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The paper sets out to analyse the concept of social capital and its utility for Community Informatics (CI) research and practice in public policy. The paper begins by noting that the concept seems to have lost some “currency” in contemporary public policy debates. The rise and fall of social capital as a public policy concept is traced through published government reports in Australia. It then moves onto critical economic discourse to indicate a number of barriers to its adoption within public policy within Australia at the time. The paper then considers whether such criticisms are addressed from a CI perspective on social capital theory. A relevant line of enquiry detailed by Gurstein is investigated in which innovation theory is reasoned to better leverage the work of social capital theorists in public policy settings.

Keywords

community informatics, social capital, innovation, public policy

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Revisiting the question of social capital in public policy: exploring new directions for Community Informatics research

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Abstract: The paper sets out to analyse the concept of social capital and its utility for Community Informatics (CI) research and practice in public policy. The paper begins by noting that the concept seems to have lost some “currency” in contemporary public policy debates. The rise and fall and social capital as a public policy concept is traced through published government reports in Australia. It then moves onto critical economic discourse to indicate a number of barriers to its adoption within public policy within Australia at the time. The paper then considers whether such criticisms are addressed from a CI perspective on social capital theory. A relevant line of enquiry detailed by Gurstein is investigated in which innovation theory is reasoned to better leverage the work of social capital theorists in public policy settings.

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Introduction

The desire for greater clarity in theory to guide Community Informatics (CI) researchers and practitioners is an ongoing theme in both conference proceedings and journal articles. While Gurstein (2008) says it is too early to make a case for a Community Informatics theory the ‘...vibrant discussions...’ towards such a theory is a positive sign of ongoing interest in CI. This paper makes a contribution to such discussion by focussing on the use of Community Informatics principles to influence public policy. As public policy guides the distribution of public investments in ICT-based development initiatives the ability of CI research to influence policy outcomes is arguably important.

The paper devotes its attention initially to the concept of social capital. A working definition of the term social capital for this paper is provided by Simpson (2005 p. 80).

Social capital is used to describe beneficial outcomes that can be derived from ‘multiplying’ existing community assets, such as trust, reciprocity and cooperation, shared values and norms, pro-activity and leadership, and a strong sense of community that can result from interaction and participation in strong social networks in a community.

Behind these associations there exist a number of questions that relate to the efficacy of social capital to influence public policy. The paper considers whether inherent features of the theory undermined its ability to effect change in public policy during this time. This issue is considered in relation to the Australian case where social capital featured in public policy discourse between 2000 and 2005. As these deliberations were not able to draw from the work of CI theorist’s treatment of social capital the paper analyses whether social capital from a CIT perspective contributes extra insights. Looking to the future the paper raises the question whether social capital research could be better leveraged through an innovation policy framework. Regional development as one example of innovation public policy enjoys the support of a large bodies of theory some of it resonating with the principles of social capital. As innovation theory is established within public policy the question for CI researchers and practitioners is whether it can be modified to incorporate the ideals of CI such as community autonomy and effective use.

The paper begins by recounting the use of social capital as an instrument for public policy in the Australian context. The paper then identifies barriers to the application of social capital theory in a public policy context by drawing on economic commentaries by Dasgupta(2005) and Fukuyama(2001). An analysis of social capital research within the domain of Community Informatics is then carried out by summarising three significant papers on the topic from the

Journal of Community Informatics (JCI) (Pigg and Crank 2004; Simpson 2005; Williams and C. 2008). This discussion leads the paper to the question of innovation. The final part of the paper discusses the potential value of extending social capital research into the realms of innovation by firstly recounting Gurstein's (2004) perspectives on this topic. It extends this discussion by drawing specific links between social capital theory and some examples of innovation research.

Social capital in an Australian public policy context

The example of Australia's ICT-based development initiatives from the latter part of the 1990s to 2005 reveals an interesting case study into the use of social capital theory to effect policy change. The example of Australia is instructive in that social capital theory featured prominently for a while in government publications that were aimed at promoting community based ICT development. However, the concept quickly faded from view failing to effect further commitments from governments at the federal and state level to extend ICT-based programs that were displaying strong examples of social capital.

