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### Knowledge and learning in online networks in development: a social-capital perspective

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# Knowledge and learning in online networks in development: a social-capital perspective

*Sarah Cummings, Richard Heeks, and Marleen Huysman*

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*The authors examine whether the concept of social capital can facilitate our understanding of online networks in development. Much of the knowledge generation and social learning in development takes place in networks, which increasingly operate online. Although these networks are assumed to be a positive force in development, there are many unknown factors, partly because they are in their infancy. The concept of social capital has traditionally been applied to examine the functioning of groups and societies. More recently, it has also been applied to development and to online networks outside development. Three non-development approaches to examining social capital in online networks and communities are reviewed in the article. Elements of these approaches, combined with development-related aspects, are used to produce a framework to facilitate the analysis of social capital in online networks in a development context.*

## Introduction

This article considers whether social capital can help our understanding of online networks in development, and suggests a framework to facilitate this understanding. This framework aims to represent a form of middle-range theory in which theory, in this case relating to social capital, is linked to practice, namely the functioning of online development networks. The sociological concept of middle-range theory, proposed by Robert Merton (1957), is that of theory that is between daily practice and general theories. Middle-range theory may appear similar to general theory in the sense that it involves abstractions, but with the difference that these abstractions can be supported by observed data.

The article has roots in three different areas: academic knowledge management; literature related to both information and communication technologies (ICTs); and social capital in a development context. In addition, it is founded on practical experience with and active participation in online networks. This practical experience is incorporated into the proposed framework for analysing social capital in online development networks.

The first section considers knowledge and learning in development networks, including online networks, arguing that these have an important role to play in facilitating social learning

and the development of new and improved practices. Although it is assumed that these online networks are a positive force in development, there are many unknown factors. New ideas and tools are needed to facilitate our understanding of networks. The second section examines whether the concept of social capital can facilitate this understanding. It looks at different definitions of social capital and discusses whether the concept can help us to understand how societies and groups function, and whether it is applicable to development and online networks. Criticisms of social capital as it is applied in the development field are then reviewed to see if it is appropriate to apply this concept at the (meso) level of online development networks. Next, three emerging approaches to considering social capital in online networks and non-development communities are reviewed. These are then combined into a framework that can be used to analyse the formation of social capital in online development networks.

From the outset, we should make clear that the online networks that we are considering are not at the grassroots and are not directly relevant to the lives of poor rural people. These networks, made possible by recent development in ICTs, are the medium through which development professionals working in all types of organisation – multilateral, bilateral, governmental, and non-governmental – are communicating and collaborating with each other. Consideration of these online networks is very much at a preliminary stage, because the networks have been in existence for only about ten years, and have become widely only used in the past two to three years. For this reason, this article refers to the work of Paul Engel, who was writing about the character of networks before online networks were common.

Our focus is on the concept of social capital as it relates to online networking. There are other areas of research that are also highly relevant to online networks, such as the question of who is empowered by them, and how this relates to the digital divide. It is possible that online networks of the more empowered development professionals in fact contribute to exacerbating this divide, but this issue will not be further examined here.

## Knowledge and learning in online development networks

Development organisations are becoming more conscious of how they use knowledge internally, and also how knowledge is to be shared with other organisations and individuals. This focus on knowledge is certainly not out of place in the development sector, because development initiatives themselves consist of knowledge-based practices. Only with increased understanding of development, in all its various dimensions, can these practices be improved. Key to this process is learning, particularly social learning in groups and organisational learning. Social (or collective) learning, fundamental to how development practices are improved, is taking place in informal and formal networks. Since the huge growth in the use of ICTs, much of this development networking is taking place through online networks.

Knowledge and learning are certainly receiving greater emphasis in the development discourse than in the past, but this often projects an idealised picture, with the reality being somewhat different. Paying lip service to knowledge and learning, but not in fact paying attention to them is, unfortunately all too common.

Since the 1990s, the role of online networks of development organisations has received increasing attention. Such development networks, including so-called ‘communities of ideas’ (Engel 1997: 111), ‘communities of practice’ (Wenger 1999), ‘formal knowledge networks’ and ‘virtual teams’ (Willard 2001: 2), ‘virtual knowledge communities’ (Cummings *et al.* 2005), ‘thematic networks’ (IICD website) and ‘thematic groups’ (World Bank website), have been used to upgrade the quality of the activities, outputs, and impact of development

organisations; to facilitate a collective learning process; and to contribute to a 'shifting up' of development activities to an international audience.

