for-service arrangements and serving as the local agent for government programs such as the Employment Directions Network. It has developed a rich web of formal and informal social networks across the community that are important for social capital. The Telecentre's relationships with the large Indigenous population of the district are particularly important in building bridging social capital.

Membership of the Telecentre Network gives the Wyndham Telecentre state-wide and regional relationships. The Telecentre Support Unit in Perth supports on-going dialogue on the work of the Network while regional relationships are fostered through such strategies as regional conferences.

It is likely that the Wyndham Telecentre will continue to evolve its role in line with social and technological developments. A key question will be whether it should take on a broader role as a learning centre in a community with limited resources for post-school education. In a community faced with the challenge of rapidly changing conditions in a global knowledge society and economy, there is a strong case for such a development.

Key lessons

- The inclusion of policies and strategies to build a sense of community ownership of the Telecentre are important factors in ongoing development.
- There is value in linking Telecentres in a state-wide network that combines support services with the attributes of a learning and knowledge generation system to enable them to learn from each other in ongoing dialogue.

4.1.2 Online communities of practice/purpose

As noted previously, communities of practice occur when people with a shared practice feel a need to share what they know and to learn from others. Such communities are generally professional networks that include doctors, lawyers, nurses, social workers, teachers, etc. Communities of purpose are related to communities of practice but consist of members engaged over a particular issue. The distinction between these two types of virtual communities is however slight. Therefore the purpose of this paper the two have been merged as 'communities of practice/purpose'

By definition, communities of practice/purpose are goal oriented and focused. Generally they are bounded in nature, have formal and informal rules around interaction and value facilitation. A few examples are explored below.

Network for Education, Ageing and Technology

The Network for Education, Ageing and Technology (NEAT) is an email listserv that aims to bring together ‘a range of people with an interest in the implications and use of technology by, and for the benefit of, older people’ (Foskey *et al.* 2001, p. 1). NEAT operates out of the Institute for Rural Futures at the University of New England in northern New South Wales. It began in December 1999 as an outcome of the internet chat sessions and videoconferencing that resulted from the project *Making the Connections: Non-metropolitan Older People and Technology* (Foskey 2000).

The listserv is available to anyone with an interest in the cross-sectoral areas of education, ageing and technology. List members include academics, researchers, community members and service providers in the health and education sectors and government representatives. They come from across Australia and represent interests in metropolitan, rural, regional and remote areas in all states and territories. Several members are members of similar international listservs (The National Institute of Adult Community Education in the UK and The Canadian Network for Third Age Learning in Canada) and therefore broaden the reach of all members.

The network encourages the development of bonding, bridging and linking social capital and is transforming the social capital of the group. In most cases infrequent face-to-face contact is seen as supplementary to the existing online contact.

Trust and reciprocity underlie interactions on the NEAT list and are implicit and central to its function. They are built through the membership boundaries, the introduction of new members, assumptions around a common focus and the informal rules of interaction. One list member commented: ‘Trust and reciprocity is exemplified by members who ask for help, confident that someone will respond with solutions from their own experience or suggestions of who to ask for further assistance.’

The bonding and linking of members and the trust and reciprocity between members and the list manager (who plays a vital role) facilitates the social sustainability of the list. According to the list manager, the list ‘will only exist as long as the members see some value from its existence.’ A member expanded on this: ‘It is the involvement of the people who approach ageing and technology from a range of different perspectives—including the older users themselves—that has made the NEAT experience rich and valuable.’

The economic sustainability of NEAT presents some problems—it is an unfunded initiative and despite many efforts to secure government support it does not fit within any funding source due to its lack of structure.

Lack of funding has placed limitations on the development and work of the list members as a group.

I believe there are some things we have the potential to achieve that have not been possible because there is no capacity for the contribution of time and effort required. We could have been a far more powerful advocacy body influencing policy, practice and funding decisions ... I think we have been held back because economic and social goals are still seen by many funding

agencies as being mutually exclusive—even though most members of this list understand that they are inter-related, but not necessarily in a direct relationship.

