

Research Article

Using Stakeholder Theory to Analyze Telecenter Projects

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Abstract

Involving stakeholders is often seen as a means to more successful information and communication technologies for development (ICT4D) projects. Hence, it can be appropriate to research ICT4D projects by taking both the perspective of stakeholder theory and using the tools of stakeholder analysis. This paper uses the example of telecenter projects to illustrate the application of a stakeholder perspective, selecting the specific case of the Gyandoot telecenters in Madhya Pradesh, India. It finds stakeholder analysis can be used both as a best practice template to assess what has been done with stakeholders on an ICT4D project and as an analytical tool to understand who stakeholders are, their behaviors, and the ways in which they are managed. However, it also finds there are problems with applying a stakeholder perspective that must be understood including lack of openness among stakeholders, the problems of identifying who stakeholders are, and the subjectivity of stakeholder classification.

This paper analyzes application of stakeholder theory to the study of information and communication technologies for development (ICT4D) projects. In a general sense, the idea of “stakeholders” has entered both the language and practice of ICT4D projects. However, a full understanding of the term and the rigorous application of its conceptual underpinnings are rare in either the implementation of such projects or in the research and evaluation of such projects. This paper therefore takes a deeper look at understanding and using a stakeholder perspective.

To achieve this, the paper is divided into four sections. The first discusses one particular type of ICT4D project—telecenters—and investigates the relationship between a stakeholder perspective and the current challenges facing telecenters. The next section provides the conceptual underpinning for the paper by presenting a comprehensive review of stakeholder theory and stakeholder analysis. In the third section, stakeholder analysis is applied to one particular example of a telecenter project—the Gyandoot project in Madhya Pradesh, India. This has been functioning since 2000, and, as a relatively mature project in ICT4D terms, it provides a rich foundation for application of a stakeholder perspective. Finally, there is a discussion about the contributions and limitations of applying stakeholder theory. This last section also provides pointers to other issues in development informatics/ICT4D research where stakeholder theory and analysis may be used.

Telecenter Projects in Development

Telecenters—also called multipurpose community telecenters, public Internet access points, or information kiosks (Bossio 2004; Grace et al. 2004)—were initially embraced in the general “ICT and development”

euphoria, which at its height (around the year 2000) saw more than one hundred donors funding ICT and development projects with some billions of U.S. dollars worth of investment poured in (Wakelin and Shadrach 2001). Many leading agencies (for example UNESCO, the World Bank, the International Telecommunications Union, IDRC's [International Development Research Centre] Acacia Programme) rolled out telecenter programs.

Telecenters are not a particularly new phenomenon in developing countries. As early as 1994, the Buenos Aires Action Plan called for multipurpose community telecenters in rural and remote areas (Grace et al. 2004). More recent examples of telecenters include the Latin American network called *somos@telecentros*, which links more than 1,500 telecenters (Hunt 2001); Cornell and Tamil Nadu Veterinary Universities' project to provide support to farmers (Roman and Blattman 2001); the LINCOS project in Costa Rica and the Dominican Republic, which provides agricultural information (Shakeel et al. 2001); the Somaikya agritech centers in Andhra Pradesh, India, which disseminate technical assistance information to farmers via a "hub and spoke" network (Harris et al. 2003); and the MSSRF (M.S. Swami nathan Research Foundation) information vilages in Pondicherry, India, which provide access to health, education, and agricultural information (Kanungo 2003).

Telecenters are based on the (somewhat contentious) premise that *connectivity* (a technical construct) as well as *direct access* (a more economic, social, and psychological construct) to information will lead to empowerment, capacity building, and, thereby, "development" (Whyte 2000; Roman and Colle 2002). A telecenter usually provides connectivity and access to information via a range of information and communication technologies including phone, fax, computers, and the Internet (Shakeel et al. 2001; Roman 2003) but is sometimes differentiated from a cybercafé in that it is primarily concerned with issues of social and economic development, such as health, agriculture, microfinance, and education (Gómez et al. 1999; Harris et al. 2003; Grace et al. 2004). Services provided in a telecenter may include information on market prices and improvements to agricultural productivity (Kumar 2004), access to government services (Madon 2004), health information (Mayanja 2001), and IT training (Benjamin 2001). Telecenters have

been implemented in urban, semiurban, and rural areas.

Research Issues around Telecenters

Research work on telecenters in development has tended to cluster around three key issues: sustainability, impact, and best practice. In all three cases, there has been little use of stakeholder analysis, yet there is clear potential for this perspective.

As early as 1995, Qvortrup (cited in Tschang et al. 2002) noted that at least 70% of the first wave of telecenters in Australia disappeared after two years. Similarly, Robinson (1998) writes that after two years, only five of the twenty-three original telecenters established by the Ministry of Environment in rural Mexico were functional. Sustainability also emerged as an issue in investigation of telecenters funded by the more recent wave of ICT4D investment (Proenza 2001; Roman and Colle 2002; Harris et al. 2003; Kanungo 2003). It can be categorized into three aspects (Whyte 1999, 2000; Tschang et al. 2002; Kumar 2004):

- Financial sustainability is seen to occur when a project "achieves revenue equal to or greater than the expenditure and economic return of a project" (Tschang et al. 2002, 130). This is often difficult to achieve when the initial funding agency ends its financial support: for example, there are estimates that, although it may cost US\$5,000 to set up a telecenter, maintenance costs are US\$3,000 annually (Grace et al. 2004).
- Social sustainability is seen as ongoing support derived from the positive impact of telecenters on the social and economic development of the local community. Again, this can be difficult to achieve given that the local community may identify other priorities to information, such as clean water or better quality seeds (Grace et al. 2004).
- Political sustainability relates to continuing support for telecenters from the policy-making and regulatory environment. This, too, may not always be found.

In all three cases, one can see that a stakeholder perspective would be of value in understanding sustainability. It would provide guidance on issues such as the user groups that may deliver revenue, identities within the local community on which

telecenters may have an impact, and key players within the political context.

An understanding of social sustainability requires an understanding of the second main research topic on telecenters: community impact. Whyte (2000) divides the issue of impact into two main questions: Does this telecenter respond to the communication and information needs of the communities it intends to serve? What impact does/will it have on local equity and economic development?

An example of an impact assessment framework was Young et al.'s (1997) study on behalf of CIDA (Canadian International Development Agency), which used assessment criteria such as relevance and appropriateness of information, innovation and creativity in the community as a result of the ICT project, as well as cost effectiveness and sustainability. However, these criteria were set by the CIDA researchers—not the end users—and the study stated that “the test did not include field research, nor was there time for participatory approaches with beneficiaries or stakeholders” (Young et al. 1997, 33). This bias is reflected in the findings—three of the five ICT projects were found satisfactory in terms of the above criteria, and two projects were judged “too early to tell.” This study is typical of those conducted subsequently: they lack both a detailed objectivity and appropriate consideration of stakeholder groupings despite this being arguably an essential first step—one must first identify who is impacted before one can ask what the impact has been.

