

Research Article

E-Governance Services Through Telecenters: The Role of Human Intermediary and Issues of Trust

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Abstract

Telecenter studies have shown that the centers become socially relevant only when they provide services in accordance with the needs of the local community. Earlier studies have highlighted the importance of a local intermediary in making telecenters successful. This article shows how trust between citizens and intermediaries at various levels affects the way e-governance services are delivered through telecenters. Drawing on the theoretical framework of the sociology of governance and taking an institutionalist perspective, this article highlights how the institutional membership of the intermediary is critical for effective e-governance service delivery. The article is based on an empirical study of the Akshaya telecenter project in Kerala.

Introduction

Many developing countries have prioritized the use of information and communication technology (ICT) in the light of the argument that ICT offers lower-income countries the chance to “leapfrog” stages of traditional development. In recent years, discussions have been going on at regional, national, and international levels about the need for the world’s poor inhabitants to have access to ICTs within their reach. Affirmed by the World Summit on Information Society held in Tunis in November 2005 (e.g., in the Tunis commitment document), one finds a clear statement of the need to overcome the digital divide and to use ICT for achieving the MDGs (WSIS 2005). Such a vision seems to popularly be articulated through telecenters, which have currently become a phenomenon in international development efforts.

Telecenters are proposed to operate as multipurpose community ICT access centers offering e-governance, e-commerce, and other ICT services (Francisco et al., 2001). The usually envisaged e-governance services include (a) providing information (e.g., about health, education, agriculture, etc.), (b) transactions between citizens and government, and (c) providing entitlements (including certificates, licenses, etc.). The possibility that nonstate actor-owned telecenters can offer a range of e-governance services in an integrated manner fascinates many governments today. The enthusiasm needs to be viewed in the context of the neoliberal reform programs being attempted in most of the developing countries and the growing international policy discussions that try to link governance and knowledge to development.

This article hence looks at the issue of e-governance services through telecenters from the broader perspective of governance. It uses the sociology of governance as a theoretical framework. Further, drawing on

Giddens's notion of "abstract systems," the article discusses the importance of trust between citizens and intermediaries in the realization of e-governance services. The findings are based primarily on a case study of the Akshaya telecenter project in the south Indian state of Kerala. Two other e-governance projects in the state were also studied for an insight on the issues involved.

The next section of the article highlights some of the important ideas in the literature on governance, e-governance, telecenters, intermediaries, and trust. Section III details the methodology and section IV the case study, and section V draws on the findings to discuss some of the key issues associated with trust and services. These are followed by a final conclusion session.

Governance, E-Governance, and Telecenters

Governance

Discussions on public governance in the past two centuries have centered primarily on the concepts of "nation-state" and "government." Public administration in modern states was bureaucratized with a view to provide multiple and varied governmental services. The bureaucratic form of organization is often seen both as the outcome of the wider social and cultural orientations of modernity as well as a major agent for institutionally embedding these orientations (Luhmann, 1982, 1995; Gellner, 1983, 1996; Sayer, 1991; Kallinikos, 2004).

However, the bureaucratic model of state in practice was seen by many as a system that was static and unable to adapt to the dynamic changes in the environment. The model was attacked for a range of reasons including inefficiency, lack of transparency and accountability, concentration and misuse of power, poor decision making, political interference, job dissatisfaction, organizational conflict, and the difficulty in measuring performance (Thompson, 1965; Rossel, 1971; Sorensen & Sorensen, 1974; Perry & Kraemer, 1983, Boisot & Child, 1988; Hood, 1991; Mitchell & Simmons, 1994; Gregory, 1999). One of the major arguments by opponents of the bureaucratic form is that governments are both horizontally (departmentalism) as well as vertically (multiple service delivery points) not integrated or "joined-up" (Bellamy, 1999).

The decades of the 1980s and 1990s witnessed

the decline of the Weberian bureaucratic model as the dominant model of government and the systematic introduction of a series of administrative reforms in Western governments. These reforms brought under the neoliberalist ideology of new public management (NPM) incorporated concepts such as efficiency, marketization, accountability and decentralization (Weiss & Barton, 1979; Flynn & Strehl, 1996; Hodge, 1996). Administrative reform programs under the same framework were later attempted in most developing countries.