(Manager, NEAT listserv)

Key lessons

- The social networks of individual members are expanded and reinforced, contributing to higher levels of bonding, bridging and linking social capital.
- The list manager plays a vital role in the social sustainability of the list and facilitating connections between members.
- Trust is an underlying element of the network and is facilitated by the boundaries placed on membership, the reputation of individuals and the rules of interaction.
- Economic sustainability is problematic due to the community falling outside of traditional parameters, making it difficult to secure funding.
- The development and work of the community is limited due to the lack of funding.

Commonwealth of Learning

The Commonwealth of Learning (COL) was established in 1988 to promote collaboration and partnership between Commonwealth countries in harnessing open and distance learning for greater learning opportunities in member countries (see www.col.org).

While the COL role has evolved in line with developments in technology and shifts in priorities in Commonwealth countries, it has continued to focus on four key tasks to:

- serve as a partner in capacity building
- serve as a catalyst for collaboration
- serve as an agent for training in distance education
- provide knowledge on distance and open learning.

The focus on collaboration and partnership in meeting the learning needs and building capacity in Commonwealth countries has led naturally to a diverse range of formal and informal networks. These have included partnerships across and within hemispheres and increasingly regional patterns of collaboration. The development of the Internet has proven instrumental in facilitating this range of networks. Concepts such as virtual education and e-learning reflect developments in technology and learning strategies that have occurred since COL's inception.

The role of COL in building networks across Commonwealth countries is evident in programs such as the Commonwealth Electronic Network for Schools and Education, development of plans for a Virtual University for Small States of the Commonwealth, the collaborative STAMP 2000+ program for teacher education in eight African countries and the role of virtual conferences. It is likely that this pattern will continue into the future as technology achieves its potential to transform the way people learn.

COL's history of brokering capacity building collaborations and partnerships in developing countries also illustrates the importance of embedding technology in broader social and political infrastructure. Its success owes much to a 30 year tradition of Commonwealth co-operation in education which dates back to the first Commonwealth Education Conference held at Oxford in 1959. It is likely that COL will continue to lead the way in using technology to foster innovation in learning and build community through open and distance learning strategies.

Key lessons

- The social networks of participants are extended across traditional nation/state boundaries.
- Trust is built and sustained within the community due to the registration requirement for participants, the reputation of the individuals involved and the organisational basis of development.
- The organisational foundation provides critical technical, social and financial support and coordination creating an environment of sustainability.

U3A Online

The University of the Third Age (U3A) Online project (www.u3aonline.org.au) commenced in the International Year of the Older Person in 1998 to provide learning opportunities for older people isolated by geography, disability or other reasons. It also provided resources to assist 'conventional' U3A groups to meet their local educational objectives.

The initiative applied to the Internet the collaborative, self-help principles developed by U3A to offer low-cost access to learning opportunities for older people.

While volunteers undertook most of the development, partners including Adult Learning Australia and Education Network Australia contributed valuable support. Griffith University currently hosts the initiative's Internet site and provides other high level support free of charge. The Australian Government has provided substantial funding for further development.

Volunteers write the courses, which are available for participants in two modes—self-paced individual study and course groups with a leader. Research has shown that many older people have a preference for the individual self-paced mode and yet lack confidence in handling technology. This has limited U3A Online's contribution to building social networks and social capital, but the situation is likely to change as a more ICT-literate generation reaches retirement.

Surveys in 1999 and 2001 of U3A Online participants showed that most resided in large centres with populations over 20 000 and that the majority had a university education or equivalent. This reflects the limited resources that U3A Online has for marketing. It is difficult to extend knowledge of the program to remote rural areas and reach other disadvantaged groups, including those with limited formal education.

The U3A Online model is now well established and cost-effective. With demographic change and the ageing of the population, demand for U3A Online provision may grow.

Two likely areas for development are to extend:

- promotion so as to increase demand among the target 'isolated' and handicapped groups
- international links and work towards an international virtual U3A Online.

International links already exist with Britain and New Zealand. A current project with the University of Ulm in Germany holds the promise of further international partnerships.

U3A Online has been a timely development in a growing movement for lifelong learning and increasing recognition of the wider benefits that result, including better health, in the context of demographic change and the ageing population.