Perhaps due to a combination of sustainability issues and unconvincing impact assessments, there has been a questioning of the role of telecenters (and ICTs more broadly) in poor communities. A recent article, for example, states, “A computer is not useful if you have no food or electricity and cannot read” (*Economist* 2005, 9). Despite this skepticism, telecenters are not being discarded. There is support for the notion that ICT provision can exist alongside food security, electricity, and literacy initiatives. Hence, there has been interest in the third area of telecenter research—best practices to ensure telecenter sustainability and development impact.

In relation to financing, for example, Proenza (2001, 2) argues that telecenters should look toward private sector cybercafé models of sustainability, as private enterprise is “the most sustainable governance structure known.” Franchising government services through public-private partnership is an

other potential best practice, used in the Gyandoot case. Technological best practices are also identified: there are moves, for example, toward using appropriate and integrated technology: combining telecenters with community radio, where information is downloaded from the Internet and broadcast over loudspeakers in a village (Kanungo 2003).

Above all, however, there is a recurrent emphasis in analysis of telecenter best practice on “community participation” and “stakeholder involvement” (Proenza 2001; Roman and Colle 2002; Caspary and O’Connor 2003; Cecchini and Raina 2004; Colle 2005). Roman and Colle (2002, 12) call for a “conscientious attention to participation” because it “conveys a sense of community ownership; it provides indigenous wisdom; it helps reflect community values and needs; it provides important resources, such as volunteers or technical expertise.” Kanungo (2004) states that collective ownership of a telecenter initiative is necessary because it implies access to everyone regardless of social status. He writes of the MSSRF Village Information Project in Pondicherry that project staff lived in the setting in order to understand the issues: “Such actions perform the function of keeping the village folk engaged, keeping stakeholders engaged, continually sounding out different individuals so as to regenerate the idea and continually seek affirmation amongst the participants” (Kanungo 2004, 417–18).

Even more explicitly in relation to stakeholders, Whyte (2000) emphasizes the need for stakeholder participation in evaluation, stating that evaluation should include as many diverse stakeholders as possible. Indeed, she provides a detailed table of who could constitute a stakeholder in a telecenter project, as shown in Table 1.

Yet, despite what is either an indirect call for stakeholder analysis in the discussion of “community” or direct reference to stakeholders, this does not represent a full application of stakeholder ideas. What is lacking includes a sense of why stakeholders should be involved, how they should be involved, and how the different needs of all these stakeholders could be accommodated, given the formidable list of potential stakeholders provided in Table 1. It is here that a stakeholder approach appears often advocated but underapplied and under-researched in the “ICT for development” field. This paper will therefore go on to analyze “stakeholder theory” (a more abstract notion of who stakeholders are and why they matter) and “stakeholder

Table 1. Potential Telecenter Project Stakeholders

Level	Stakeholders
Community	Civic authorities and leaders Institutions (police, hospital, schools, etc.) Business associations, chambers of commerce Community action groups and NGOs Sectoral interests (students, women, teachers, etc.) Individuals
Telecenter	Owner, franchisee, management Community liaison group Operator, staff, volunteers Funders, supporters Users
National	Agency responsible for telecenters Telecommunications ministry Other ministries (especially those involved in information provision) Policy-making bodies
Regional	Other national agencies responsible for telecenters, telecommunications, etc. Other policy-making bodies Regional organizations
International	ITU, UNESCO, etc. Other international donors United Nations, World Bank, etc. Private sector

Source: Whyte (2000).

analysis” (a more practical tool guiding how they can be identified and managed, if at all).

The premise is that, if stakeholders can be identified and understood, two potential benefits will flow. First, in research terms, telecenter projects themselves will be better understood in terms of issues such as sustainability, impact, and best practice. Second, in practical terms, stakeholder analysis and management would form part of best practice that could offer a greater chance of long-term sustainability. Before testing this out against secondary literature on the Gyandoot case study, we will first delve deeper into the origins and content of stakeholder theory and analysis.

Stakeholder Theory

Background to Stakeholder Theory

Stakeholder theory has its origins in management literature. Preston (1990) traces the notion of stakeholders back to the Great Depression in the United States (1929–1941), when General Electric Company defined four major stakeholder groups—shareholders, employees, customers, and the general public. Freeman (1984), by contrast, traces

mention of the word “stakeholder” back to research conducted by the Stanford Research Institute (SRI), which defined it in 1963 as “those groups without whose support the organization would cease to exist” (cited in Freeman 1984, 31). Although the SRI mainly saw shareholders as stakeholders, Freeman expands on this definition to include “any group or individual that can affect, or is affected by, the achievement of a corporation’s purpose.” (1984, vi).

Freeman (1984) believed that the traditional view of the firm was a process view—suppliers provide resources that the firm converts into products, which are bought by customers. However, he believed that this view did not explain the complex interaction between different interest groups in a corporation. Instead, he recommended a managerial perspective, which identifies four key stakeholders of the firm—owners, customers, employees, and suppliers. According to Freeman, in the latter half of the twentieth century, owners of a corporation were no longer focusing just on return on investment, but were also interested in “shareholder activism” and promoting social justice. He gives the example of activist Ralph Nader, who bought shares in General Motors only to fight for (and win) socially responsi-

ble actions within the company. *Customers*, too, were becoming more educated—and more demanding—about choices. Declining productivity levels in the United States indicated that Fordist management techniques provided little motivation for *employees*. A younger workforce was emerging, demanding more than salaries: job security, more benefits, a work-life balance, a “human approach,” and a participation culture. *Suppliers* were trying to offer low-budget solutions to organizations but at the same time, were subject to external environmental changes. All four of these groups of stakeholders were becoming stronger, with more capacity for conflict. To them, Freeman adds a further set of stakeholders: governments, competitors, consumer advocates, environmentalists, special interest groups, even the media. One can already see therefore that stakeholders comprise a broad spectrum.

Since Freeman’s work, there has been much contention over the theoretical underpinnings of stakeholder theory, to the extent that Treviño and Weaver argue (1999) that there is no such thing as stakeholder *theory*, but that it is more a research tradition. We can discuss this further by identifying three main perspectives within the broad field: descriptive, normative, and instrumental stakeholder approaches (Donaldson and Preston 1995; Jones and Wick 1999). Descriptive stakeholder theory appears rooted in organizational behavior literature and describes the characteristics and behavior of stakeholders involved in a system and how an organization interacts with its stakeholders (Brenner and Cochran 1991; Jawahar and McLaughlin 2001). Descriptive stakeholder theory has its critics—for example, Treviño and Weaver (1999) comment that it is just that: simply descriptive and lacking a clear objective.