The significance of social capital as a potential policy prescriptions can be seen in a publication from the federal government's Department of Communications, Information Technology and the Arts (DICTA). The publication titled 'The Role of ICTs in Building Social Capital' signals official recognition for the term "social capital" as being relevant to ICT-related social development in local communities (DICTA 2005). Social capital was described as a '...complex, multifaceted and contentious concept...' (8). The main attributes of social capital identified in this report are '...shared values and norms...[and]...trust and reciprocity...' (14-16). The report interprets these definitions in relation to the use of ICTs in the formation of social networks that are characterised by the attributes of social capital. Such networks are asserted to occur in both physical communities and online mediated by ICTs. These social networks are argued to be necessary in achieving higher levels of economic development as well as social well being. ICTs are viewed as a positive facilitator of social capital formation (4). Specific attention is given to technical measures that enhance trust such as online security and the elimination of spam (16-22).

Outside of DICTA other government organisations also have sought to include social capital in public policy development. For example the Australian Productivity Commission (APC 2003) and the Australian Bureau of Statistics (ABS 2004) both produced sizeable documents (100 pages and 160 pages respectively) to facilitate better integration of social capital in public policy considerations within Australia. Inter-governmental agencies such as the OECD (2001) had also given legitimacy to the concept by indicating its role in economic development.

Despite the apparent official endorsement of social capital commentators and practitioners were frustrated in establishing a case for ICT-funding based on social capital. For example, Simpson's *et al.* (2004) frustration with the Australian government was evident in her descriptions of access centres in rural Queensland in which a clear case of the social benefit had been established did not result in further funding. Similarly in NSW, ongoing commitment for access centres in regional NSW was not forthcoming even though such centres were found to be successful social enterprises. (NSW DoC 2004; de Weaver and Ellis 2006).

A significant opportunity to endorse the concept of social capital as a policy prescription occurred as a consequence of pressure placed on the government to address the impending failure of a number of government access centres referred to as Online Access Centres (OACs). Acting under the recommendations from a an inquiry into telecommunication services in regional and remote Australia (called the Regional Telecommunications Inquiry or the 'Estens Report') the government of the day gave responsibility to the Online Council Standing Committee to address recommendation 5.5

All tiers of government should work together to support online access centres in regional, rural and remote Australia, and to enable these important community facilities to remain viable (RTI 2002).

The Online Council Standing Committee was made up of ministerial representatives from both federal and state levels of governments throughout Australia. Given this task the council formed a working group that was required to report on the state of existing online access centres. The final report bibliography from the working group indicates that the DICTA reports on social capital formed part of the information sources that were used in its deliberations (OCSC 2005). In addition Geiselhart was commissioned by the working group to conduct an up-to-date study of OACs and make recommendations to the working group for its final report to ministers (Geiselhart 2004).

Geiselhart's review of OACs provides confirmation of the positive social contributions that OACs had made to regional Australia in a relatively short period of time. Her observations of OACs were consistent with the observations of commentators Simpson and de Weaver outlined previously. Geiselhart (2004 p. 3) portrayed the initial phase of the investment in OACs by government as the first stage of a 'digital development' strategy that was ready to progress to a higher level of sophistication. Social capital was seen by Geiselhart as fundamental to this progression.

Geiselhart's expansive vision was initially reduced by the working group to a list of short-term and mid-term strategies of which social capital was just one along with the need to build ICT skills and capabilities, the penetration of broadband, Internet access and use and access to online government services (OCSC 2005 pp. 38-42). While OACs were relevant to the delivery of many important social initiatives the vision based on community renewal and digital development was largely lost on the Ministers who made no specific commitments beyond asking all government departments to better cooperate with each other (Hevesi 2005). While the federal minister left the door open for further funding consideration no specific commitment was made to OACs.

The failure of the policy makers and Ministers to endorse social capital as a fundamental principle on which to base decisions has been further confirmed by the concept fading from public policy discourse since 2005. However it is not accurate to lay blame for the failure to secure ongoing funding for OACs at the feet of social capital theorists. Political expediency has been observed to be influential in public policy development than well argued theory (Joseph 1997).

However, this does not obviate the need to understand potential barriers to the application of social capital in a public policy setting. In the Australian case it can be seen that market based principle were influential in shaping the nature of ICT development projects at the time. This was obvious in the need for OACs to achieve economic independence through revenue generation regardless of the economic potential of the locality in which the OAC resided. This approach was consistent with a global trend in social development at the time identified by Hall and Midgley (2004 pp. 31-33). The underlying rationale which Midgley (2003 p. 839) describes as '...neo-liberalism...' (839) is that private sector activity mediated through free economic markets provides the most efficient and effective means to achieve social development. The next section provides reasons why social capital theory should suffer significant barriers to acceptance in such a context.