Key lessons

- The social networks of individuals, particularly those who are isolated, are increased in scope and range.
- Trust is facilitated through the reputation of the organisation, membership and mutual participation. It is reinforced through the common bond of circumstance in terms of age and a common purpose.
- At the organisational level, bridging and linking social capital are important for an ICT platform for development of courses, technical support and promotion.
- A lack of funding limits sustainability and the extension of services.

4.1.3 Online communities of circumstance

'Communities of circumstance' are those in which members share the same position, circumstance or life experience rather than profession. The following case studies highlight the range and variation of circumstances.

Disaster support and recovery

In the aftermath of the terrorist attacks on the US in September 2001, Pew Internet (2001b) described how Internet use was a source of emotional release and comfort—not just for victims and their families, but for millions of other Americans. Indeed, those events triggered global online expression of distress and support.

The responses to the attacks provided a clear illustration how corporate, private and public interests can intersect to generate social capital. An Internet service provider set up a national message centre, a university set up a site to help locate missing people, other sites gathered resources and donations. For some, just logging onto a site to express condolences was a form of participating in a momentous and shocking experience. Later sites archived the '9/11' sites to document the enormous flood of photos, films, news coverage and commentary.

The use of the Internet in this case seems linked to the range of accessible technology at the time of the disaster. Depending on availability, individuals used TV, radio, print media and the Internet to deal with the urgency of the situation and provide support within and around the community. Several reports by the Pew Internet Project (2001a; 2001b) examined this issue in detail.

Closer to home, technology of a more traditional form played an important role in informing and uniting the Canberra community during the January 2003 fire-storm. Local station 666 ABC Canberra continued to play

an important role afterwards, providing many opportunities for people across the Canberra community to share their experiences and tell their stories.

Similarly, it was in the days and weeks following the fire-storm that the Internet came to the fore as a means by which people exchanged photos and stories. The trauma of the event created a strong desire for people to connect—new relationships formed on the basis of shared experience and a stronger sense of a Canberra community emerged from the disaster. Many people used digital cameras to capture the extraordinary images of that day for emailing to family and friends and a number of those images later appeared on websites.

Online information and services were important resources in the aftermath of the Bali bombing of October 2002. The Bali Assist and the Red Cross websites provided the opportunity for victims and their families to access practical information, share stories and develop support groups.

Sites that allow the sharing of stories around tragedies clearly contribute bonding capital. Yet at times bridging capital will also emerge. The sites set up by service providers to find lost friends and relatives generate bridging and linking capital among users. The question as to how to sustain such social capital remains unanswered, as does the specific role of ICT in generating the bonding capital.

Key lessons

- The availability of Internet resources at a time of disaster provides an additional medium to access necessary information and post disaster to share experiences and form communities.
- Organisations can use the power of ICT to provide vital services to a wider range of individuals in a time of crisis.

depressioNet

Founded in June 2000 as an independent, nonprofit organisation, *depressioNet* (www.depressionet.com.au) provides comprehensive information, help and 24 hour peer support via the Internet for people living with depression. Its purpose is to empower people to make informed choices and find solutions to the challenges of living with depression. The site includes information on depression as well as an interactive moderated chat room and message board. Through the chat room and message board, the site provides the opportunity to share experiences, inspiration and hope with others in similar circumstances in a safe and secure setting.

Chat room and message board users appear to share a sense of community built through the integration of boundaries, informal rules and the underlying premise of sharing a common circumstance. The boundaries develop through a registration system, the guidelines for interaction and the moderators' input. These factors contribute to a sense of the site as a 'safe' place for people to interact. Common circumstance and experience are powerful factors that build community cohesion.

A broader sense of trust in the site and the community is reinforced in a number of ways including professional integrity and support, boundary setting and focus. Professional integrity is supported by verification and approval of all information provided on the site, links to suitable external organisations and monitoring of interactive activities. A depressionNet team member monitors the chat room and message board

at all times to maintain the quality and safety of the communication forums and to ensure that support is available whenever needed.

Ongoing partnerships, pro bono support from the business sector and philanthropy from a variety of individuals and organisations provides depressionNet with economic sustainability. Social sustainability derives from the site's unique nature, which gives users a sense of ownership and support and motivates them to give something back by contributing through the site to help others.

Comments from depressionNet users help highlight the importance of this community.