The second perspective on stakeholder theory is a normative one. Grounded in business ethics and corporate social responsibility literature (Freeman 1984; Clarkson 1995; Reed 2002), normative stakeholder theory is concerned with stakeholders as an end in themselves (Mellahi and Wood 2003). It is based on the principle of fairness, or the Kantian theory of common good (Phillips 1997), in that all human beings are ultimately affected by any decision and, because we all have an equal and legitimate interest in a safe and stable life, we should all have equality of opportunity and consideration. Reed argues that normative stakeholder theory is of more concern in developing countries, as firms have

a moral obligation and “increased responsibilities” (Reed 2002, 167) in the context of unregulated financial markets, an uninformed consumer society, and a possibly unreliable state government. Here they have an obligation to provide employment and to be ethically “right”—for example, by not dumping products that have been deemed defective, expired, or illegal in industrialized countries. In international development, a normative stakeholder perspective is exemplified by authors such as Chambers, whose seminal work on rural development (1983) gave birth to the term “rapid rural appraisal” (RRA). RRA (which has since been termed participatory learning and action, to highlight the broader nature of the tool) emphasizes the need for understanding and addressing stakeholder needs in development by conducting interviews with stakeholders, drawing local maps or diagrams, and inviting solutions from the community itself (Chambers 1994).

A normative view has its critics in the private sector domain. Treviño and Weaver (1999, 225) ask an obvious question: “Wouldn’t normative stakeholder theory’s concern for the intrinsic interests of all legitimate stakeholders sometimes dictate that a firm should go out of business?” Possibly the most vociferous critic of normative stakeholder theory was Milton Friedman, who wrote in a well-known *New York Times* article that “the social responsibility of business is to increase its profits” and that “the business of business is business. . . . Businessmen who believe that business has a ‘social conscience’ and takes seriously its responsibilities for providing employment, eliminating discrimination, avoiding pollution . . . are preaching pure and unadulterated socialism” (Friedman 1970). Similarly, Clarkson (1995, 6) cites an interview with senior management in the second largest bank in Canada who strongly defend their lack of interest in corporate social responsibility, saying, “We are not a government, we are a bank. We do not set social policy, we look to government for social policy.” A final criticism, for both the private sector and the non-profit sector, is that normative stakeholder theory could be regarded as artificially altruistic, where the key concern of those consulting stakeholders is to get their initiative to succeed, not to be ethically fair—in which case, though, is this not an instrumental rather than normative perspective?

The third—instrumental—perspective on stakeholder theory addresses this more openly on the hy-

Table 2. Perspectives on Stakeholders

Stakeholder Approach	Theoretical Underpinnings	Criticism
<i>Descriptive:</i> understanding the relationship between an organization and its stakeholders	Organizational behavior	Unfocused: aims of descriptive stakeholder theory are unclear—what is it trying to prove or disprove?
<i>Normative:</i> organizations should take all stakeholders into consideration, as a moral responsibility	Corporate social responsibility; Kantian theory of common good	“Business of business is business” — businesses are not charities, but profit-making entities. Not all stakeholders can be pandered to all the time.
<i>Instrumental:</i> organizations should take key stakeholders into consideration as this leads to success and competitive advantage	Utilitarianism; business and management	Stakeholder involvement is not feasible and/or is not always linked to organizational success.

pothesis that organizations that take care of their key stakeholders will gain competitive advantage over those that do not (Clarkson 1995; Jones 1995). Jones writes that “trusting, trustworthy, and cooperative behaviour will get better results than opportunistic and selfish behaviour because it improves trust, lowers transaction costs and therefore increases revenue” (1995, 432). This is aligned with a resource dependency perspective—the idea that, without interactions and transactions with critical groups, an organization will fail (Pfeffer and Salancik 1978). Porter and Kramer (2002) have put forward a strong argument that strategic corporate philanthropy (i.e., attending to a firm’s external stakeholders) is beneficial for an organization, because social and economic goals are connected. Building on Porter’s diamond model, these authors illustrate how each of the four elements of competitive advantage—factor conditions, demand conditions, context for strategy and rivalry, and related and supporting industries—can be influenced positively by strategic philanthropy. They provide the example of Cisco’s Networking Academy, which offers networking training in many developing countries, not out of altruistic reasons, but so that a skills base and new market are created for Cisco products.

The instrumental perspective also has its critics. There is the argument that stakeholder involvement is *not* always linked to success. Mellahi and Wood (2003), for example, cite cheap and autocratic sweatshop labor—it is highly successful and profitable, despite being of great risk to the communities and employees who, although stakeholders, are not

asked to participate in decision making. There are also more practical arguments: either that the set of stakeholders changes too frequently to enable their interests to be addressed (Jawahar and McLaughlin 2001) or that there are simply too many stakeholders (what is called unrestricted stakeholder theory) for an organization to be able to cater to all stakeholder needs. Finally, Mellahi and Wood (2003) argue that employing a stakeholder approach that includes some notion of the different power or importance of different stakeholder groups may reinforce existing power relationships—the strong would be accommodated, the weak ignored, and the status quo emphasized.

As we have seen, the descriptive, normative, and instrumental approaches are a common categorization in stakeholder literature. Table 2 summarizes the three perspectives.

Having said all this, the distinction between the three perspectives may not actually be so clear-cut (Donaldson and Preston 1995). If one is considering a stakeholder approach at all, there must be some desire to understand what influence stakeholders have on the organization (and therefore the intention cannot be simply descriptive). It may therefore be difficult in practice to delineate between descriptive, normative, and instrumental theory. Freeman’s own work (1984), for example, can at least be described as both descriptive and instrumental.

Differentiating Stakeholders

Alongside criticism of the specific stakeholder perspectives, there is a more generic weakness of

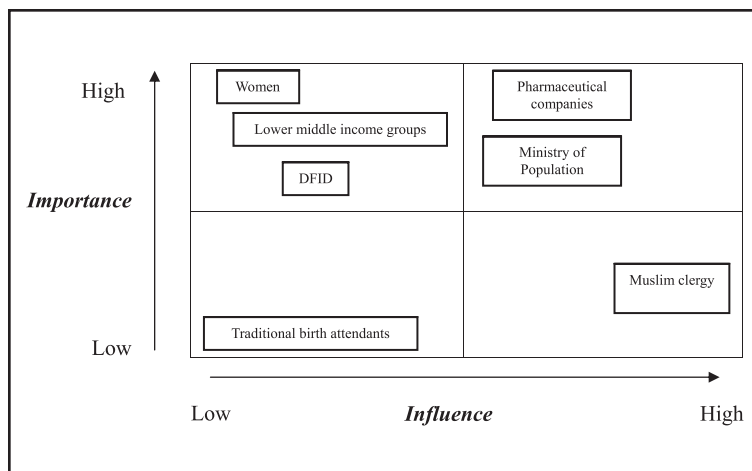


Figure 1. Example of stakeholder importance-influence map.

Source: Gavin and Pinder (1998).

stakeholder theory: the definition of what constitutes a stakeholder remains vague. Freeman (1984) divided his broad stakeholder groups into internal (customers, employees, suppliers, owners) and external (government, competitors, special interest groups, even terrorists). Although the internal groups are seen as “key,” in some situations the external stakeholders are more important and they cannot a priori be relegated to a subsidiary position.

