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Abstract

In many Community Technology Centre projects, partnerships are emerging as a fundamentally important aspect to achieving sustainability. While generally considered a less formal approach than direct funding from rich benefactors such as Government or philanthropic organisations, the paper argues that partnerships offer an effective and theoretically justifiable framework to achieving sustainability. Drawing on information based perspectives the paper proposes a theoretical justification for the use of partnerships in community informatics projects that is able to incorporate individuals and groups in the analysis.

Keywords

Theoretical, Justification, for, Partnerships, Community, Technology, Centre, Projects

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A THEORETICAL JUSTIFICATION FOR PARTNERSHIPS IN COMMUNITY TECHNOLOGY CENTRE PROJECTS

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ABSTRACT

In many Community Technology Centre projects, partnerships are emerging as a fundamentally important aspect to achieving sustainability. While generally considered a less formal approach than direct funding from rich benefactors such as Government or philanthropic organisations, the paper argues that partnerships offer an effective and theoretically justifiable framework to achieving sustainability. Drawing on information based perspectives the paper proposes a theoretical justification for the use of partnerships in community informatics projects that is able to incorporate individuals and groups in the analysis.

INTRODUCTION

Partnership between individuals, civil society groups, private companies, Government, inter-Government and non-Government organisations are becoming increasingly prevalent in Community Informatics projects. There seems to be an awareness that cooperation, equitable participation and non-monetary contributions may go a long way to creating sustainability in Community Informatics projects such as Community Technology Centres (CTCs). While it is clear that equitable participation is more likely to incorporate end users and promote effective use, this paper argues that partnerships have firm theoretical justification from an information perspective.

An information perspective seeks to highlight the fundamental need people have for information and the strategies they engage in to acquire and use information. Through an exploration of

work that investigates the role of information in innovation the paper makes the argument that partnerships represent a natural response to the failure of the market to provide sustainable information access to underserved communities. The factors governing this failure can be understood in relation to the economic characteristics of information.

The paper is organised in the following way. Examples of partnerships are initially described. The paper then considers the value of an information perspective by briefly summarising the potential of the Free and Open Source Software movement (FOSS). On that basis a more analytical stance is adopted where the 'public goods' character of information is explained and the implications this has in developing sustainable networks or information creation and distribution. The paper then looks at the manner in which information networks based on personal

relationships are able to support network sustainability when formal mechanisms fail. The paper concludes with a discussion that links partnerships with information networks and speculates on the value of this for Community Informatics.

PARTNERSHIPS

A central goal of Community Informatics is to ensure that information and communications technologies (ICT) are provided to underserved communities and effectively used (Gurstein, 2003). While such technologies are often not sophisticated there is frequently some difficulty in building robust systems that are self-sustaining beyond the initial funding (NSWDOC, 2004). Partnerships raise the possibility that sustainability is possible if new perspectives are adopted.

The Global Knowledge Partnership (GKP) is an organisation dedicated to the formation of ICT facilitated partnerships (see <http://www.globalknowledge.org/>). The GKP aims to create opportunities for more equitable access to knowledge through the use of ICT. As well as access, it aims to promote the effective use of such knowledge so as to encourage empowerment and poverty reduction. Membership of this partnership includes governments, civil society groups, donor agencies, private sector companies and inter-governmental organisations.

Membership contributions can be either in cash or in-kind though OECD member organisations are encouraged to make cash contributions. Governance of the GKP is based on the principle of

equity where each member has an equal voice.

A different demonstration of partnerships at work can be seen in the Cape York Digital Network (CYDN) in the remote northeastern part of Australia called Cape York. This partnership represents a case where public and private organisations and indigenous Aboriginal communities have cooperated to bring together a network of Community Technology Centres (CTCs) (Connolly, 2004). The telecommunications company Telstra and networking company Cisco provided the technical infrastructure and expertise to maintain the equipment while Network Design and Construction, BCG and the Westpac bank provided planning and business expertise. The service provided by these CTCs includes telemedicine, email as well as video conferencing. An important use of these CTCs is the linking together of family members who may be separated by long distances because of health problems or incarceration by the criminal justice system.

The challenge of CYDN is ongoing maintenance of the network in a technical and social sense. The training of technicians to maintain the network has not taken into account the likelihood that such trainees are in short supply and likely to be attracted away by more lucrative job offers (Heffernan, 2005). The provision of broadband services to isolated locations has been hampered by insufficient support from public and private agencies. Ironically, competition between Government departments in the delivery of programmes has tended to undermine the viability of the network (Heffernan, 2005). There is some

frustration that the potential of this partnership is not being fully exploited because of a '...silo approach...' to provision of services to remote communities in this area.