'I became aware of this site as a person who suffers chronic and severe depression and it would not be an exaggeration to say that it has saved my life on more than one occasion when I've been suicidal. Particularly for people like me who live outside major metropolitan areas, the service is a godsend...'

'I only found this site approximately 3 months ago. I felt I had won the lottery. I live in a rural/coastal town and to see my doctor is nearly a six hour round trip for one hour of consultation.....'

'This service provided by the great folks as dNet is a lifeline for so many of us out here in regional Australia who are struggling with an illness which threatens to overwhelm us.'

Key lessons

- The site is premised on bonding social capital between participants but also provides the opportunity for bridging capital through the provision of professional information and moderation.
- Social trust builds in the community of users through the use of a registration system, guidelines for interaction and the input of moderators.
- Organisational trust is built through attention to the professional integrity of the information provided on the site and administration of interactive forums.
- Economic sustainability is facilitated by ongoing partnership arrangements, pro bono support from the business sector and philanthropic support from individuals and organisations.

dEadly mOb

dEadly mOb, based at the Gap Youth Centre in Alice Springs, creates online opportunities for Indigenous young people anywhere in Australia to help them to:

- 'skill up' to participate in community development using ICT
- interact with and upload to the website, expressing their views, hopes, activities and talent
- connect to each other, to strong role models and mentors, and to the wider world.

Drawing upon the resources and goodwill of Indigenous organisations, other employers and community groups and agencies, it seeks to help young people get connected to career, employment and life opportunities wherever they are located.

The website (www.deadlymob.org) is the major gateway to a number of resources—dEadly Mail, a work placement search engine, a mentoring program, online newsletter and special pages for youth in the bush. It offers links to the websites of Indigenous communities and organisations and those leading to sport, music and other Internet activities. Its Internet café in Alice Springs acts as a 'physical base camp' to mirror and support online community concepts.

In the physical world, dEadly mOb emphasises Indigenous principles and values that recognise the role and importance of country, family, traditional law, culture, communication and relationships. It also promotes these values in its online community.

Current funding arrangements (essentially for pilot projects) are probably unsustainable in the longer term. The project is seeking a consistent funding base to cover technical support and development, ICT awareness, mentoring and content creation services to first time users, online client liaison and overall coordination, marketing and administration.

To date, although dEadly mOb has appreciable achievements in bridging and linking activities, bonding has been its prominent social capital objective.

Key lessons

- The design and structure of the site reflects its priority objectives of bonding and bridging capital.
- Sustainability is a key issue due to a lack of ongoing funding and technical support for the project.

Online WA Multicultural Communities Gateway

The Online WA Multicultural Communities (OWAMC) Gateway (www.multicultural.online.wa.gov.au) is a joint initiative of the Western Australian Government's Office of Multicultural Interests and the Ethnic Communities Council of Western Australia (ECCWA). It supports incorporated ethnic communities and nonprofit community organisations to set up and administer their own websites. It provides free site hosting, support and site administrator training along with a bulletin board, chat and conference facilities, a community calendar and web-based email access.

The project will provide some 450 websites, all password-protected, to ethnic communities and organisations. There are no joining or establishment fees but each body must pay a minimal annual subscription. Currently, 56 communities have their websites up and running. Many others are in the process of developing their websites, having acquired the necessary membership and proceeded with training.

The OWAMC's own bulletin board currently involves some 50 organisations and some 200 registered members. The OWAMC online newsletter has received very favourable feedback from leading citizens for communicating broadly across the Western Australia community.

With strong government and ECCWA support, the project took shape through community consultations and the piloting of relatively simple approaches to the task before committing to a more comprehensive project in manageable stages—bringing project management principles to the task of building community capital of the bonding, bridging and linking kinds.

Key lessons

- The sustainability of the project as a whole is underpinned by government technical and financial support.
- Individual communities within the OWAMC Gateway face their own challenges in terms of social sustainability, volunteer skills and commitment and trust within the community and in government organisations.

4.1.4 Online communities of interest

'Communities of interest' are generally less formal than other kinds of communities, with membership based around a shared hobby or interest. Bridging capital may exist, but it is unclear whether it is recognised or used in this context. Such communities may lack a sufficient basis to develop trust and sustainability—the founders may have no particular credentials, membership might be highly informal and fluid and websites are likely to be temporary in nature. However, they share knowledge and information and so have a value in the context of this discussion. Additionally, such sites provide a sense of belonging and perhaps contribute to a sense of identity.