Among those development organisations that are positively exploiting the potential of these online networks and virtual communities, the prime example is probably the World Bank. As part of its wider knowledge-sharing strategy, the Bank has created intra-organisational and inter-organisational, global virtual communities. The Bank argues that these communities are critical because:

- They serve as an ongoing learning venue for Bank staff and outside practitioners who share similar goals, interests, problems, and approaches.
- They respond rapidly and give specific answers to individual enquiries from members and Bank clients.
- They develop, capture, and transfer best practices on specific topics, by stimulating the active sharing of knowledge.
- They influence development outcomes by promoting greater and better-informed dialogue.
- They link diverse groups of practitioners from different disciplines – thematic groups, for example, represent the nexus between experts in the Regions and the Sectors, and are thus intertwined with the Bank's organisational structure.
- They promote innovative approaches to address specific development challenges.

Although it is impossible to say exactly how many intra-organisational virtual communities exist, the World Bank comments that they are 'extremely numerous and diverse'. For example, there are more than 100 thematic groups. The World Bank also has a number of other inter-organisational online communities that aim to reach out to external audiences and partner organisations.

Another development organisation that is exploiting and analysing the potential of these virtual communities is the International Institute for Sustainable Development (IISD) in Canada. IISD is researching the functioning of the 'formal knowledge networks' with which it is involved. A further example is the International Institute for Communication and Development (IICD) in the Netherlands, which uses thematic networks as the main way to disseminate sector-specific lessons, news, and ideas. Working with existing networks, or forming something new when it is needed, each network supports IICD's local partners by bringing expertise and knowledge to them; and by providing a platform where their experiences can be shared more widely. These networks also serve as a way to mobilise and disseminate information on ICT-enabled development beyond the immediate network. Since 2004, the Royal Tropical Institute (KIT) has also been investigating the opportunities for such networks (Hardon 2005).

Interest in online networks among a group of development organisations led to the creation of Dgroups ([www.dgroups.org](http://www.dgroups.org)), a platform of collaborative tools and services. By December 2005, Dgroups supported 1537 virtual communities, made up of 47,242 members. Partners in Dgroups include Bellanet, the UK Department for International Development (DFID), the International Council on Archives, IICD, OneWorld, the Joint United Nations Programme on HIV/AIDS (UNAIDS), and the World Bank. Such examples are dominated by online networks set up by Northern development institutions, because these institutions were the first to be in a position to support them. Given its recent emergence, most of the evidence in this field is anecdotal. An increasing number of Southern networks are now working effectively. One such example is C3NET, the Community Content Creation Network. C3NET aims to facilitate the exchange of information among members from Southern countries. It has grown from fewer than 30 members in January 2003 to a current level of 200 members. C3NET focuses on using ICTs to improve rural livelihoods (Mwakalinga 2005).

### *A short discussion of terminology*

*Social actors are continuously, either spontaneously or in a more organized way or both, building relationships with each other to create opportunities for joint learning, increasing their understanding and improving upon current practices. (Engel 1997: 127)*

*Over time, this collective learning results in practices that reflect both the pursuit of our enterprises and the attendant social relations. These practices are thus the property of a kind of community created over time by the sustained pursuit of shared enterprise. It makes sense, therefore, to call these kinds of communities: communities of practice. (Wenger 1999: 45)*

In the literature on knowledge management, ICT-enabled communities are generally referred to as 'communities of practice', after the terminology developed by Wenger (1999). Communities of practice come into existence when people with a common practice feel a need to share what they know and to learn from others (Wenger 1999). Professional associations, groups of software developers, and skilled craft guilds are examples of work-related online communities of practice that are outside the context of development. A related type of community is the 'community of purpose' where members join to campaign on a particular issue, such as women's rights or anti-globalisation.

In the development literature, such online communities are generally referred to as online networks or virtual communities. In this article, we shall use the term 'online networks', unless specifically referring to the literature on communities of practice. This is both for the sake of simplicity and also in recognition of the fact that the term 'communities of practice' is not widely used outside knowledge-management circles. However, our understanding of online networks is informed by an understanding of communities of practice.