Another distinction is between primary and secondary stakeholders. Clarkson (1995, 106) defines primary stakeholders as those “without whose continuing participation the corporation cannot survive as a going concern.” If these primary stakeholders withdraw or become dissatisfied with the system, “the corporation will be seriously damaged or unable to continue” (106). According to him, the support of primary stakeholders can be lost if the organization is either unable to create and distribute sufficient wealth or value to satisfy them or if more wealth or value is given to one primary stakeholder group at the expense of another group, which would cause them to withdraw from the system. Secondary stakeholder groups, on the other hand, are those who have the “capacity to mobilize public opinion in favor of, or in opposition to, a corporation’s performance” (107).

Finally, perhaps the most common method used (particularly in development literature) to distinguish between stakeholders is that of importance versus influence, whereby *importance* illustrates a stake-

holder whose problems, needs, and interests are the priority of the intervention, and *influence* is how powerful the stakeholder is. Gavin and Pinder (1998) give the example of a U.K. Department for International Development–funded birth control project in Pakistan. The *important* stakeholders include drug companies, recipients of the project, the Ministry of Population, and U.K. DFID itself; however, one key *influential* stakeholder group may be the orthodox Muslim clergy, who may see the project in a negative light and have the potential to jeopardise the project. Figure 1 (Clarkson 1995) illustrates how they map these stakeholders.

A Framework for Stakeholder Analysis

As can be seen, much of the writing on stakeholders has a strong private sector and industrialized country focus. Equally, however, the ideas have strongly transferred to the context of development projects. We therefore now have some sense of why stakeholders matter—either because it is morally appropriate to consider them or because they can either positively or negatively influence a project or organization. We also have a sense of who they could be—those who affect or are affected by a project or organisation. They can potentially be classified into internal/external or primary/secondary or in terms of importance and influence, though it is still somewhat unclear how exactly we differentiate these categories (an issue we will return to later).

Beyond this general background, though, both development research and development practice may want clearer guidance on how exactly to understand engagement with stakeholders. Thus, it is suggested (Freeman 1984; Gavin and Pinder 1998; Whyte 2000; Gosling and Edwards 2003) that, if stakeholders matter (whether from a normative or instrumental perspective), a strategy should be provided to identify, involve, and “manage” them. However, there are few concrete suggestions on how to do this. This section therefore aims to build such a framework, drawing on the generic stakeholder work (Freeman 1984), work about stakeholders in information systems (Pouloudi and

USING STAKEHOLDER THEORY TO ANALYZE TELECENTER PROJECTS

Table 3. Stakeholder Management Techniques at Different Project Lifecycle Stages

	Inform	Consult	Partnership	Control
<i>Identification/analysis</i>				
<i>Planning</i>				
<i>CBA and resource allocation</i>				
<i>Implementation</i>				
<i>Monitoring and evaluation</i>				

Sources: Gavin and Pinder (1998); Gosling and Edwards (2003).

Whitley 1997) and writers addressing stakeholders in international development such as Gavin and Pinder (1998) and Gosling and Edwards (2003).

According to Freeman (1984), the first stage of stakeholder analysis is to investigate who the stakeholders affected by a project are, their interest, how they behave and why, and what their history is and then to undertake a coalition analysis—namely, finding out how they interact with other groups. This analysis understands that stakeholders could exert influence (which could be technological, economic, social, political or managerial) in more than one way and to a varying extent. It suggests that investigation can be conducted by meeting stakeholder groups and validating their self-perceptions by cross-checking against other stakeholder groups (Freeman 1984). In development literature, maps (where people live, or their daily route), diagrams, seasonal calendars, time trends, and other visual aids are often recommended (Gavin and Pinder 1998). Drawing a Checkland-style (1981) rich picture is a similar concept, where different stakeholder groups and their needs and current work processes are identified.

The stakeholder identification process should ideally be repeated, because iteration brings up previously unnoticed stakeholders and preempts possible obstacles. Pouloudi and Whitley's (1997) iterative stakeholder analysis of NHSNet identified an increasing number of initially unexpected stakeholder groups. Whereas, at the first stage, primary stakeholders had initially been identified as hospitals, doctors, pharmacies, government, patients, and pharmaceutical companies, after each stage, more stakeholders appeared or their roles were clarified. For example, although the system suppliers were not initially identified, and were seen as very important by other stakeholders, by the third stage of analysis they could be separated into EDI suppliers,

telecommunications suppliers, and IT consultants, each with their own conflicting aims.

Beyond stakeholder identification will be a second stage of stakeholder analysis—seeking to understand what organizational strategies are needed to manage these stakeholders implicitly or explicitly. Gavin and Pinder (1998) and Gosling and Edwards (2003) portray a sliding scale of involving a stakeholder according to their importance. As shown in Table 3, this scale—whether to inform, consult, offer partnership, or give control to a stakeholder group—can be determined in relation to each stage of a development project lifecycle, from project identification/analysis to planning, cost/benefit analysis (CBA), implementation, and monitoring and evaluation. Finally, a stakeholder perspective understands that a set of transactions or bargains may be necessary if conflicts arise among stakeholder groups (Freeman 1984).

Figure 2 (adapted from Freeman 1984; Pouloudi and Whitley 1997; Gavin and Pinder 1998; Gosling and Edwards 2003) summarizes all of the stakeholder-related steps just described:

- Identify the stakeholders, understand their behavior, and aim to anticipate how they might work together or why conflicts might arise. This stage might have to be repeated several times.
- Plan strategies on how to manage the stakeholders: what responsibilities will they hold; should they simply be informed, consulted, involved in partnership, or given control of a project?
- Determine whether concessions are needed if the previous management strategies do not work.

With this framework in mind, the following section presents the case of Gyandoot and analyzes it ac-

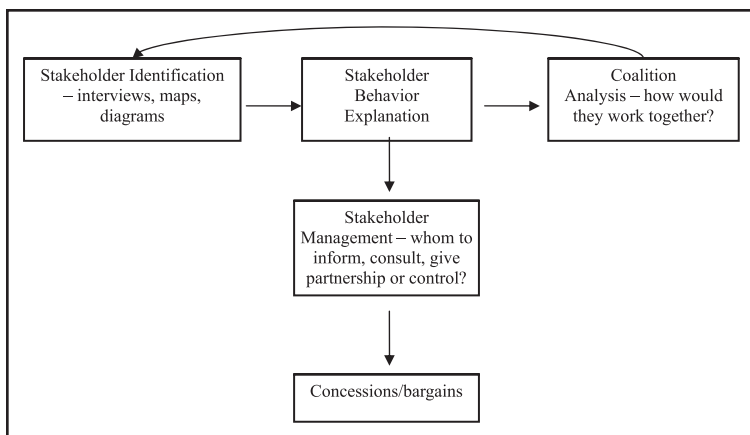


Figure 2. Understanding and addressing stakeholders in development projects: A stakeholder framework.

Sources: Freeman (1984); Pouloudi and Whitley (1997); Gavin and Pinder (1998); Gosling and Edwards (2003).

according to the above framework. In view of the life-span and profile of the project, there is a set of secondary research literature on Gyandoot and it is this which forms the basis for the analysis.