Social capital under scrutiny

The concept of social capital has generated negative comment from economists particularly those who support market based economics. One such analysis is provided by Dasgupta (2005). The origins of the term social capital are traced by Dasgupta to the work of Coleman (1988) and Putnam *et al.* (1993). From Dasgupta's understanding Coleman's claims about social capital related to its contribution to human capital. In relation to Putnam's *et al.* study of social capital, Dasgupta notes that the question of civic engagement and collective action was the focus. Dasgupta makes the point that current investigations into social capital incorporate many issues that were not considered in this early work. Indeed, Dasgupta (2005 pp.S2-S3) states that the concept joins together a number of factors which appear to be incommensurate.

Dasgupta's attempt to drill down to theoretical bedrock in relation to social capital results in an interesting investigation of trust, group size and culture. Each of these concepts he finds difficult to establish as theoretical constants. The outcome of this analysis is to qualify the benefit of social capital as a theoretical concept for economics. While cooperative behaviour can be seen to have positive benefits he contends that the negative effects are far more serious. For instance, informal linkages based on familiarity and cooperation may interfere with the operations of economic markets which rely on the anonymity of sellers and purchasers. He cites endemic corruption in some developing countries as an example of social capital that has led to harmful consequences. When considering the example of the street gangs in the USA, who also demonstrate high levels of social capital, he concludes that social capital may engender moral hazards that are not immediately apparent within a social capital framework. In summary, Dasgupta (2005 p. S19) concludes that social capital is basically about interpersonal networks that can be used for a range of outcomes some good and some bad.

Fukuyama, a political economist who has studied social capital in relation to international development and globalisation, similarly states that the outcomes of social capital can have both widespread positive and negative effects (Fukuyama 2001 pp. 7-8). As Fukuyama reasons, '...perhaps the reason that social capital seems less obviously a social good than physical or human capital is because it tends to produce more in the way of negative externalities than either of the other two forms...' (Fukuyama 2001 p. 8). For example he agrees with Dasgupta in that social capital can result in '...rent seeking...' (Fukuyama 2001 p. 12) that interferes with the normal operation of economic markets. However, he moderates criticism on the basis that a certain degree of social capital in the form of cooperation and reciprocity is necessary to enable economic markets to function. He also explores the opposite extreme of excessive individualism as generating its own set of negative externalities. This scenario leads him to the conclusion (based on the historical case of the period prior to the French Revolution) that excessive involvement of the state in the personal lives of individuals is required to ensure people contribute to the social good (Fukuyama 2001 p. 11). By contrast, Fukuyama reasons that social capital can guide the behaviour of individuals through group norms leading to civic action. Hence, assuming that such norms are directed at positive social outcomes the need for Government monitoring of individuals is reduced. The challenge to Fukuyama is in achieving the right mix between interpersonal networks and impersonal institutions.

The significance of the analysis in this section is that it firstly sheds some light on the difficulties that some economists may experience in relation to cooperative behaviour. Given the fact that much social development policy at that time in Australia was characterised by its heavy emphasis on the private sector and economic markets it is not surprising that social capital should attract criticism for allegedly undermining this. On the other hand social capital is portrayed as being an enabler of productive economic activity. Fukuyama states '...the economic function of social capital is to reduce the transaction costs associated with formal co-ordination mechanisms...' (10).

It is interesting to note that the early work of Arrows is introduced into the debate by Dasgupta (2005 p. S14). Arrow is noted for his contribution to economics and public policy in the area of innovation policy. Arrow's characterisation of organisational behaviour in contexts of uncertainty led to important public policy developments in relation to public support of innovation. The paper ultimately contends that this is more than a coincidence. However, before pursuing this line of inquiry the analysis moves on to consider the work of CI theorists in relation to social capital and the significance of this work to the issues raised above.