### **Issues in online development networks**

Much of the academic knowledge-management literature on communities of practice deals with intra-organisational communities in the business context. Although by no means unique, the online networks in the development arena are generally inter-organisational: made up of individuals based in different organisations who share common professional interests. If the complexity of networks can be characterised by the number of boundaries they cross, online networks in the development field are characteristically highly complex (Duarte and Snyder 1999, cited in Willard 2001: 2) (see Box 1). These networks are crossing organisations, job functions, time zones, many national cultures, and often language barriers, as well as including some members who do not have full access to electronic technology.

The facility to create dialogue, learning, and collaboration among these groups, provided by the new technology, makes these networks a very attractive proposition for development organisations. Following Engel's arguments, these communities of practice are probably the place where innovation is occurring, where new practices are being formulated, and where social learning is taking place. This, for example, appears to be the case for the LEAP Impact community of information professionals, which seems to be successfully facilitating shared understanding of the model of evaluation (Cummings and Mchombu 2003). Indeed, these communities might be the new 'engines of innovation' within development.

There is a general understanding, then, that online networks could positively contribute to knowledge sharing among development organisations. We need new tools and concepts to help us understand better how ICT can be used to share knowledge among development professionals, how to manage these online networks, and how to get the best out of them.

**Box 1: Estimating the complexity of virtual teams**

1. Members from more than one organisation.
2. Members from more than one function.
3. Members who transition on and off the team.
4. Geographically dispersed over more than three contiguous time zones.
5. Is geographically dispersed so that some team members are 8–12 hours apart.
6. Members from more than two national cultures.
7. Members whose native language is different from the majority of other team members.
8. Members who do not have equal access to electronic communication and collaboration technology.

*1–2 ‘yes’ answers indicate some complexity; 3–5 moderate complexity; and 6–8 high complexity.*

*Source: Duarte and Snyder (1999), cited in Willard (2001: 2).*

An approach that is beginning to be used in academic knowledge management is to analyse the social capital in such networks. In the next section, we look at social capital and consider whether it is applicable to development and to online networks, and whether it might help us understand what is happening in online development networks.

## Social capital

Before looking at the application of social capital to online networks, we need first to examine the nature of social capital and to define it.

### *What is social capital?*

According to Nahapiet and Ghoshal (1998), the term ‘social capital’ initially appeared in community studies, highlighting the central importance – for the survival and functioning of city neighbourhoods – of the networks of strong personal relationships, developed over time, that provide the basis for trust, co-operation, and collective action. Early usage also indicated the significance of social capital for the individual. Since then, the concept has been applied to a wide range of social phenomena, particularly the role of social capital in the development of human capital, and in the economic performance of firms, geographical regions (Putnam 1993), and nations (Fukuyama 1995).

The central tenet of the theory of social capital is that networks of relationships constitute a valuable resource for the conduct of social affairs, providing their members with ‘collectively owned capital, a “credential” which entitles them to credit, in the various senses of the word’ (Bourdieu 1986, cited in Nahapiet and Ghoshal 1998). Much of this capital is embedded in networks of acquaintance and recognition. Other resources are available through the contacts or connections that networks bring. For example, through ‘the strength of weak ties’ and ‘friends of friends’ (Boissevain 1974), network members can gain privileged access to information and to opportunities. Finally, significant social capital in the form of social status or reputation can be derived from membership of specific networks, particularly those in which such membership is relatively restricted (Bourdieu 1986).

Like other forms of capital, social capital is productive, making possible the achievement of certain ends that in its absence would not be possible. Like physical capital and human capital, it

is not completely transferable. Moreover, although it has value in use, social capital cannot be traded easily (Nahapiet and Ghoshal 1998). Useful social-capital resources for individuals in social relations include obligations, expectations, and trustworthiness of structures; access to information channels; and norms and effective sanctions.

Although many of these authors agree on the significance of relationships as a resource for social action, they lack consensus on a precise definition of social capital. Many commentators argue that the concept of social capital is 'hazy and fluid' (Syrjanen and Kuutti 2004) and that 'social capital means different things to different people' (Dasgupta and Serageldin 2000). Some limit the scope of the term to the structure of the networks; whereas others like Bourdieu and Putnam also include the actual and potential resources to which such networks confer access. Nahapiet and Ghoshal (1998: 243) define social capital as 'the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or a social unit'. Van der Gaag and Snijders (2004: 202) define an individual's social capital as:

*The collection of resources owned by the members of an individual's personal social network, which may become available to the individual as a result of the history of these relationships.*