Stakeholder Analysis of the Gyandoot Project

Project Aims and Objectives

In January 2000, the Gyandoot project was launched by the government of Madhya Pradesh state in the Dhar district of the state, in central India. Dhar is largely a poverty-stricken, drought-prone rural area (Jafri et al. 2002) with a population of around 1.7 million, an estimated 60% who live below the poverty line (Gyandoot 2000). In November 1999, the district collector (head of the district-level government, the District Council) and the then-IT secretary of the Madhya Pradesh state government began to conceptualize Gyandoot (having visited the Warana wired villages pilot in neighboring Maharashtra state), and within two months, a pilot project was initiated (Jafri et al. 2002).

The aim of Gyandoot was to install telecenters—also called village information kiosks (known as *soochanalayas*). Twenty government-funded kiosks were initially installed, and, later, eleven more were set up as private enterprises (Gyandoot 2000; Bhatnagar and Vyas 2001; Jafri et al 2002). Each kiosk had at least one computer, a modem, a printer,

furniture, and an uninterruptible power supply (UPS) with a four-hour backup. The telecenters have been installed in prominent locations—for example, in villages that held weekly markets, along a main road, or bus stop. Each telecenter caters to about 25–30 villages and between them, the network of kiosks covers around 600 villages and a population of a half-million (Bhatnagar and Vyas 2001). All the telecenters initially had dial-up connectivity through local exchanges to the server in the computer room of the District Council in Dhar. By December 2002, however, around eighteen kiosks had installed wireless in local loop

(WiLL) access, expected to provide better connectivity and greater bandwidth than the traditional telephone exchanges (as of mid-2006, there were no current statistics on the Gyandoot web site to assess progress on this).

Gyandoot provides a number of services online. Users can file applications for income, caste, and domicile certificates for Rs.10 (\$0.20), and within ten days, notification about the readiness of the certificate should be sent via e-mail to the relevant telecenter, so villagers can go and collect it from the district council headquarters (the journey to file the application at district headquarters is therefore saved). Information is also available on benefits, such as social security, pensions, rural development schemes, government grants, public distributions, and lists of families below the poverty line so that they can check to see if they are listed. Complaints can also be made to the district authorities by using an online grievance redress system. Users can gain access to information regarding quality of seed/fertilizer, scholarship disbursement, and information on schools/village committees (all in Hindi). They are able to e-mail “experts” with any questions in the above areas, or information on child labor, child marriage, and illegal possession of land. Village auction facilities are also available to farmers and villagers to trade land, agricultural machinery and equipment—for Rs.25 (US\$0.50), a three-month advertisement can be placed, and for Rs.10 (US\$0.20),

USING STAKEHOLDER THEORY TO ANALYZE TELECENTER PROJECTS

one can browse through the auction lists (Bhatnagar and Vyas 2001). Other services include online matchmaking and an online village newspaper. However, the most useful feature of Gyandoot as recognized by users (see user interviews in Sustainable Initiatives 2003) is that copies of land records can be printed for Rs.15 (US\$0.30). These are needed when farmers approach banks for loans and were traditionally kept by the village land records holder, who may have exacted bribes or not been available when the records were needed by the farmer.

The Gyandoot project manager is supported by four staff at the server end, in the district council headquarters. It is their responsibility to print off complaints, applications and emails received and send them to the relevant department. The district collector responds to as many queries and complaints as possible or sends a holding reply if an answer is not immediate. For the government-funded telecenters, the self-governing structure at village level—the village council—takes care of building, telephone, electricity connection, and furniture costs, while the telecenter owner/manager is responsible for any other operational expenses. The telecenter manager does not receive any salary and has to pay 10% of income to the village council for maintenance of the telecenter. Telecenter managers were initially trained (at their own cost) at the district council, and the best trainees were then selected for the positions of kiosk managers. For the eleven telecenters that started as a private enterprise in the second stage, the owner pays a US\$100 licence fee for one year to the district council. The owner is recruited from the local area and needs to have at least ten years of schooling, with basic IT skills. Gyandoot is thus funded by a mixture of the district council, the relevant village councils, and members of the local community such as the users and kiosk/telecenter managers.

Success or Failure?

Several Gyandoot success stories have circulated (Bhatnagar and Vyas 2001; Sanjay and Gupta 2003):

- That an online complaint costing Rs.10 (US\$0.20) brought drinking water to Bagdi village two days after the complaint, whereas previous complaints had gone unanswered for six months;
- That after four trade inquiries a cow was sold for Rs.3,000 (US\$60);

- That an epidemic broke out among cattle but the animals were vaccinated after vets received an e-mail via a Gyandoot kiosk; and
- That local farmers realized a town 100 miles away would pay 100 rupees (US\$2) more than normal for their produce through Gyandoot and therefore sold their produce there.

It is also stated that senior politicians have been so impressed with the project that Rs.2,500,000 (US\$50,000) has been invested to set up information centers in more than 3,000 schools in Madhya Pradesh (Sustainable Initiatives 2003).

Other stated benefits are increased awareness of IT, mostly for the rural youth (who are taken to the nearest *soochanarya* as part of their studies), as well as the government functionaries involved in the project. Jafri et al. (2002) state that there is an increased number of applications for computer loans from the Employees Provident Fund in local government, and more officials have joined computer literacy classes. The district council has also instituted an annual Gyandoot cash prize of Rs.200,000 (US\$4,000) for the project “that best takes IT to the state’s poor” (Gyandoot 2000). Gyandoot was highly praised by the international development community. In 2000, it won the Stockholm Challenge IT Award, which described it as “a unique form of G2C (government-to-citizen) e-commerce . . . [a] community-based, highly cost-effective and financially self-reliant approach” (Stockholm Challenge 2000). It also won the Computer Society of India/Tata Consultancy Services National IT Award for best use of IT in 2000 (Gyandoot 2000).

Much of this impact assessment seems to arise from discussions with project officials. There is much less research based on direct involvement of kiosk owners, let alone users. However, Sustainable Initiatives (2003) provides some interviews. One telecenter owner states, “Villagers come here to make various complaints related to handpumps, the functioning of government. . . . They also come here to get the prices of oxen, and agricultural crops like soyabean. . . . But the earnings come from land records. Besides that there are people who come asking for information relating to BPL (below poverty level) list. . . . I also have a photocopy machine which also helps me in my earnings.” The owner of a more well-equipped telecenter in Dhar states that his monthly income is around Rs.6,000–7,000 (US\$120–140) as he has invested a great deal in

equipment. Users are also heard: a teashop owner states that he came to report the malfunctioning of a handpump, which was connected within seven days; to make a loan application and to find out market rates for soybeans, wheat, and maize, as he also trades these. Finally, a farmer states saying he paid Rs.20 (US\$0.40) to obtain a copy of his land record within two days, instead of a Rs.50 (US\$1) bribe to clerks, which would have taken eight days.

However, most cited examples of success in different sources are the same ones just recirculating. In addition, some sources provide a quite different picture. In Jafri et al.'s (2002) study of Gyandoot, respondents were reluctant to participate, because drought had struck, and the ICT intervention seemed irrelevant. During the week they conducted their research, they found "practically no users . . . with considerable effort, the team could locate 32 users in all" (i.e., those who had ever used Gyandoot in the past) (Jafri et al. 2002, 6). A 2003 ActionAid study (Sanjay and Gupta 2003) commented that the project was "largely unsuccessful," with many kiosks lying closed due to lack of sustainability, and only one user accessing a telecenter every two to three days. The study found large differences in views expressed by the state officials and those expressed by the villagers, although no details are provided of this.