Online gaming community

An interesting example of a community of interest is that of online gaming. One study has concluded that multiplayer game groups promote real-life community values.

Sue Morris at the University of Queensland began study on the topic following public criticism and concerns about the graphic depiction of violence in 'shoot-em-up' computer games and the anti-social behaviour they seemed to promote. But Ms Morris found involvement in these multiplayer games provided gamers with opportunities for learning, creative expression and cooperative socialisation.

'The moral panic is based on this idea that people playing these types of games are just sitting at their computers for hours on end ... a really anti-social thing,' Ms Morris said. 'But it's actually a very social world ... it's about challenge because people are playing these games like sport. They form teams which are just like football teams that play against each other in competitions or just social games.'

Just as in a real community, online gamers were bound by certain rules that governed their behaviour. Norms develop and trust, based on reputation, builds over time. Whether gamers go beyond their online interaction to take advantage of the potential for bridging capital is a question still unanswered.

Key lessons

- Rules play an important role in the development and facilitation of appropriate interaction in the online gaming community.
- It is likely that this type of participation would lead to the development of bonding social capital around the common interest. It is less clear whether this bonding is recognised or used for other purposes beyond the game.
- Bridging or linking capital is not easily identified within the studies to date.

Community Cultural Development

The Community Arts Network of South Australia (CAN SA) is a membership-based organisation that promotes community cultural development through arts practices that connect, inform and educate. Under the CAN SA umbrella, the Community Cultural Development (ccd) program assists a community to determine and express creatively who it is, what it is and where it wants to go. The process is underpinned by principles of self determination, pluralism and cultural democracy. Outcomes include social and political change for the community and personal development for individuals.

The ccd website (www.ccd.net) is a free resource designed to evolve through organic growth, with content generated by and for the ccd or community arts sector. It offers a combination of information pages and tools for members to self-publish ccd related news. It has an online forum generated and moderated by members of the site and a facility for members to participate in email groups.

With some 1200 members and around 700 recipients of the monthly e-zine, the program has a substantial record of achievement. The website attracts over 4000 web visits per month to its 500 pages of ccd content and information. Users have access to 30 news articles published by members, an average of 20 active forums and over 150 examples of ccd projects in the online project register.

For long term sustainability ccd needs to ensure that it has a diversity of active contributors, that its membership reflects the breadth and depth of practice and that the quality and quantity of content provided by members maintains the interest of the entire virtual community.

Although the site has undergone a major development, issues remain—e.g. its networks need active nurturing and adequate income support, as with many nonprofit organisations.

Key lessons

- A substantial portion of an extended community of interest will participate interactively in ICT-based means for extending the bonds, bridges and links between individuals and organisations if an appropriate online structure develops with a range of tools to support online communications.

- It is likely that significant gaps will occur in online participation by actual and potential members of a virtual community of interest. The reasons for this may not be readily obvious, although diversity in levels of ICT skills and ICT access seem key variables.
- Sustainable, long-term community development initiatives mediated through ICT may depend upon maintaining the active interest of members in continuing to share content of adequate quality and quantity.

Australian Chess Federation

The Australian Chess Federation (ACF) is responsible for organised chess in Australia, with over 3000 adult participants in chess tournaments, many thousands more who play occasionally and tens of thousands of juniors in school-based chess competitions. The ACF provides a rating service for players, organises the Australian championships, picks teams for international events such as the Chess Olympiad and generally fosters the development of the game through publicity and training of junior players.

The ACF communicates through a comprehensive website (www.auschess.org.au) that includes chess news, games from tournaments, an archive of tournament results and games and details of upcoming tournaments and events. Until recently it ran a lively bulletin board and it has experimented with an online game-playing service. The Federation also sends out a free, comprehensive, weekly email newsletter containing news, games, tournament details and other information. It is beginning to explore web conferencing.

ICT initiatives in groups like the ACF benefit from the commitment of a few highly skilled volunteers who are willing to invest time in their communities. Otherwise, limited resources (time, money and people) leave ongoing sustainability at issue.