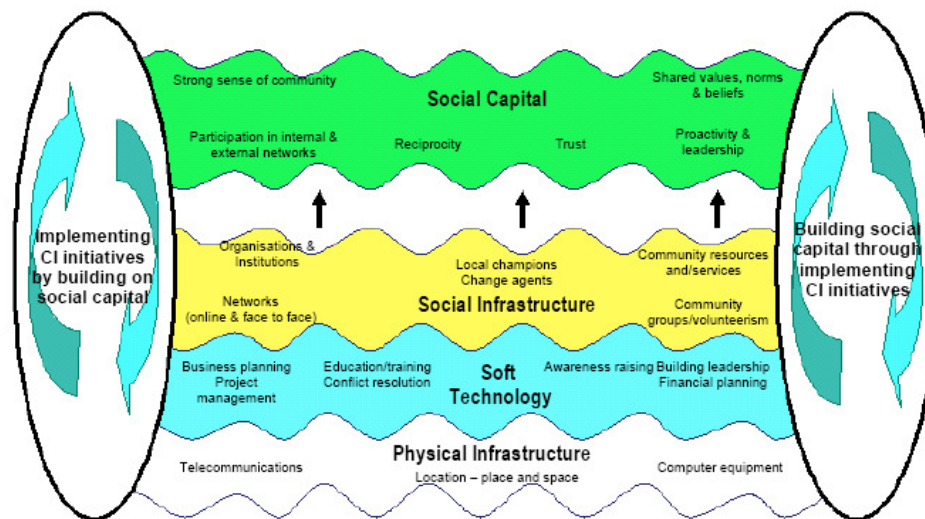
Social Capital from a CI Perspective

The significance of social capital to Community Informatics (CI) research is reflected in the attention given to the concept within recent literature. This section selects three contributions from the *Journal of Community Informatics (JCI)* to provide a summary of the discussion that have been occurring within CI. The question as to whether a CI perspective

on social capital would have made better inroads in the Australian policy debate is hypothetical as the papers under review here were largely not on the public record as yet.

The earliest paper found in *JCI* on the topic of social capital is a paper by Pigg and Crank (2004). This paper is notable for the steps taken to develop stronger links between ICTs and the development of social capital in local communities. They described social capital as being made up of five themes as defined by Onyx and Bullen (2000): networks; reciprocity; trust; shared norms and social agency. The linkages they developed with ICTs were factored on a distinction between information and communication arguing that the two terms implicated significantly different kinds of activity. Where information engenders just a ‘...cognitive...’ element, communication includes both ‘...cognitive and affective...’ elements (Pigg and Crank 2004 p. 61). They defined the distinction in the following way: ‘...[c]ognitive elements of communication can be construed as having an instrumental purpose while the affective elements are primarily expressive...’ (Pigg and Crank 2004 p. 61). Pigg and Crank (2004) are constrained from claiming that ICTs can lead to stronger social capital because of the paucity of their evidence. However, their desire to better distinguish information-related processes leading to social capital is of particular significance to this paper in that communication and information can also be found in innovation research.

Simpson’s (2005) discussion of social capital in *JCI* associates the concept with sustainability of rural access centres in the Australian state of Queensland. Given its Australian context where a high priority was placed on access centres to develop revenue streams, Simpson’s paper can be seen as an attempt to assert social capital as a more important factor to achieving sustainability. She then goes on to detail layers of supporting activities that under-pin social capital (see Figure 1). She cites time as an important factor that was generally overlooked. This was because the pace of change in community based ICT projects was limited, despite the introduction of modern ICTs, by the capacity of individual people to learn. Once again links with innovation are noted when she cites the works of the innovation theorist Rogers (1995). She uses Roger’s work in diffusion of technology to support her assertion that the introduction of any new technology requires time for people to learn both individually and collectively before beneficial technological change can be perceived.



Elements of sustainable CI initiatives from a social capital perspective
Figure 1. Elements of social capital (Simpson 2005).

Williams and Durand (2008) provide the most recent offering from *JCI* on the topic of social capital that this paper deals with. Their paper focuses on the question of causality in relation to social capital and the use of community technology. In aligning social capital with social networks they undertake a review of studies that cite social capital/social network theory and community technology in order to test for the direction of causality. They come to the conclusion that evidence can be found that attests to both scenarios. Evidence can

be found for the generation of social capital/social networks as a consequence of community technology as well as the opposite case – the use of social capital/social networks in the shaping of community technology.

They go on to reason that each of these scenarios can be associated with both *change* and *continuity* in communities. The situations in which communities have changed as a consequence of community technology can be seen in the light of purposeful steps to respond to contingent circumstances. They describe such activity in terms of ‘...social engineering...’. Situations in which communities have used community technology to mobilise existing “assets” stresses the continuity of communities. Williams and Durance (2008) reason that both aspects are necessary for communities to meet the challenges of moving ‘...into the information and knowledge economy – and to surmount digital inequality...’