The ActionAid study found reliability problems with the dial-up connection—most of the local rural telephone exchanges did not operate with optical fiber links, meaning poor connectivity, although the telecommunications department was said to be upgrading the connections of the exchanges to which Gyandoot kiosks are connected. District officials interviewed by Jafri et al. stated that the "telephone department has not been particularly responsive to the needs of Gyandoot and has been treating it like any other customer. District representatives of the telephone department need to be included in the committees running and planning the Gyandoot services" (2002, 39).

Power cuts are also a reason for closures—low voltage means that the UPS may not charge up sufficiently to provide backup power, and when the power does come on, several telecenters may try to access services at the same time, slowing down the network (Sanjay and Gupta 2003). One telecenter owner in Tirla stated, "The most important problem I am facing is the electricity supply. Out of 24 hours, there is hardly four to five hours of electricity supply.

That means there is no supply at all for 18–20 hours. That is the most important problem I face. . . . A lot of money is going into maintenance. It's not useful" (Sustainable Initiatives 2003). This lack of connectivity clearly reduces the motivation of the kiosk manager, and it is likely that they seek other means of income. This then leads to messages of unreliability and unavailability spreading about Gyandoot and the creation of a negative spiral of disuse.

Another important part of a telecenter system is that any data available (e.g., on market prices) needs to be regularly updated. Sanjay and Gupta (2003) state that around a quarter of users reported losses in their produce sales because they based their sales on prices accessed by Gyandoot, which were out of date. Telecenter owners fear that the community "now suspect[s] them of deliberately holding back information or services in order to extract bribes." One center owner in the ActionAid study is quoted as saying, "First of all, Gyandoot should try to fulfil the promised services to the people effectively before going in for further additions, as due to the ineffective functioning of the present facilities and utilities, the credibility of the project, as well as ours [the kiosk owners] are at stake. People feel that we [kiosk owners] deliberately do not avail information in the right time, to earn extra from the community" (Sanjay and Gupta 2003)

Overall, it is felt that, although "some infrequent transparency benefits" have arisen "in a few places, at a few times, for a limited range of services," users still see a need for bribes to be paid and travel to Dhar has not decreased as much as initially hoped (Sanjay and Gupta 2003). For example, it was initially thought that copies of land records would be deliverable directly via the telecenters. However, since such records lacked an authorized signature, they were not accepted as an official document by banks and other agencies. Thus, applicants still have to make a journey to the district council's offices. In other cases, the record can be printed at the telecenter but must then be taken for signing by a government official, therefore constituting "re-intermediation" rather than "disintermediation." In addition, although some grievances can be made online, many still have to be made in person. In Sanjay and Gupta's study (2003), 90% of those submitting their grievances via Gyandoot felt their "complaint had not been satisfactorily resolved." In addition, Jafri et al. (2002) state that there are few

links to other resources and help in the telecenters, for example from NGOs. Finally, although it is clear that the telecenter owner acts as an intermediary, some of the Gyandoot services (such as the village newspaper online) seem redundant, in area where only 16% of women and 42% of men are literate (Sustainable Initiatives 2003). Equal access to information (one of the main aims of telecenters, as described by Roman and Colle [2002]), is also questionable, as Jafri et al. (2002) report that, in two cases, a telecenter owner had banned lower-caste villagers from using the service.

Analyzing Gyandoot through a Stakeholder Framework

Linking Gyandoot back to stakeholder theory, it is clear that both an instrumental and normative approach can be taken. If one takes Reed's (2002) normative perspective, Gyandoot has a social responsibility to all possible stakeholders and should aim to generate income for all possible stakeholders and be of particular use to the primary stakeholders (telecenter users). There is also an instrumental perspective, as it is clear that Gyandoot will be more sustainable if all possible stakeholders are identified and then managed in a way that helps the maximum number of users to continue to use and pay for services. However, Gyandoot also reflects Treviño and Weaver's (1999) and Mellahi and Wood's (2003) critique that it is impossible to accommodate all stakeholders all the time. Above all, Gyandoot illustrates one of the key weaknesses of stakeholder theory—who were expected to be the primary stakeholders of Gyandoot, who were they in reality, and why was there a difference between the design and the reality?

According to the official web site and other sources (Gyandoot 2000; Bhatnagar and Vyas 2001; Sustainable Initiatives 2003), Gyandoot was planned using stakeholder analysis. Jafri et al. state that a "detailed RRA/PRA exercise was taken, involving villagers and the community, government officials and Gyandoot team" (2002, 3). During the RRA, the villagers indicated a desire for market prices and the ability to obtain copies of land records (Gyandoot 2000). However, if one is to compare what happened on the Gyandoot project with the five-step stakeholder framework shown in Figure 2, it appears that the stakeholder analysis stopped at the first step of the first stage, namely, the stakeholder

identification. Here stakeholders such as the community members, government officials, and the Gyandoot team were identified. It does not appear as if their behavior (step 2) or how they would work together (step 3) was researched. Neither does it seem that the first step was reiterated, repeating the identification process as Pouloudi and Whitley (1997) recommend. As one example, this means some stakeholders such as the telephone department do not appear to have been included in the stakeholder identification process. Yet—as indicated in the comment above about the need for their inclusion—they are stakeholders of relevance.

As to whether to inform, consult, partner with, or give control to stakeholders, this appears to have been mainly a top-down process, but not one to which any conscious thought was given. Likewise—looking to the final element of the stakeholder framework—any clear process of giving concessions and bargains to key stakeholder groups, such as the kiosk owner or the local communities and their (potential) users, does not seem to have occurred.

Having gone through its steps, we can therefore summarize the extent to which a stakeholder framework was applied in the case of Gyandoot, as shown in Figure 3. This therefore represents one way in which we can use the stakeholder framework for research on telecenter (and other ICT4D) projects: applying it in a normative manner as a template against which actual practice on the project can be compared.

Alternatively, researchers can apply the framework themselves, either on the basis of primary research on a project or, as in this case, on the basis of secondary literature. Review of that secondary literature certainly expands the range of identified stakeholders beyond the initial notion of "villagers and the community, government officials and Gyandoot team" (Jafri et al. 2002, 3). Table 4 shows how a second and third round of stakeholder identification conducted through secondary literature finds more groups of stakeholders, and even separate groups within these initial large groups.