Key lessons

- Technical support is vital and regular updating of material needs to occur.
- A heavy reliance on volunteers and a lack of funding limit the community building capacity of the site.
- Bulletin boards (BB) are a mixed blessing—extremely convenient for communication but time-consuming to operate in an efficient manner. The difficulties are considerable—censoring unsuitable posts takes a lot of time and maintaining reasonable control is difficult. Opinions on how liberal the censorship regime should be range from one extreme to the other. Also, a hard core of BB posters tends to dominate proceedings. The most successful policy involves making the most frequent posters the censors of the board—a ‘committee’ with distributed responsibility.

National Parks Association of NSW

The National Parks Association of NSW Inc (NPA), established in 1957, is a nonprofit community organisation seeking to protect and conserve the complete range and diversity of species, natural habitats, features and landscapes of New South Wales. It has over 4000 members in 19 branches, which are represented on a state council. Its head office in central Sydney has eight staff and a team of volunteers that serve the organisation and support the nine member executive.

The mission statement of the NPA recognises the need to 'work efficiently and think strategically to maximise the ability of its limited resources to achieve real outcomes ... relying on a broad support base, effective communication, sound relationships and an ability to rapidly respond to change'. Effort is essentially voluntary and so networks for communication and influence are paramount.

For some 40 years the *National Parks Journal* has been the prime means of communication across the membership and to the broader community. In 1997 NPA implemented a website (www.npansw.org.au) to disseminate information on the organisation and its operations. This was revised in 2002 to reflect the increasing scope of the NPA's programs and to facilitate communications across and beyond the membership on conservation and other issues. NPA has taken tentative steps towards setting up online discussion forums to add more structure to the existing email discussions.

NPA has used ICT to support more traditional face-to-face, written or telephone methods for building bonds, bridges or links between individuals and groups. It has had considerable success in these matters for decades. However, email communication has considerably aided bonding for relatively 'homogenous' groups around a local or state-wide issue. Email-based lobbying campaigns commonly help build bridges between more heterogeneous groups of stakeholders, linking them appropriately into the 'power and influence' hierarchy.

The diversity in membership demographics and in access to and facility with online technology means ICT developments at NPA will generally proceed with some caution to maintain a match between actual functionality and members' reasonable expectations.

Key lessons

- The organisational structure supports the development of trust, the technical requirements and the sustainability of the online version.
- The online community is integrated with the existing structure of the organisation to supplement existing services and focus.

Capricornia Online

Capricornia Online (www.capricornia.org) is a community initiative in the Rockhampton district of Queensland that developed as a partnership between Central Queensland University and Rockhampton City Council. The initial stage of the project, known as COIN (Communities on the Internet), was funded by the Australian Government's Department of Family and Community Services to focus on bridging the digital divide through training in ICT skills.

Capricornia Online grew out of this development process. It began operating in August 2002 to give effect to the COIN philosophy of the social appropriation of technology—of progressing beyond simple access objectives to employ technology for social and community purposes.

Community groups and individuals are able to sign up as members of this initiative, which has spawned a range of online communities such as Multicultural Corner, VOICES, Living History and Fishing the Fitzroy.

Multicultural Corner is building bridges across diverse ethnic communities by promoting dialogue with and between the various ethnic groups in the district. Multicultural Corner uses a 'mixed mode' approach that combines face-to-face and online interaction to develop trust and confidence.

VOICES employs some of the characteristics of talk-back radio in providing an online forum for community dialogue. The forum allows individuals to offer news items or discussion points for others to comment on. It originated as a discussion board for workers who had become unemployed when the local meatworks shut down. VOICES combined information for the workers with the opportunity for members to articulate their views.

Capricornia Online is still at a relatively early stage of development. The model has demonstrated its value—the challenge now is to extend the impact of the project to the whole community.

Key lessons

- A partnership of key stakeholders has an important role in underpinning development.
- A hybrid partnership of stakeholders, in this case the Rockhampton City Council and Central Queensland University, has added value by providing guided vision and leadership.

5 Initial conclusions

This paper has attempted to synthesise knowledge from the areas of community development, social capital and ICT in order to consider how the three concepts interact and overlap. The key findings from the case studies indicate some broad lessons across the range of geographic and virtual communities.