In summary it is apparent that a CI treatment of social capital can reveal in vivid detail the complexities of social processes within communities. This can be seen in Simpson’s (2005) analysis where her detailed model demonstrates the complexities involved within community technology development. In a similar vein, Williams and Durance’s (2008) explanation of the apparent inconsistency between social capital as being both an outcome and an input of community development similarly reveals such complexity. By way of contrast market based models that assume a linear relationship between ICT deployment and development stand to benefit from the incorporation of these insights.

Simpson’s analysis of social capital and sustainability also casts the priorities of market based policies in a critical light. She argues that sustainability - rather than being an *outcome* - is actually a *requirement* for the delivery of successful social development programs. Simpson contends that the difficulties in achieving sustainability in the projects she has studied is largely a mismatch between the short time horizon of government funding programs and the reality of technology diffusion which requires a much longer time period. In summary the strengths of a CI perspective are the revelations that the processes associated with ICTs are iterative and complex because they are constituted within groups of people and the technologies they use. It seems that a CI treatment of social capital is able to provide a nuanced and deeper understanding of community development.

The concerns expressed by Dasgupta and Fukuyama in relation to the uncertainty over externalities is partly addressed in a CI treatment of social capital. This is because CI initiatives assume as a starting point community autonomy and effective use. However, the difficulties in generalising research in one context to another context seem to remain a factor for concern. It seems that social capital theory does not scale well in that each case needs to be essentially argued each on its own merits. Given the linkages that can be drawn with innovation research the paper proceeds with an analysis of innovation research with the view to better leverage social capital research in a theoretical framework that is established within public policy.

Leveraging CI social capital research through Innovation Policy

Gurstein’s (2004) suggestion for an innovation perspective within CI research outlines a line of enquiry that has the potential to delineate an economic and social rationale for ICT-related projects within a broader public policy framework. Gurstein presents a rationale that aims to integrate community technology organisations into a broader national innovation framework. Gurstein argues that local communities can play an important role in building a nation’s innovation capacity. As community technology centres can be the means by which people are equipped with skills in using ICTs this in turn has the potential to contribute to innovative capacity at the regional and national level.

In order to fully appreciate Gurstein’s vision he challenges people to examine their understandings and assumptions about innovation. Use of the term innovation in a policy context is popularly associated with developing new knowledge at the technological frontier. It is the exploitation of such knowledge that increases a country’s competitive advantage in the global economy. As a consequence Gurstein observes that governments provide public

money to support the creation of new knowledge through research and development programmes in universities and private research development organisations in the hope that such knowledge will pay dividends in the future.

Gurstein goes on to claim that the innovative processes at the technological frontier are analogous to the way that communities respond to change at the community level. Gurstein (2004 p. 4) states '... "innovation" is not strictly "novelty", as for example, how the term is used in patent law, but rather about "novelty here"...'. Gurstein's arguments resonate with Rogers when he stated with Shoemaker, '[i]f the idea seems new to an individual, it is an innovation...' (Rogers and Shoemaker 1971 p. 19).

Having established a link between innovative activity at the technological frontier and at the community level Gurstein goes on to emphasise the potential benefit innovative activity at the community level has to the nation. An important component in Gurstein's argument is the use of the "bottom-up" analogy of innovation where a nation's innovative efforts at the national level are supported by coordinated centres of innovation at the regional and local level. He identifies a central role for community technology centres in such a framework. Rather than creating pockets of innovative activity that are not well integrated into a region's economic activity community technology centres have potential to equip individuals with the necessary skills that may eventually percolate into group level capabilities within communities and regions. Practical examples of this are e-health initiatives, community based resource management, community governance and locally based community watch programmes. Given the obvious benefit of such initiatives it is possible to argue that such innovative efforts are worthy of government support.

An innovation perspective has the advantage of being well established in both a practical and theoretical sense within public policy. Gurstein's argument is consistent with another area of innovation research based on Nelson's (1993) theory of National Systems of Innovation (NSI). NSI research looks to the unique structural features of economies and societies as being a unique reflection of a nation's area of natural advantage and innovative potential into the future. While NSI methods have been used to analyse innovative efforts at the technological frontier it is also possible to use this framework in contexts well away from this frontier such as developing countries (Turpin and Krishna 2007).