In this article, we adopt the definition of Nahapiet and Ghoshal (1998), with the addition of the historical element proposed by Van der Gaag and Snijders (2004). Thus, social capital will be defined as:

*The sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or a social unit, as a result of the history of these relationships.*

### *Social capital in societies and organisations*

Van der Gaag and Snijders (2004) consider that social capital applies to both the individual (micro) and collective (macro and meso) levels, and that it therefore involves phenomena at both levels of analysis. Putnam, for example, particularly elaborated theories and approaches at the macro level. He studied regional governments in Italy for more than 20 years from 1970 and sought to explain their strikingly contrasting performance (Putnam 1993). He demonstrated statistically that both variations in government performance and levels of socio-economic development in different parts of the country are explained by civic engagement, measured in terms of the extent and type of political participation, newspaper readership, and density of voluntary associations of different kinds. Later, civic engagement is described as 'social capital'. Putnam's interpretation of the Italian case fuelled a debate that linked analysis of social capital to the field of development studies (Portilla Rodríguez 1997). Contrary to the original conceptualisations both Bourdieu and others, social capital had now become a property of a whole society.

Putnam (2000) later applied this approach to levels of social capital in the USA. Using data from Roper Social and Political Trends and the Needham Life Style surveys, he argued that in the past 25 years Americans have become increasingly disconnected from their family, friends, neighbours, and social structures, in particular from local associations and social clubs. He maintained that this shrinking access to social capital was a serious threat to civic and personal health, because communities with less social capital have lower educational performance, higher crime rates, and poorer health. In Putnam's view, the factors that have contributed to the decline in US civic engagement include: (a) pressures of time and money, including two-career families (10 per cent); (b) suburbanisation, commuting, and urban sprawl

(10 per cent); (c) electronic entertainment, particularly television (25 per cent); and (d) generational change – the slow, steady replacement of the civic generation by their less involved children and grandchildren (50 per cent).

While the social capital embedded within societies has been examined at macro and micro levels, it has also been applied at the organisational (meso) level to reach conclusions about the functioning of firms. Typically, researchers see organisational advantage in the particular capabilities that organisations have for creating and sharing knowledge. In this context, Nahapiet and Ghoshal (1998) argue that social capital facilitates the creation of new intellectual capital; that organisations, as institutional settings, are conducive to the development of high levels of social capital; and that it is because of their more dense social capital that firms, within certain limits, have an advantage over markets in creating and sharing intellectual capital. They go on to make distinctions between the structural, relational, and cognitive dimensions of social capital at the level of organisations:

1. **Structural dimension:** the overall patterns of connections between the actors, including the presence or absence of network ties between actors; network configuration or morphology. Descriptors include density, connectivity, hierarchy, and appropriate organisation.
2. **Cognitive dimension:** those resources providing shared representation, interpretation, and systems of meaning among actors, which include shared language and codes, and shared narratives.
3. **Relational dimension:** personal relationships that people have developed with each other through a history of interactions, also called actor bonds (Hakansson and Snehota 1995). Among the key facets in this cluster are trust and trustworthiness, norms and sanctions, obligations and expectations, and identity and identification.

The consequences of social capital for knowledge in organisations and networks cover two distinct themes. First, social capital increases the capacity to share knowledge. For example, networks of social relations, particularly those characterised by weak ties or structural holes (i.e. disconnections or non-equivalences among actors in a given arena), increase the efficiency of information diffusion by minimising redundancy (Burt 1992). Second, social capital is an aid to adaptive efficiency, creativity, and learning. Research has shown that social capital encourages co-operative behaviour, thereby facilitating the development of new forms of association and innovative organisation. The concept is therefore central to the understanding of institutional dynamics, innovation, and value creation (Nahapiet and Ghoshal 1998).

This short literature review indicates that social capital can be used to examine the sharing of knowledge among organisations and networks, namely the ‘meso’ level. But to what extent does the concept contribute to our understanding of development and of online networks?

### *Social capital in development*

Social capital has been applied to (and does seem relevant to) development. A growing body of empirical evidence suggests that the density of social networks and institutions, and the nature of the interpersonal interactions that underlie them, significantly affect the sustainability of development programmes. However, the exact channels through which social capital affects development outcomes have only just begun to be explored, and many of the lessons to be drawn in relation to programme design and implementation remain to be formulated (Grootaert and van Bastelaer 2002). In 1996 these gaps led the World Bank to undertake a large empirical exercise, known as the Social Capital Initiative (SCI). The SCI was funded by the Danish government and was designed to advance the theoretical understanding of social capital. Its

**Box 2: Benefits from stocks of social capital: some cases**

Entrepreneurs in **Ghana**: accessing technologies; accessing markets; helping to reinforce contracts; supporting informal credit; supporting insurance arrangements.