Accordingly, the rationale as to why partnerships should work and should be adopted is in need of further definition. There appears to be a tacit acceptance that equity and cooperation between individuals and groups is a good thing. Efforts to better define the notion of social capital in relation to CTCs share many of these aspects (Simpson, 2005).

This stands in some contrast to the dominance of competition and user-pays in policy-making arenas, particularly telecommunications (Joseph, 2001). In order to shake such dominance, the theoretical justification for partnerships as a socially optimal strategy needs further work.

DEVELOPING AN INFORMATION PERSPECTIVE

In order to provide an alternative approach to understanding partnerships the paper adopts an information perspective. According to Macdonald (1998, pp. 12-13), an information perspective is one that looks at common problems from a perspective where information is a dominant feature of the world. Fundamental to an information perspective is the idea that information is different from other goods and in order to best manage information, new approaches need to be considered and adopted. The central thesis of Macdonald's information perspective is that the transactions that govern the generation and exchange of tangible goods are different to the transactions

that govern the generation and exchange of information. The hypothesis that this paper develops is that partnerships are essentially a response by people to cope with the difficulties of working with information.

The ubiquity of information is one reason an information perspective is able to open up new perspectives to old problems (Macdonald, 1998, pp. 12-13). As most people's use of information is largely second nature, it is difficult to readily identify information and the methods that individuals and groups employ to manage information. For example, the emphasis given to information and communication technologies (ICTs) as opposed to information itself indicates the difficulty of scrutinising information. In this case, ICTs become the surrogate for information and the presence of ICTs is generally considered to be a reflection of information access.

Accordingly, there is a common awareness in Community Informatics circles that access to ICTs represents a necessary component of effective information use but is insufficient in itself. In the past, characterisations of the digital divide focussed on equipment and network shortages suggesting that the problem could be overcome by the mere provision of equipment (Warschauer, 2002). Gurstein (2003) suggests that this narrow focus has benefited equipment manufacturers and leaves the end user out of the picture. Hence he asserts that effective use should be the ultimate criteria that should be applied in order to better implement and manage ICT based programmes to marginalised communities.

One contemporary example where greater attention and understanding is being given to the question of information as opposed to ICTs can be seen in the Free and Open Source Software movement (FOSS). FOSS promotes the free exchange of software among groups (Lessig, 2001; Benkler, 2002). This stands in contrast to proprietary software distribution protected by burdensome intellectual property (IP) regulations. The fundamental model of sustainability with FOSS appears to be one where individuals gain significant 'in-kind' benefits rather than monetary benefits from participating in the writing, distribution and use of software.

FOSS challenges the traditional view about information networks needing to be mediated by money. Benkler (2003) argues for example that people do not necessarily need the protection of Intellectual Property legislation to encourage them to create new information. He claims that the Internet has created a fundamentally new set of conditions for people to produce information. FOSS suggests that the potential of the Internet is such that sustainable networks of creation and distribution are possible where information rather than money becomes the mediating capital that facilitates exchange.

The significance of this for Community Informatics is that appropriation and distribution appear fundamental to the establishment of viable partnerships. The issue of appropriation deals with the incentives that encourage people to contribute information to partnerships. The second part of the equation is the distribution of information so that other

people can benefit from the creative endeavours of others. With declining infrastructure and bandwidth costs (Noll, 2002), it is possible that information rather than money will become the predominant 'currency' that enables partnerships to be sustained.

INFORMATION ECONOMICS

The idea that information represents an economic resource lies at the heart of information economics. Information economics seeks to comprehend the asymmetries that exist in information as well as the capabilities of individuals and groups to use information (Lamberton, 2001, pp. 221-224). Economists such as Boulding (1966) and Stiglitz (2001) have argued that information and knowledge are fundamental to the process of economic development.

The dominant economic view is that information has the characteristics of a public good. This understanding is drawn from Arrow's (1962) work in the early 1960s and has provided the theoretical justification for intellectual property rules and public investment in research. The characterisation of information as being a 'public good' is based on the attributes of non-rivalry and non-excludability. Rivalry is a term that describes the ways in which ownership of a particular piece of hardware prevents others from using it (Nelson et al., 1998, p. 52). Ownership of a computer disqualifies others from using it because they do not have possession. The software that runs the computer however, is non-rival because it can be copied at near zero cost many times.