The reforms gave increased opportunity for many nonstate actors to play a major role in the governance of a region. To the extent that the modern state "rules," it does so on the basis of an elaborate network of relations formed among the complex of institutions, bargaining systems, organizations, and apparatuses that make it up and between state and nonstate institutions (Rose & Miller, 1992; Pierre & Peters, 2000; Robinson et al., 2000; UNCHS-Habitat, 2001; Kjaer, 2004). The increasing participation of nonstate actors has been acknowledged by a new concept called the "governance network"—governance as a network of the public sector (state), private sector, and the civil society, undertaking the tasks of coordination, competition, and cooperation in a society (Pierre & Peters, 2000; Robinson et al. 2000; UNCHS-Habitat, 2001). The forces of globalization and ICT, especially Internet, are said to have facilitated the formation of coalitions and networks from the bottom up, thereby linking the global and local processes and effectively blurring the traditional assignment of roles of the actors in the network (UNCHS-Habitat, 2001). Researchers have used the term "hollow state" to denote that government increasingly takes place in the private and nonprofit sectors (Milward & Provan, 1993; Milward, 1996; Fountain, 2001).

E-Governance

Governance reforms are currently attempted through the introduction of e-governance projects with the stated aim of improving the efficiency and effectiveness of public services. There is an underlying assumption here regarding the linearity between governance and development and the need for "good governance" (Heeks, 2001). Some writers have ascribed a particular logic according to which ICT is first used for e-administration (using ICT to improve administrative efficiency along the lines of

neoliberal NPM ideology) and e-services (using ICT to improve the delivery of routine services to citizens) and finally for e-democracy/e-society (using ICT to promote socioeconomic activity) (Ranerup, 1999; Heeks, 2001). In this article, e-governance services implies both e-services as well as e-society components of e-governance and will specifically include the provision of entitlements, sectoral information, and the provisions for payment.

E-governance, initially in developed countries and later on in many developing countries, was attempted through the introduction of models and practices from business management (Heeks, 1999; Fountain, 2001). Apart from the general discussions on efficiency, effectiveness, and productivity, one important and often highlighted potential of ICT pertains to that of integration, the lack of which in the bureaucratic model had fundamentally fueled administrative reforms. The idea was that the new technology will enable governments to break down departmental silos, streamline bureaucracy, and integrate services—"It will create public services that work better and cost less" (Gore, 1993). The assumption that ICTs could be harnessed to these ends derives from an approach to ICT-led business strategy put forward in the closely related literatures on value adding supply chains and business process reengineering (Bellamy, 1999).

One important outcome of the marriage of IS implementation in government, principles of NPM, and the large expectations about ICT, especially the aspect of integration is that there is an growing emphasis on integrated e-governance service delivery over an ICT front-end (Heeks, 2001; Madon & Gopakumar, 2002). The emphasis on integrated service delivery has led many governments to create integrated citizen service portals (e.g., Singapore government,¹ UK government,² US government,³

etc.). Unlike the traditional interactions that took place in a government office, it became possible to locate service centers closer to citizens/business using ICT and by partnering with nonstate actors. The service centers could consist of an unattended kiosk in a government agency, a service kiosk located close to the citizen, or the use of a personal computer in the home or office (World Bank website⁴). In the context of most developing countries, governments do not provide such centers in large numbers and there also exists a disparity in the diffusion and use of ICT. By providing access to Internet and a range of services including government services, telecenters are supposed to bridge this digital divide and play a role in the governance and development of the region.

It is no surprise that telecenters have suddenly become a phenomenon in international development efforts and occupy center stage in much of the current ICT4D policy and academic discourses. In the context of developing countries, telecenters offer a kind of obligatory passage point for the aspiration of reform programs and the latest trends in international development agenda since they subsume concepts like extended service delivery, integration of services, nonstate ownership, bridging the digital divide, achievement of millennium development goals, and creation of an information society.

Telecenters

Multipurpose community telecenters⁵ (MCTs) have received a lot of attention from many international development agencies⁶ and other players in the development community, as potential vehicles for a wide variety of social and development services,⁷ beyond purely expanding access to ICTs (Navas-Sabater et al., 2002). The global enthusiasm for telecenters

1. Please see <http://www.ecitizen.gov.sg>

2. Please see <http://www.direct.gov.uk>

3. Please see <http://www.fedworld.gov>

4. Please see <http://www1.worldbank.org/publicsector/egov/definition.htm>

5. Best & Maclay (2002) differentiate between *telekiosks*—which typically have only a single computer and are staffed with a facilitator—and *telecenters*—which have one or more personal computers and some access to the international telecommunications network.

6. Vigorous actors in championing and supporting these enterprises include United Nations agencies such as WHO, ITU, FAO, and UNESCO; bilateral donors such as USAID and IDRC; and national governments from Hungary and Malaysia to South Africa (Roman & Colle, 2003).

7. Services expected through MCTs include education and health services, financial and business development services, market information and access services (in particular aimed at enhancing the productivity and profitability of agricultural activities and small businesses), et cetera.

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is best captured in the European parliament's document on developing countries and the ICT revolution (STOA, 2001).