Agricultural traders in **Madagascar**: more accurate information (on prices and credibility of clients) reduces transaction costs and acts as an informal channel for acquiring insurance against liquidity risk.

Farmer groups in **Rajasthan**: local, structural and cognitive social capital to build consensus on the use of watershed land, resulting in more productive use of this land as well as improved broader development outcomes.

Agricultural extension in **Mali**: trust is the key factor in making extension successful.

Water projects in **Indonesia**: social capital increases the ability of villagers to organise in order to design and manage water-supply systems.

Solid-waste removal in urban **Bangladesh**: social capital increases the ability of villagers to organise in order to design and manage waste-disposal systems.

**Russia**: social capital is the most important source of income security.

*Source*: Grootaert and van Bastelaer (2002).

three objectives were: to assess the impact of social capital on project effectiveness; identify ways in which outside assistance can help in the formation of social capital; and contribute to the development of indicators for monitoring social capital, together with methodologies for measuring its impact on development (Grootaert and van Bastelaer 2002).

As part of the SCI, some 12 case studies were commissioned, representing a broad methodological spectrum of quantitative and qualitative analyses, and having a wide geographical and sectoral coverage. The studies examined the role of social capital at the micro, meso, and macro levels. The case studies from developing countries showed that the benefits from the stock of social capital can flow either to communities or to individuals and households (see Box 2). At an early stage in the SCI, Grootaert (1998) was claiming that there is growing evidence that social capital, however defined, can have an impact on development outcomes: growth, equity, and poverty alleviation. Grootaert even argued that it is the 'missing link' in development.

*Social capital in online networks*

Not only does social capital appear to be applicable to networks and to development, it has also been used in knowledge management to reach conclusions about online networks. Indeed, there is much optimism over the influence that virtual communities will have on social capital in the future. Lin (2001), for example, argues that the growth of cyberspace and the emergence of social, economic, and political networks in cyberspace signal a new era in the construction and development of social capital. Putnam (2000) also considers that the Internet may lead to a reversal in the decline of social capital in the USA. However, these predictions appear to be based on enthusiasm about ICT rather than on hard facts. It seems difficult to understand how use of ICTs for entertainment and shopping by the general public can lead to an accumulation of social capital that can be applied to some form of productive use. Castells (2000) argues that Internet-mediated communication is too recent a social phenomenon to allow

scholarly research to reach firm conclusions. This appears to be the most reasonable position to take, given concerns that overt enthusiasm may not be vindicated.

Granovetter (1973), an economic sociologist, makes a distinction between two types of social capital: resources of 'bridging' capital (or weak ties between numerous people) and 'bonding' capital (or strong ties within small groups). As Hopkins and Thomas (2002: 2) argue, this distinction is an important one in the context of electronic networks:

*At first glance, online relationships would seem more likely to contribute to the relatively weak ties that constitute 'bridging' capital than to the strong, multifaceted, and highly personal relationships which underpin 'bonding' capital. But they may also contribute to bonding capital, not only in situations where families and communities are divided by distance, but also when particular media, for instance instant messaging, make a useful and economical addition to people's existing repertoire of communications channels.*

Even if this optimistic view is unfounded, we can still say that there is an important relationship between online networks and the formation of social capital. Thus, despite the currently limited evidence and questions about the direction and nature of the relationships within them, we can conclude that the concept of social capital has relevance and application to online networks.