It is important to note that the use of networks by communities and the level of trust and sustainability in each will vary according to developmental stage. Newly formed virtual communities will face very different issues to those that have operated for several years. Building social capital (bonding, bridging or linking) is a long term endeavour influenced by many factors.

There is an advantage for virtual communities that develop within the context of an organisation or a service provider with an established, trusted reputation. In addition, organisations that provide a facilitator, coordinator or list manager who is able to moderate online interaction add to the sense that their sites care about professional integrity. Such organisations often provide technical, administrative and financial support and infrastructure. Virtual communities that have the active support of an organisational structure generally benefit from increased access to other resources and so are inherently more sustainable.

Centres that offer Internet access to geographic communities can have an important impact, the level of which will depend on the existing infrastructure, patterns of interaction, the model of development and the available resources. Again, organisational support plays an important role in development and sustainability. The sharing of resources and aggregation of demand make sustainability more likely, especially in terms of the technical support, training and/or expertise essential for continuing development.

The type of social capital developed (bonding, bridging or linking) varies according to factors including community focus, professional facilitation, awareness and technological design. For example, the intention of communities of circumstance is generally to build bonding capital. In this sense they provide the individual with a sense of not being alone in their particular circumstance, as in the case of *depressioNet*, or communities set up for disaster support. While many such groups exist in the physical realm, online communities of circumstance overcome the obstacles of time, distance and geography. In particular circumstances the anonymity provided by the virtual realm may overcome social and psychological barriers and lead to benefits for marginalised groups in society.

Trust is a central and contentious element in the development of virtual communities. Trust in the group and its members is essential to the development of bonding, bridging and linking social capital. The case studies point to several factors that contribute to trust—including reputation, the conscious effort to impose boundaries via membership and form and quality of online engagement. Membership is often open to all applicants but in other cases referral is necessary from another trusted member. Trust in geographically based communities (e.g. *Networked Neighbourhoods* and *Netville*) is less of an issue as it is based on face-to-face interaction.

Bonding across smaller groups (for example an ethnic group in a larger housing estate like e-ACE) is easier to build than broader bonding capital (around the whole housing estate and across ethnic divisions). Development of broader bonding, bridging or linking social capital is unlikely to occur without facilitation except in communities that are inherently structured to achieve this goal. Social service providers and practitioners may play a major role in developing and nurturing bridging capital (Onyx & Leonard 2000).

Communities structured to achieve broader bonding, bridging and linking social capital can do so in several ways. First, communities of purpose/practice have at their core the intention to bridge organisational divisions and bring people together to work on a particular issue or practice area. By virtue of their purpose they encourage bridging and linking and this is often the appeal of these communities for those who are members.

Other community types may intentionally structure themselves to develop social capital. For example, the dEadly mOb seeks to develop broader bonding amongst Indigenous young people throughout Australia and to facilitate bridging and linking social capital through their role modelling and mentoring program. It nurtures bridging capital to help young people to connect to career, employment and life opportunities.

One further factor is that not all social capital is positive. Strong bonding capital can have the effect of isolating groups within a community or excluding others from participating. Some groups may work against social norms and promote anti-social behaviour but nonetheless have strong social capital among members. Therefore, it must be acknowledged that bridging and linking capital can produce positive or negative effects. The presence of organisational support and professional practitioners is more likely to channel the development of social capital in a positive direction.

The structure that underlies communities and facilitates social capital is a matter of conceptual design and technological application. Conceptual design refers to the planning of a website's appearance and main objectives and how those objectives might be accomplished. The technical application involves making those goals operational in a functional and efficient way. Evidence from the case studies indicates that both conceptualisation and application vary according to the organisational base and available expertise. At the same time, the applications must be accessible to members of the communities. In many cases advanced applications require access to higher bandwidth—a further potential obstacle to access, depending on cost and availability.

This paper assumes that ICT has a role to play in building social capital, yet that role will depend on how individuals, communities, organisations and governments incorporate ICT into their lives and social structures. However, this is determined by context, impetus and sustainability. The functionality of the technology (e.g. the presence or absence of broadband connectivity, the ease of use) is also an important factor. Further investigation of the impact of broadband on community development could be a valuable next step.