The document says,

Telecentres are today considered one of the most successful means to promote ICT diffusion in the developing countries. They increase the access of people to ICT, particularly the poor and people living in remote rural areas. The telecentres help local communities improve their business performance: they allow the local enterprises (agricultural co-operatives, handicraft industries, artisans, shops, garages and tourist facilities) to gain access to accurate market and pricing information. Through the Internet and other information transmission systems they can become aware of new market opportunities and also benefit from the training and access to the knowledge network provided by the telecentres. Farmers can also access current meteorological reports, information about the spread of animal and plant diseases, pests and their control. In the low-income areas the shared cost solution of a telecentre is probably the only viable option to provide diffused ICT access. Moreover, telecentres are maybe the best resource to involve the local private sector and induce people to invest in ICT development.

In spite of the great enthusiasm, the initiation, diffusion, and adoption of the telecenter idea have mostly been an enormously eclectic process, largely devoid of systematic research and planning (Roman & Colle 2002). Telecenter studies from across the world have shown that for telecenters to have a real impact on development, facilities and services must be done as an integral part of a cross-sectoral, multidisciplinary effort of community development (Ernberg, 1998; Baron, 1999; Benjamin & Dahms, 1999; Kyabwe & Kibombo, 1999; Robinson, 2000; Pigato 2001; IDRC 2003; MSSRF, 2003).

According to a United Nations Development Program document (UNDP, 2001), numerous telecenter studies report nonuse of services by the targeted local population due to the lack of understandable

and relevant content. The identification and generation of relevant local content is reported to be of great importance for sustaining community interest in the telecenter initiative (Harris, 1999; Hudson, 1999). Roman and Colle (2003) point out that the importance of content provision for telecenters must go beyond international initiatives such as the World Bank Development Gateway and emphasize the importance of grassroots research, such as community needs assessments, for the generation of contextually appropriate content. The basic assumption in most of the studies and reports are that once useful content in the local language is available in the telecenters, the centers can act as a knowledge hub for the local population, who can either directly or if required, through the telecenter intermediary appropriate that knowledge for their living.

Intermediary

Though there were initial discussions in ICT4D literature that modern ICTs like the Internet will bring disintermediation between the client and the source of information, the opposite seems to be actually happening (Alempay et al., 2003). The disintermediation argument could be traced to the way access is undertaken in the West.⁸ As pointed out by Heeks (2001), the dominant Western models for government-citizen interaction are disintermediated models of direct digital connections to the individual citizen. This would generally involve the replacement of human intermediaries by ICT intermediaries that are either personally owned or institutionally owned. However, in the context of developing countries, there is a need for human intermediaries to bridge both the overt and the social resource endowment gaps between what the poor have and what they would need in order to use ICT⁹ (Heeks, 1999; Cecchini, 2001, 2002; Cecchini & Raina, 2002; Harris, 2001; Batchelor et al., 2003). The profile of the intermediaries (intelligent intermediaries) who add human skills and knowledge to the presence of ICT is thus critical for projects that want to reach the poor (Heeks, 1999).

8. It is important to note that there are writers who point out that intermediation is not a feature associated with the developing country contexts alone. Sturges (2001) argues that there is a fundamental human preference for information mediated by human interaction. He supports this argument with illustrations from information behavior in both the industrialized and the developing world.

9. For example, citing the case of India, Cecchini and Raina (2002) point out that although the availability of content in local languages and the use of graphic and voice interfaces can make ICT applications more accessible to poor people, illiteracy, low levels of education, gender, class, and caste inequalities are all powerful obstacles to the use of computers and other ICT tools.

The role of the human intermediary has been identified as extremely important by most studies on telecenters (Baron, 1999; Benjamin & Dahms, 1999; Kyabwe & Kibombo, 1999; Roman & Colle, 2002; IDRC, 2003; MSSRF, 2003). The intermediary is usually the telecenter operator, who, depending on the ownership structure of the telecenter, is either the entrepreneur who owns the center or the staff employed by NGOs or community-based organizations. There is substantial indication in studies that the intermediary has to be local, should have good entrepreneur abilities and ICT skills and understand the potential of ICT for social change. Studies have pointed out that the *ideal* intermediary is an individual drawn from the community that the telecenter serves, who is capable of using computer and Internet technologies in order to respond to requests from members of the community for information or for help in solving some problems that might yield to an internet enquiry (Heeks, 1999; Cecchini, 2001, 2002; Harris, 2001; Cecchini & Raina, 2002). The literature suggests that if the intermediary is local then the person will be trusted (Heeks, 1999).

However, there arise a number of questions in this context. Will the community trust the intermediary for providing multiple services including those hitherto provided by other sources and institutions in the community? A basic notion in the literature on trust is that A trusts B for X. If a community trusts the local intermediary for providing a particular service or set of services, it does not necessarily mean that the community will trust him or her for many other things as well. While discounting the importance of having a local intermediary, it is critical that the literature on telecenters goes further by exploring the construct of trust and understanding how it is implicated in the way e-government services are sought by communities at the local level.