### *Criticisms of social capital*

*On a good day in my old job at the World Bank, I would be asked to define 'civil society' by any number of skeptical colleagues – a notoriously slippery task at the best of times, though at least it showed they were interested. On a bad day, they would ask me an even trickier question ('what is social capital?'), but worst of all was the inevitable sequel: what is the difference between social capital and civil society? (Edwards 1999:1)*

There has been considerable criticism of the use of the concept of social capital, some of the most serious of which comes from John Harriss (2002). Ben Fine (2002: 18) also has problems with the 'anodyne concept' of social capital. Most of these criticisms are relevant to the general discussion of social capital but are particularly relevant to the development discourse. In particular, the critique focuses on the ready acceptance of social capital by the World Bank and others as an analytical, empirical, and policy panacea; and moreover the Bank's adoption of the most depoliticised of possible interpretations of social capital. The first criticism is that the application of social capital leads to the depoliticisation of development, obscuring power and class and suiting the interests of global capitalism and US-centred imperialism. Second, both Fine and Harriss consider it to be vague and difficult to define:

*Precisely because social capital has no historical grounding . . . it both excludes specificity at the outset and, like blank canvas, allows the historical or socially specific to be added to order from an ever-expanding menu of variables to an equally exhaustive range of methodological recipes. (Fine 2002: 26)*

Social capital has become an 'analytical sack of potatoes' (Fine 2002: 22). The result has been to create a field for middle-range theory.

Third, Fine argues that the current interest in social capital is part of a silent revolution that has been taking place in mainstream economics, whereby economics is starting to 'colonise' the social sciences. This revolution, named the information-theoretic approach by Joseph Stiglitz, stresses that markets are imperfect, especially in terms of information available to buyers and sellers. The presence of market imperfections is also used to explain non-market behaviour, such as institutions, customs, and so on, as the rational response of optimising individuals.

As a result of this new approach, economics purports to explain what has traditionally been the concern of the social sciences: 'Institutions, customs, culture and so on, social capital especially, become the response to market (informational) imperfections as opposed to the form and means of expression of economic and social relations, processes and structures' (Fine 2002: 27).

Fourth, Fine argues that a number of policy implications inevitably flow from the influence and acceptance of social capital: commitment to education is lessened as other aspects of civil society are targeted for their high returns; and social capital provides the World Bank with both the ideology and the rhetoric with which to justify its own intervention more widely across civil society, while preserving its bias against state intervention and trade unions.

Given the weight of scholarly opinion against social capital, it is important to consider how our current approach, based on potential accumulation of social capital in online networks, can still be justified. Much of the criticism has focused on the role of social capital at a (macro) regional and national level, which does not have much relevance to the approach proposed here, where the objective is to consider online networks at the meso level. The criticism also relates largely to the World Bank's application of social capital, and in particular its adoption of the most depoliticised definition of the concept, rather than the concept itself. There has rightly been, in addition, considerable criticism of the way in which proponents of social capital ignore issues of power and conflict. Although these issues are not the central focus of our analysis, there should therefore be some effort to consider the power relations and conflicts within online development networks, in particular by looking at 'linking capital', which represents ties between poor people and those in positions of influence in formal organisations (Woolcock 2000), and at the social value of these networks. These considerations are incorporated into the framework that we develop below.

The application of social capital to development has in addition been criticised as ahistorical. To try to counteract this in our consideration of online development networks, we shall place particular emphasis on their histories. Indeed, we would contend that their history may be a particularly important factor in these networks.

Finally, Fine criticises social capital as an example of middle-range theory. For the purposes of this paper, however, middle-range theory is probably just where we want to be, because it aims to link theory and practice.

## Models of social capital in networks

This section considers some of the existing approaches and classifications that are relevant to online networks in general, with a view to incorporating elements of them in our proposed framework for assessing social capital in online development networks. It should be noted that such approaches to online networks are still in their infancy.

### *The MOTA Model*

To understand how social capital is built and maintained in online communities, van der Spek and colleagues at the Telematics Institute in the Netherlands (2002) have identified a number of factors that are widely acknowledged in the literature as influencing social capital in general: motivation, obligations, technology, and affordances (MOTA).<sup>1</sup> The characteristics of these factors are reflected in their MOTA model, which aims to benchmark and repair the social capital of virtual communities (see Box 3). This approach has many similarities with that of Adler and Kwon (2002).