A whole of community perspective

The concept of building ‘learning’ or ‘creative’ communities is one dynamic application of the theoretical framework outlined in this paper.

Basic infrastructure (electricity, water, roads, etc) relates to the needs and capabilities of individuals, organisations and institutions and the wider community. It is the foundation necessary for higher level community development. The increasingly technological nature of society means ICT can—and should—now be considered as one of the critical elements of this underlying (supportive) infrastructure.

With the provision of this basic infrastructure, individuals can engage with government, nonprofit organisations, business and civil society to access services and meet higher needs including those related to education, health, housing, transport, creativity and culture.

Individuals or groups in geographically based ICT enabled communities may find themselves connected to one or more different forms of online communities. Online participation can lead to greater face-to-face participation within the geographic community. Relationships therefore form in both directions, with one potentially increasing the likelihood of the other. Such interactions have implications for the evolution of mature service delivery by e-government and the growth of new e-business products and services to consumers and communities.

The overall proposition is that through access and effective use of ICT individuals and communities have a greater opportunity for engagement with others, broadening their understandings and building bonding, bridging and linking capital. Greater participation in communities is assumed to contribute to stronger social capital within the community at the local, state, national and global levels and hence contribute to improved economic and social outcomes.

This ‘whole-of-community’ perspective on the potential benefits of ICT provides a possible focus for future research into the dynamics of ‘learning’ or ‘creative’ communities.

Invitation to comment

This paper raises key issues and many further questions for consideration. The questions posed at the end of each section throughout the paper are summarised below. Comment is encouraged on these issues and questions related to the social and community impacts of ICT. We would like to hear your views and your own experiences.

The period for consultation on the papers is open for several months, ending on **31 March 2005**.

This paper, the companion paper and the full set of case studies are available online (see www.dcita.gov.au/ie/community_connectivity).

The Department welcomes submissions in the form of responses to the discussion questions, comments or further information. Interested parties are encouraged to provide written submissions and comments by email to community.connectivity@dcita.gov.au.

Submissions and comments can also be made in hard copy. They can be sent to:

The Manager
Community Connectivity
Access Branch
Information Economy Division
Department of Communications, IT and the Arts
GPO Box 2154 Canberra ACT 2601

Submissions and comments can be faxed to 02 6271 1780. Faxed submission should be no more than five pages long.

Interested parties can provide verbal comments on the papers:

On *The role of ICT in the building communities and social capital* please contact
Dr Deborah West
Community Connectivity, Access Branch, DCITA
Tel: 02 6271 1645

On *ICT transforming the nonprofit sector* please contact
Ms Mary Gorman
Community Connectivity, Access Branch, DCITA
Tel: 02 6271 1689

Or please contact
Mr Peter Huta
Manager Community Connectivity
Tel: 02 6271 1047

Summary of discussion points

Trust

Trust is an essential element of and required to build social capital. It is also something that develops over time and operates at a number of levels and in different forms (i.e. transactional trust, social trust).

- How can trust be developed and maintained in relation to online engagement with business, government and organisations?
- How can trust be developed and maintained in the various forms of online communities?
- Moreover, what undermines trust in each of these contexts?
- What role (if any) should business and government play in developing and sustaining different forms of trust in each of these contexts?
- What other (if any) values and norms have a significant impact in the online world?
- Are citizens and consumers sufficiently aware of the online threats that they need to consider and safeguard against? If not, what practical measures might address this?
- Are there effective sanctions for those who transgress online against shared values and norms?

Social networks

- How is the Internet (and ICT generally) impacting on the building and development of social networks?
- What is the role of government (if any) in the ways that the Internet is being used to build and develop social networks?

ICT and social capital

- What is the potential (and limit) of the Internet (and ICT generally) to build and maintain bridging social capital?
- Are there potential (and actual) negative aspects of the building of social capital online? If so, what are they?
- What is the role of government (if any) in addressing the potentially negative aspects of building social capital?

The impact of ICT on social capital

- What other evidence is there that ICT can and is both supplementing and transforming social capital?
- What factors might restrict the potential of ICT to supplement and transform social capital?
- What is the role of government (if any) in supporting the potential of ICT to supplement and transform social capital?

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