In making some tentative association between community informatics and innovation it is possible to draw links between social capital research and some areas of innovation research. One example is the alignment that can be established between social capital concepts and Macdonald's (1998) investigation of the role of informal information networks in innovation. Macdonald has identified an instrumental role for such networks in a range of innovation case studies ranging from eighteenth century agriculture in Britain to the chaotic networks of ICT innovators in Silicon Valley during the 1990s. Macdonald's (1998 pp. 9-36) reasoning draws on Arrow's (1962; 1974) seminal work which explains information having unusual qualities that defy the logic of commodities and markets in orthodox economic theory. As a consequence people are forced to behave in ways contrary to the accepted workings of market economics. People are led to behave cooperatively in order to maximise the collective potential of information in the face of uncertainty. To that end information networks are noted for the mutuality in information needs of "members". In these networks an informal system of bartering develop where contributions to the network are made in the expectation the one will benefit from a contribution by another member some time in the future. Even though no tangible resources such as money changes hands, the expectation of reciprocity provides justification to Macdonald (1998 pp.20-23) to describe such exchanges as '...information transactions...'. Those who are found to make "withdrawals" from the network without contributing in return are slowly excluded and ostracised over time. The descriptions that Macdonald provides in relation to informal information networks have much in common with the theory of social capital with its identification of interpersonal networks based on reciprocity and trust.

Another significant body of innovation research that can be easily associated with social capital theory is the knowledge creating theory of Nonaka and Takeuchi (Nonaka and Takeuchi 1995; Takeuchi and Nonaka 2004). Nonaka and Takeuchi's knowledge creating

theory is known for the interaction that occurs between two dimensions of knowledge described as epistemology and ontology. Epistemological factors relate to the two part nature accorded to knowledge of tacit and explicit. Specific processes were described by Nonaka and Takeuchi in relation to transformations that were observed to occur between tacit and explicit knowledge. Four transformation processes are identified – socialisation, externalisation combination and internalisations (SECI). The other dimension of ontology seeks to describe a process where knowledge is made more productive through its diffusion from individuals to groups to organisations.

The process of socialisation is most readily aligned with the concepts of social capital. Socialisation refers to a process of communication - nominally through conversation - between individuals in order to synthesise new knowledge through the exchange of ideas. The social capital concepts of reciprocity and trust can be associated with conversation. Socialisation is said to be the starting point of knowledge creation in Nonaka and Takeuchi's model moving to externalisation, combination and internalisation. This process is dependent on knowledge being made explicit and more amenable to communication to greater numbers of people.

The practical significance that an innovation focus may bring to community environments is that a cogent framework is laid out that places in a broad economic context socialised activities within community technology environments. While it is still too early to begin a re-write of community development manuals it is clear that attributes of social capital as represented by socialisation can be extended into other knowledge processes that lead to codification of knowledge and the diffusion of such knowledge to increasingly larger groups of people. This process is ideally suited to the application of ICTs. This is consistent with Gurstein's vision where innovative work at the local level is amenable to coordination at the regional level.

In summary the concepts of social capital marry well with both of these examples of innovation research. The themes of networks reciprocity and trust arguably represent the bedrock of innovation. Added to this are other knowledge-related processes that are also leveraged by ICTs. In effect an innovation perspective enables scaling of the basic concepts of social capital to larger groups such as communities, regions and nations. From a policy perspective the ability to move beyond the confines of intimately associated groups in a single community to a regional or national perspective is attractive from a public policy perspective. The significant contribution that CI makes to an innovation perspective is that it confers primary authority for problem solving and knowledge creation to local communities in which such problems originate and reside.

Conclusion

In seeking to extend the influence of CI research on practice the paper has undertaken a review of social capital and its influence on public policy. Set within a case study of Australia a number of factors were found to have undermined the influence of social capital over public policy action. When public policy is dominated by market-based economics it is found that a number of incompatibilities arise. The work of CI theorists in relation to social capital reveals that public policy prescriptions generally underestimate the complexity of change associated with community technology projects. The limitations of social capital theory were found to relate to its scalability. Social capital theory tends to lose impact when the analysis is required to move beyond the intimacy of small groups. To that end, the idea of leveraging social capital concepts through innovation theory was considered. From a theoretical perspective this has the advantage of improving the scalability of social capital research. At a pragmatic level, innovation research is relatively well established in public policy.

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