### Box 3: The MOTA model

Characteristics of motivation (M) include:

- Fellowship, goodwill, and trust
- Fun and enjoyment
- Emotional support
- Appreciation of and honourable attention to contributors
- Ethical virtues developed as a long-term self interest
- Intrinsic motivation

Characteristics of obligations (O) include:

- Willingness to invest in and thus maintain the group
- Exchange of goods and services with one another
- Willingness to work together for a common purpose
- Habituation to the moral norms of the community
- Willingness to work harder and achieve more as a group member

Characteristics of technology (T) for community support include:

- Technology as a promoting factor for social relations, e.g. anniversary calendar
- Technology as a co-ordinating factor, e.g. meeting support agent
- Technology as a means of communication, e.g. virtual gathering, bulletin boards, wired coffee pots, and shared open spaces

Characteristics of community affordances (A) include:

- Intensification and improvement of the communication between members
- Ease of connection to peers and experts
- Improved productiveness and prospectiveness for the members
- Ease of access to good and services
- Answers to frequently-asked questions (FAQ)
- Knowledge that people are willing to act upon socially constructed understanding
- Improved community mind: a sense of being through a sense of participation, e.g. 'we participate, therefore we are'
- A place to unleash tacit knowledge
- In-group solidarity, sometimes purchased at the price of hostility to other group members.

Source: van der Spek *et al.* (2002)

### Questionnaire and the 'mind map'

Lesser and Storck (2001) have surveyed social capital in intra-organisational communities of practice. Their methodology was based on a questionnaire, followed by the construction of a 'mind map'. Although we were unable to gain access to the questionnaire itself, we can report that the subject categories were as follows (Eric Lesser, personal communication, 2003):

- Demographics.
- Strategy and Objectives (why and how did the community come about?).
- Membership (who belongs to the community, and how did they get connected?).
- Participation (what activities do community members participate in?).

**Table 1: Classification of social capital**

<i>Classification</i>	<b>Dimension of social capital</b>		
Original Nahapiet and Ghoshal (1998) dimension	Structural dimension	Cognitive dimension	Relational dimension
Adler and Kwon (2002)	Opportunity	Ability	Motivation
Content of dimension	Network ties, configuration, and organisation	Shared codes and language, shared stories	Trust, norms, obligations, identification, respect, generalised reciprocity
Research question	Who and how?	What?	Why and when?
Revised dimension	Structural opportunity to share	Cognitive ability to share	Relation-based motivation to share

- Environment (including information technology).
- Communication (how does the community use language to share knowledge?).
- Identification (to what extent do people see themselves as part of a community?).
- Perceptions of value (how does the community benefit the individual and the organisation as a whole?).

A number of these elements will be incorporated into our proposed framework.

*Three dimensions of social capital*

The three-dimensional classification of social capital proposed by Nahapiet and Ghoshal (1998), referred to earlier, has been further developed by Marleen Huysman and applied to networks (Huysman 2004) (see Table 1).

Huysman combines Nahapiet and Ghoshal’s classification with that of Adler and Kwon to produce three revised dimensions:

1. The structural opportunity to share, which is related to ‘who’ and ‘how’ research questions, including network ties, configuration, and organisation.
2. The cognitive ability to share, which is related to ‘what’ research questions, including the production of the shared language, codes, and stories.
3. The relation-based motivation to share, which is related to ‘why’ and ‘when’ research questions, and includes elements of human relationships: trust, norms, reciprocity, etc.

For the sake of clarity and the fact that it incorporates elements from a range of other methodologies, Huysman’s classification forms the basis of our proposed framework.

**The proposed framework**

Our proposed framework for assessing social capital in online development networks is founded on the three dimensions of social capital identified by Huysman: the structural opportunity to share; the cognitive opportunity to share; and the relation-based motivation to share. It includes elements of the MOTA model (see Box 3). Although the main components of and many of the elements in this framework originate from the earlier frameworks, there are a number of inno-

vative and development-related elements. In particular, we include the combination of the ‘historical’ dimension: when, where, and how a network started; the intellectual heritage; and the history of personal relationships. The latter two elements may be particularly important in online development networks that are elaborating new practices that are grounded in experience and knowledge of what has gone before.

This framework aims to facilitate our understanding of online development networks, and even to provide a structure for evaluating them. Huysman (2004) argues that online networks are effective only if there is a high degree of social capital among their members. With high levels of social capital, people are motivated, and are both able to and have the opportunity to share knowledge with each other in a network. In this context, an analysis of social capital within networks should increase our understanding of how these networks function. Each of the three dimensions will now be discussed in some detail.

### *Structural opportunity to share*

As mentioned above, the ‘structural opportunity to share’ relates to the structure of the network, including network ties, technological configuration, and organisation. Five main elements are identified within this component: general issues, politics, information technology, activities of the network, and structural affordances.