Excludability is a related term where the legality of using the economic good comes into question (Nelson et al., 1998, p. 52). Excludable goods are those over which ownership can legally prevent others from using it. Information does not naturally enjoy such legal protection in the same way that chattels and other tangible goods do.

The implications of information's public good status are that individuals and companies tend to under invest in the creation of new information because it is difficult to ensure an adequate return will be gained. It is for this reason that there is a strong argument in favour of intellectual property legislation where the legal system accords rights to those who take the time to create new information.

However, intellectual property protection is not the only incentive that exists to encourage people to create information. The viability of communication technologies such as newspapers and broadcasting reveal alternative incentive mechanisms to invest in information creation. According to Shapiro and Varian (1999, pp. 3-4) the struggle for information providers such as newspapers and broadcasters is the cost structure of creating and distributing information products. Invariably, information is costly to produce but cheap to reproduce. If one looks to commercial broadcasting the costs of producing such information can only be covered by a mass market of individuals who incrementally contribute to the cost of producing the information through the money they pay for advertised products. Similar arguments can also be applied to publicly funded broadcasters where

public revenue is used to fund the production and distribution of content.

Moving to Community Informatics, the reality for many CTCs is that their support base is relatively small (Simpson et al., 2004). The inherent smallness of such projects indicates one significant reason why sustainability is difficult to achieve. In contrast, to the traditional media that have their sustainability supported by lots of people connected and contributing to the running of such a network – called positive network effects – the limited scope of community based ICT projects makes it difficult to achieve sufficient economies of scale. In this context, partnerships could possibly be understood to work just because more actors are likely to be involved thereby drawing on more sources of money and in-kind support. Even so, such a conclusion ignores a basic requirement that people need to be given incentives to create and contribute information and this can be difficult given to lack of monetary resources available to Community Informatics.

Without such incentives it could be argued that the existence of the network is of little consequence if few are willing to contribute to it.

INFORMATION NETWORKS

Macdonald develops a persuasive argument that ultimately can be used to support the partnership model. Macdonald (1998, pp. 23-27) contends that personal networks are extremely effective in dealing with information when market transactions in information fail. Market transactions are those that are mediated by money. He does this by revealing number of difficult

characteristics of information that information networks overcome. He does this by describing the needs of a 'supplier' and 'seeker' of information in an imaginary information market.

Information networks ideally provide the necessary incentive for suppliers to contribute to a network by articulating their knowledge. The incentive relates to the understanding that some future benefit will flow in return from other network members some time in the future. The confidence one is able to develop for this to happen is common interest and trust. The common interest aspect of such networks tend to indicate that future information needs will be satisfied while the trust aspect indicates that others will indeed give as well as receive.

The information seeker's need on the other hand is related to the dilemma of being unable to fully articulate what information he or she needs or where such information can be located. The common interest of the network provides the information seeker with a more likely source of information to his or her problems. Participation in such networks significantly reduces the search costs of the information seeker.

Using this reasoning it is no accident then that people appear to naturally move to groups who have similar information needs. Accordingly, the nature of such information networks tends to be personal rather than institutional. The dynamics governing the sustainability of such networks are dependent on the returns individuals receive. The suppliers' difficulties are overcome by his confidence that some benefits will flow to them in the future.

The information seekers difficulties in articulating a question is reduced because they have a potential audience with some knowledge of the topic to direct him to a potential answer to his problem. The role of supplier and seeker is flexible and interchangeable as peoples' needs change.

The interpersonal nature of such exchanges means that information rather than money is the intermediary that enables information transfer to take place. This aspect of the information process within such networks avoids the need to arrive at a fixed price for the information that is transferred. It is OK for the value of shared information to be viewed differently by giver and receiver. Indeed, the giver of information may be an expert who is so knowledgeable that any potential information exchange is of little value except for the added status such a person is able to achieve within the group (Orr, 1996). The informality of the exchanges has the potential to create an information rich environment that is able to engender the kind of creative endeavour such as that seen in FOSS. Similar dynamics can also be seen at work within Communities of Practice (Wenger et al., 2002 pp. 27-40)

DISCUSSION

This discussion about information networks lead to the hypothesis that partnerships are a natural response to the difficulties of working with information. Personal networks predate the formation of markets to mediate the exchange of information. It is perhaps no surprise that partnerships should come to the fore when formal transactions in information fail in respect to Community Informatics. As costs for bandwidth and

ICTs decline it is possible that information will become an increasingly important form of circulating capital. Essentially, information replaces money as the intermediary that enables the exchange of knowledge between people to take place. This assertion is based on an important shift in thinking about the ways information and ultimately knowledge can be shared among people identified by Lamberton (1998) and Antonelli (1997; 2000). The 'public good' status of information needs to be questioned on the basis that individuals have significant control over their own personal stocks of knowledge. Their decision to share such knowledge with others is dependent on their being a receptive audience and the likelihood of some benefit into the future. In such circumstances, information tends to demonstrate the characteristics of a 'private good'. It is this shift from 'public good' status to that of 'private good' that provides the theoretical justification for partnerships.