Likewise, although limited because of the restrictions imposed by reliance on secondary data, one can investigate issues of stakeholder behavior and interaction. The local government, for example, was seen as a leader in promoting local self-governance, and Gyandoot was a flagship program for them, perhaps a means of reaching out to a potential vote

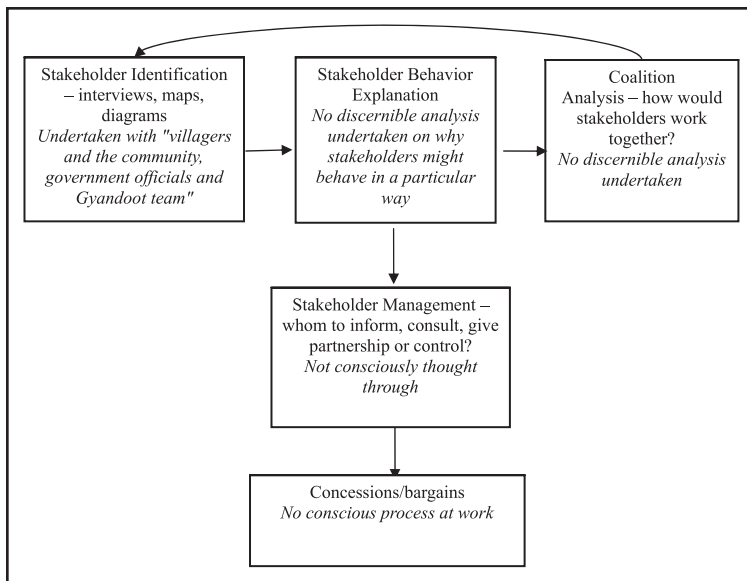


Figure 3. Applying the stakeholder framework to Gyandoot.

explain why a pilot program was launched after only two months of preparation. In terms of senior staff in the local government, although the initial group may have been largely enthusiastic, they were transferred after two years (as is common in Indian government service), and it is not clear whether the replacements were given as much training or were as committed to the project as the original group had been (Sanjay and Gupta 2003). All these issues of stakeholder behavior could explain why the project was initially dynamic but later lost momentum. The behavioral repercussions of the two different partnerships with kiosk owners can also be explored. It could well be that private kiosk owners are more

bank (Sanjay and Gupta 2003). From this one could derive a political perspective on likely behavior. In addition, the district collector's driving force behind Gyandoot could have arisen because of competition with Maharashtra's Warana Wired Villages program, which at the time was heavily praised—this could

proactive than those who rely on the government and therefore initiate a virtuous circle of telecenter usage. Finally, an understanding of typical utility company behavior in India—having now included them as part of stakeholder identification—could help either predict (for pre hoc research) or explain

Table 4. Iterative Stakeholder Identification on the Gyandoot Project

First Round of Stakeholder Identification	Second Round of Stakeholder Identification	Third Round of Stakeholder Identification
Villagers and the community, government officials, and Gyandoot team	Villagers and the community	Villagers Public kiosk owners Private kiosk owners Village functionaries
	Government officials	District collector Initial senior government officials Replacement senior government officials Initial junior government officials Replacement junior government officials
	Gyandoot team	Project manager Support staff of four
	Others	National Informatics center—software supplier Electricity supplier Telephony supplier IIT Chennai—WiLL supplier Data content suppliers and updaters Banks Police

Table 5. Stakeholder Involvement at Different Project Lifecycle Stages

	Inform	Consult	Partnership	Control
Identification/ analysis	Telephone companies? Electricity companies?	Villagers, village functionaries? Other government departments? Banks?	Kiosk owners?	District collector Gyandoot project team
Planning	Villagers?			District collector Gyandoot project team
CBA and resource allocation				District collector Gyandoot project team
Implementation	Villagers?		Kiosk owners?	District collector Gyandoot project team
Monitoring and evaluation				Gyandoot project team Academic or NGO groups

(for post hoc research) the poor provision of electricity and telecommunications infrastructure for this project.

We can use the ideas of stakeholder management to analyze the project. From this, it appears that the strategy was for the Gyandoot project team to retain control, while other stakeholders were informed or—at best—consulted during just the early stages of the project but not offered partnerships (with the possible exception of the kiosk owners). Certainly there has been no question of sharing or giving control of the project to other stakeholders at any point. As can be seen from the secondary literature, there has been evaluation of the project, but that has been driven by either the project team or external academic/NGO groups. Exhortations that primary stakeholders must be involved in telecenter evaluation (Whyte 2000) have thus fallen on deaf ears in this case. We can summarize this situation using the matrix format offered above, as shown in Table 5.

Finally, as noted above, conscious planning of concessions appears absent. What concessions that did arise seem to have been geared more toward the government authorities rather than users of the services. For example, an online police complaints procedure was initially planned, but it was later dropped “ostensibly on the grounds that some complaints could not be justified and because of its potentially demoralizing influence” (Jafri et al. 2002, 22).

Reflection and Review of Stakeholder Theory

Limitations of Stakeholder Theory and Analysis

The Gyandoot analysis has shown that stakeholder theory and analysis are useful in the deconstruction of telecenter projects to understand, for example, why they might not have been as successful as initially anticipated. Stakeholder *theory* does emerge as more of a perspective than a theory—broadly speaking, it states that stakeholders exist and matter, whether they are viewed from a descriptive, normative, or instrumental perspective. Stakeholder *analysis*, on the other hand, is a much more practical tool to determine who is important to a project and what influence they might have on the success or failure of a project. As shown above, it can be used in two slightly different ways. First, it can be used as a best practice template, against which the practices adopted on a particular ICT4D project can be compared (and in this case found rather wanting). Alternatively, it can be used as a research tool—a set of elements to understand not just who stakeholders are on a project, but also to ask questions about the basis of their behavior and about the way in which they are managed.

That said, the stakeholder approach has limitations. Freeman (1984) himself recognized some of these. First, it needs honesty, transparency, and flexibility on the part of the stakeholders when con-

sulted. In telecenter terms, where one aim is often to eliminate intermediaries to provide direct access to information, this may mean that stakeholder analysis will find challenges in teasing out stakeholder interests. It is quite likely that interests remain hidden and only emerge as obstacles as the project progresses. The likelihood of there being such hidden interests in ICT4D projects seems relatively high for a number of reasons:

- Awareness about ICTs and their role and impact remains relatively low in many development situations. Thus, the ability of groups to recognize themselves as stakeholders and to understand and express their interests vis-à-vis ICTs may be limited.
- ICTs, particularly where they are “sold” as likely to deliver significant benefits—in other words, cause significant change—may naturally lead to disguised responses from those who fear or are uncertain about that change.
- The association of ICT4D projects with external drivers—be that donor agencies from outside the country, or government officials or technical specialists—can create misunderstanding or suspicion among project users, who will thus be influenced in the way they respond to questions.

Only openness, trust-building, explanations, and time can be used by researchers to overcome these problems. Yet that is often difficult to achieve on ICT4D projects, where researchers may have short timescales and themselves be external to the ICT4D project location.