One issue that does need to be addressed in online development networks is that of connectivity and access to technology. In many existing networks, membership in the South is restricted by lack of access, including total lack of access to ICTs, or access only to email – whether from an Internet café or from a work-based PC. Where connectivity problems affect certain members, practical methods should be found to try to overcome them, for example by restricting size of file attachments or by introducing an informal ‘buddying’ system whereby one network member tries to ensure that another member, with less access, does receive necessary messages, and possibly by web-to-email solutions. An informal buddying system could be likened to ‘linking capital’ as described by Woolcock (2000).

There is a wide variety of power relationships within online networks that go beyond North–South issues, organisational role, and personal status. These power relationships also relate to gender and to diverse cultural approaches to communication, as well as to the different meaning that participation has for individual members depending on their location. A further important element is the complexity of networks. This complexity could be analysed using the indices developed by Duarte and Snyder (1999, cited in Willard 2001) and presented in Box 1 above. However, there is a need for further elaboration at the upper end of the scale, as most online development networks will fall into the ‘high complexity’ category.

### *Cognitive ability to share*

The ‘cognitive ability to share’ relates to what people are sharing. This component is divided into four elements – inputs, cognitive affordances, outputs, and outcomes – following the model of evaluation. Cognitive inputs cover the time and work, the intellectual heritage, and volition – the latter emphasising both sense-making (creating comprehension and purpose) and commitment to adhere to decisions that have been made (Engel 1997, citing Lindblom 1990), probably best defined as a responsive commitment. Engel argues that volition entails fluidity: an informed and thoughtful volition which is never in error and which is always subject to challenge and re-formulation. In addition, volition shows purpose and determination to achieve results, even if no results are specified in advance.

**Table 2: Proposed framework for analysing online development networks**

<b>Dimension of social capital</b>	<b>Research question</b>	<b>Community characteristics</b>	<b>Main criteria</b>
Structural opportunity to share	Who and how?	General	Complexity value (based on Willard 2001; see Box 1)
			Membership: number of members; roles; professions; experts/practitioners; and demographic characteristics
			Strategy: mission, vision, and objectives
			History: when, where, and how it started
		Politics	Governance: leadership issues; North-South balance; ethics/politics; hidden agenda
		Information technology	Platform/workspace: technology
			Access and connectivity
		Activities	Face-to-face meetings (informal and formal), online messages, and e-conferences
	Structural affordances	Improved communication	
Cognitive ability to share	What?	Inputs	Intellectual heritage
			Time and work
			Volition
		Cognitive affordances	Improved productivity
			Improved quality
			Improved access
		Outputs	New models
			Shared language
			Publications
			Other
Outcomes	Social learning		
Relation-based motivation to share	Why and when?	Bonding, bridging, and linking capital	Personal relationships within the community, and their history
		Relational affordances	Access to new contacts

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In a development context, cognitive outputs can include new models, shared language, and joint publications, while cognitive outcomes include social learning and organisational change.

### *Relation-based motivation to share*

This dimension is concerned with the human relationships within online networks, including bringing, bonding, and linking capital. Trust and reciprocity are recognised as key elements in the knowledge sharing of these online networks. An innovative element here is the 'history' of the relationships, which may even form the backbone of successful online networks. It is possible that successful networks are founded on a small group of individual members who have developed reciprocal trust and even friendships over a period of years.

### *Our proposed framework*

Putting all these elements together, we arrive at Table 2, summarising the components of social capital that can be used for analysing online development networks.

## Conclusions

Although social capital is a much-criticised concept, particularly in its application in the context of development and to national-level phenomena, it is still an interesting concept for examining what is taking place in online networks. The development field is characterised by a large number of complex, inter-organisational online networks. It is important to consider what is happening inside these networks, not only because they may be the engine of development innovation but also because there is still insufficient understanding of the implications of investments in such networks. The framework developed in this article aims to facilitate understanding of online development networks in terms of the social capital within them. This approach is founded on recent literature which suggests that social capital has an important positive influence on the way in which knowledge is shared within such networks.

Representation and participation are still key issues. As Willard (2001) argues, most of the participants in online development networks are from the elite in institutional hierarchies, because not all development professionals who could theoretically participate are in a position to do so in practice. This relates partly to issues of skills, motivation, and existing social capital. It also relates to the digital divide, which will continue to affect development professionals in the South.

## Notes

1. Affordances are defined as 'an action possibility available in the environment to an individual, independent of the individual's ability to perceive this possibility' (McGrenere and Ho 2000).

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