The primary implication from this approach is to allow some flexibility in the way organisations such as partnerships is viewed. Within the literature there are some who have used informational processes to explain the emergence of different organizational forms. Galbraith's (1977) informative text on organizational design is built on the fundamental problem of uncertainty and the manner in which information can be used to deal with uncertainty. Arrow's (1974) treatise on organisations similarly advises readers to look to informational processes to explain why certain kinds of organization have evolved over time. In fact he advises readers to begin to look beyond formal boundaries of organisations to see that

collections of organisations working in a market, for instance, can be seen as being an 'organisation' on the basis that '...elaborate methods for communication and joint decision making...' occur (Arrow, 1974, p. 32).

The lesson here is that patterns of organisation are not necessarily limited by the established norms of corporations or Government departments but can be conceptualised in many ways.

Private businesses may be frightened off by the notion of 'non-monetary' exchanges perhaps thinking that this is code for loss making ventures. It is worth noting that all organisations rely to varying degrees on the non-monetary exchange of information. The 'Communities of Practice' literature provides a vivid example of the way that organisations rely on these interpersonal linkages to meet the demands for new knowledge in highly competitive environments (Wenger et al., 2002 pp. 4-12). These linkages may cut across departments or even extend beyond organisation boundaries to other organisations (Wenger et al., 2002 p. 42).

Moving closer to Community Informatics, the dominance of user-pays methods central to telecommunications policy has hampered much of the efforts to establish CTCs (NSWDOC, 2004; Simpson et al., 2004). If one looks further a field within established communications it is interesting to find that broadcasting is not hampered by such constraints where the free-to-air model enables all people to gain access to these services for the cost of a radio receiver or a television set. The uses of advertising revenues or public subsidies

to support the provision of broadcasting services represent legitimate alternatives to the user-pays model.

The smallness of many Community Informatics projects like CTCs raises doubts about whether sufficient numbers can be attained to create the kinds of economies of scale seen in broadcasting. While this may be so, the fundamental point that the paper seeks to make is that the value of these associations may not be immediately realisable in monetary terms but rather informational terms. Being too constrained by conventional thinking may lead one to discount the potentially transformative potential of the Internet. For example, the positive externalities provided by the Internet where a CTC portal may generate thousands of hits is just one example of the kind of possibilities that exist. Another transformative impact of CTCs can be seen in the use of ICT to help indigenous young people in Central Australia to move beyond the immediate confines and stereotypes of their communities (Farr et al., 2004, pp. 8-9).

The kinds of boundaries that have been placed on CTCs to become economically self sustaining within a short period as demonstrated in Australia (NSWDOC, 2004; Simpson et al., 2004) can be viewed as being somewhat arbitrary and backward looking. The manner by which sustainability is judged perhaps should be informed by the flexibility that Arrow uses when defining organisations. Understanding of the informational processes is at the heart of this freedom.

Ultimately, one's participation in the partnership is dependent on judgements about the relative costs and benefits. This applies just as much to private

companies and Government as it does to individuals. Partnerships appear to be sufficiently flexible to combine two forms of information exchange – one based on market transactions using money and another based on payment-in-kind using information. The decreasing cost of obtaining network bandwidth through the Internet provides some confidence that the viability of partnerships will only increase with time given an understanding of the contrary economic characteristics of information.

CONCLUSION

The paper investigates partnerships within Community Informatics by drawing links with a body of thought described as an “information perspective”. The analysis therefore investigates partnerships assuming information is the dominant feature of the world. The investigation delivers a contention that partnerships represent a natural response to the difficulties of working with information. Partnerships challenge the notion that formal market transactions are the only means by which sustainable Community Informatics networks can be established. Personal network associations enable individuals to exert far greater control over the distribution over their personal knowledge. As such information can be an exchange medium like money, partnerships are identified as a potentially effective method by which sustainable Community Informatics projects can be developed. An information perspective suggests that partnerships are flexible in that they can incorporate both market and non-market transactions in information. As new ICT promote a variety of information-related activities - only some of which can be

supported by market transactions – partnerships may be seen as a viable method by which these contrary communication forms can be resolved within a single framework.

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