Second, the Gyandoot case illustrates the difficulty in ascertaining who primary/secondary and important/influential stakeholders might be. In theory, it should have been the users who emerged as high up in these categorizations, but in practice it seems that the government officials, telephone and electricity companies, and the police department had more political leverage than the initial Gyandoot PRA acknowledged. How do we therefore know the difference between primary/secondary or important/influential? And don't stakeholders change all the time throughout a project, making it difficult to label them? Freeman (1984) illustrates this through what he calls the “snail darter fallacy.” In 1977, the snail darter—a small fish—was seen as an endangered species and delayed the building of a dam in

Tennessee. However, other habitats of the fish were found and in 1984 its endangered status was downlisted, meaning its importance as a “stakeholder” was also downlisted. The snail darter fallacy illustrates both the way that stakeholder variables change with time and the limits of stakeholder analysis—one can never identify all the issues that might arise with all possible stakeholders; hence one can never definitively classify all stakeholders.

To try to do this can easily lead to “paralysis by analysis” (Freeman 1984; Pouloudi and Whitley 1997) as the list of stakeholders grows longer. Although an iterative process of stakeholder identification is valuable, revealing more and more stakeholders, conflicting accounts are likely to arise, as the list grows longer, making managerial action difficult (Pouloudi and Whitley 1997). Consider the list of telecentre stakeholders as outlined by Whyte in Table 1—how could one possibly ascertain the primary and secondary stakeholders here, understand their behaviors, undertake a coalition analysis, or develop a management strategy? And how can one “generalize” from conducting stakeholder analysis in one context to another context, where the group of stakeholders would be entirely different? A stakeholder perspective does not provide any easy solutions to managing stakeholders and is more of a tool for problem analysis than for solution provision. In research terms, it is more readily a tool for post hoc analysis—the after-the-fact usage that allows one to see who has actually emerged as important or influential—than for pre hoc analysis.

Third, stakeholder analysis involves the use of categorization that is quite subjective. As illustrated by the Gyandoot case, it matters who conducts the analysis and makes the distinction between “important and/or influential” or “primary or secondary.” The external drive or funding for many ICT4D projects, like telecenters, also causes a difficulty in identifying primary and secondary stakeholders. According to the language of development literature (which differs rather from Clarkson's definitions given above), the prime movers of such projects—like the district collector and IT secretary in the Gyandoot case—should be seen as secondary stakeholders. Thus, for example, the ODA's (1995) technical note on stakeholders identifies itself—the donor agency—as a secondary stakeholder. For a typical development project, local government officials and suppliers and operators would also be seen as sec-

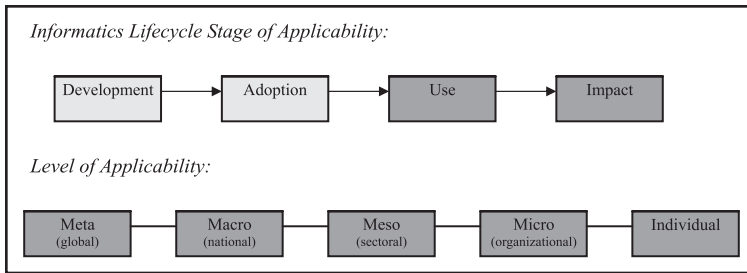


Figure 4. Applying a stakeholder perspective in development informatics research.

ondary stakeholders. The primary stakeholders are the main project beneficiaries—typically a group of disadvantaged citizenry. Yet this clashes with both the planning tools of development projects, which focus on the donor agency’s objectives as the prime influence on the project, and with the management information and communication systems of development projects, which involve interactions between supposed secondary stakeholders—the donor agency and government officials—but exclude the supposed primary stakeholders. This is hardly a good way to reflect the importance of these stakeholders.

These problems arise because it is largely the prime movers of an ICT4D project who determine who the stakeholders are. One way to overcome this subjectivity might be to get each stakeholder group themselves to identify where they lie within categorizations such as important/influential or primary/secondary. This would allow a multisource triangulation of data on stakeholder analysis, though it would still be subject to the initial concerns about openness and honesty in interactions with stakeholders.

Further Research and Conclusions

A stakeholder approach offers the benefit of understanding who is key in a project, and if and how they can be managed. As Pouloudi and Whitley comment, “The advantage of stakeholder analysis is that it highlights conflicts and does not let decision-makers make naïve assumptions” (1997, 12). On the other hand, a stakeholder perspective is beset by several problems, including that it is difficult to know how to identify stakeholders, whether they are primary or secondary, what their interests might be, how they might work together, and if and how

they can managed. Once all this is ascertained at the beginning of a project, stakeholder positions may well change during the project lifecycle.

Nonetheless, some form of stakeholder analysis is an element of almost all ICT4D research—including research on key issues of sustainability, impact and best practice—and better for it to be grounded in an understanding of stakeholder theory and analysis

than undertaken in an ad hoc manner. If one is to analyze the applicability of a stakeholder perspective to the informatics lifecycle (as seen in Figure 4), it is potentially useful at all stages, from research on the initial development of technologies through to research on the development impacts of technologies. But—in line with the pre hoc/post hoc comment above—it perhaps adds most value as an analytical tool for researching use and impact of an ICT4D project, because it is only at these stages that most of the stakeholders and the rationale for their behavior properly emerge.

In addition, if one looks at unit of analysis, as also shown in Figure 4, a stakeholder approach can be used at any level of research, from research on the individual (understanding, for example, the stakeholders influencing one individual involved in an ICT4D project) to research at the meta level (studying, for example, the global stakeholders influencing the use of ICTs in development, their motivations and rationale for behavior, and their coalitions). Indeed, it would also be a valuable tool to analyze the relationship of stakeholders *between* these levels (studying, for example, the identity of global actors who affect a particular organizational ICT4D project).

Regarding further research in applying a stakeholder perspective to ICT4D projects, it would be interesting to analyze multinationals such as Microsoft, HP, or Cisco or even local software producers in developing countries to see whether the instrumental perspective of stakeholder theory is in fact valid—several such companies are investing in corporate philanthropy or corporate social responsibility in developing countries, but how does this relate to the success of the company? This could build on

Porter and Kramer's (2002) strong argument linking philanthropy and competitive advantage.

Development informatics research generally could learn a great deal from the concept of the stakeholder in both the management and the international development literature, which has explored this idea in more detail than the "buzzword" that is currently being used in the ICT4D field. This paper finds that involving stakeholders is a much more complex activity than represented by many of the telecenter analysts cited earlier. A preliminary framework for identification and management of stakeholders has been provided and discussed. However, ultimately what is still unclear is whether development informatics projects continue to be unsustainable because implementers wrongly identify primary and secondary stakeholders (either deliberately or mistakenly), or because it is simply an impossible task to identify stakeholders and to manage them on a long-term basis. Here, again, is a question worthy of further research.

In summary, then, almost every aspect of ICT4D research—whatever the level of analysis, whatever the application domain, whatever the focal issue— involves people and those people can be understood as stakeholders. Regardless of whether we accept that ideas about stakeholders deserve the title "theory," we can certainly identify a set of stakeholder analysis tools. These are traditionally associated with the practical action of ICT4D project implementation. In this paper, though, we have also seen that they are tools any researcher can use—either directly for their own purposes or as a comparator template of best practice. In either case, application to ICT4D raises some important challenges, but these do not undermine the research value of a stakeholder perspective. ■

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USING STAKEHOLDER THEORY TO ANALYZE TELECENTER PROJECTS

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