Trust

Putnam (2000) makes a distinction between thick and thin trust. Thick trust is embedded in highly personal relations that usually form the densest part of an extended network of family and friendship ties. By contrast, thin trust or social trust, based on everyday contacts and professional and acquaintance networks, involves a much greater number of ties that form less dense relations. Zucker (1986)

classified trust into characteristic-based trust, process-based trust, and institution-based trust. According to him, characteristic-based trust is tied to a person, depending on characteristics such as background or ethnicity and it rests on similarity in culture, values and behavior. Process-based trust, by contrast, is tied to past or present exchanges as in reputation or gift exchanges and involves an incremental process of building trust and presupposes a degree of stability and reliability in mutual expectations. Institution-based trust is based on institutions such as certifications, form characteristics, or legal constraints.

Writers such as Beck (1992) and Giddens (1990) suggest that the reflexive "thinner" trust in modern societies is different from the "thicker" trust in earlier times. Lane (1998, 11–12) and Zucker (1986) also point out that modern societies generate more institutional trust than characteristic-based trust created through family and friends. Process based trust, too, is more difficult to generate as expectations are more varied and levels of heterogeneity in societies have increased significantly. The notion of trust as described by Giddens seems to be extremely relevant in the context of telecenters.

Before discussing Giddens's notion of trust, it is important to note that, the understanding of trust by considering the intermediary alone, by no means completes a full discussion of how trust plays a role in ICT mediated interaction. IS literature, drawing on the experience in e-commerce and other ICT applications, has already elaborated on the aspects of trust in ICT-mediated communication and transactions. It suggests that trust depends on a number of factors including perceptions regarding technology¹⁰ (Johnson, 1997; Chopra & Wallace, 2003; Shinnie & Mullen, 2002; Carter & Belanger, 2005; Salam et al., 2005), trust regarding the information/service provided (Shinnie & Mullen, 2002), trust on the sources—e.g., vendors, electronic communities, government (Shinnie & Mullen, 2002; Chopra & Wallace, 2003; Carter & Belanger, 2005) and institutional mechanisms that safeguard integrity of transactions (McKnight et al., 2002; Warkentin et al., 2002; Pavlou & Gefen, 2004). What can hence be drawn from available literature is that there are multiple layers of trust between the actual user and the

10. For example, Pigato (2001) and Kenny (2002) point out that there is a general low level of trust in the use of modern ICTs as a tool for information exchange compared to the earlier technologies like radio and television.

information/service and that for every service there could be a different set of multiple trust implications (depending on the type of service). Viewed this way, the presence of the intermediary seems to be only adding another layer to the trust mechanism.

Giddens (1990, 6) suggests three dominant sources of social change and transformation associated with modernity:¹¹ the separation of time and space, which is the condition of time-space distancing; the disembedding¹² of social systems; and the reflexive appropriation of knowledge (1990, 16–17, 53). Giddens (1990, 22, 27, 80) distinguishes two types of disembedding mechanisms intrinsically involved in the development of modern social institutions—symbolic tokens and expert systems, which, taken together are termed abstract systems. Symbolic tokens (e.g., money) refers to the media of interchange that can be “passed around” without regard to the specific characteristics of individuals or groups that handle them at any particular juncture. Expert systems refer to systems of technical accomplishment or professional expertise that organize large areas of the material and social environments in which we live today. Giddens (1990, 26) points out that all disembedding mechanisms (abstract systems) depend upon trust and that trust is therefore involved in a fundamental way with the institutions of modernity.

Expert systems are disembedding mechanisms because trust in the authenticity of expert knowledge removes social relations from the immediacies of context. Giddens (1990, 80) makes a distinction between facework commitments and faceless commitments. Whereas the former refers to trust relations that are sustained by or expressed in social connections established in circumstances of copresence, the latter concerns the development of faith in abstract systems. Disembedded mechanisms interact with reembedded contexts of action, which may act either to support or to undermine them. Reembedding means “the reappropriation or recasting of disembedded social relations so as to pin them down to local conditions of time and space” (Giddens, 1990, 80). For example, trust in abstract

system needs to be complemented by continual face-to-face interaction in local contexts (Giddens, 1990, 87). The access points of abstract systems are the meeting ground of facework and faceless commitments.

Although everyone is aware that the real repository of trust is the abstract system, rather than the individuals who in specific contexts “represent” it, access points carry a reminder that it is flesh-and-blood people who are its operators (Giddens, 1990, 85). Facework commitments tend to heavily depend upon what might be called the demeanor of system representatives or operators.¹³ It is important to note that the reliance placed by lay actors upon expert systems is a matter of the calculation of benefit and risk in circumstances where expert knowledge does not just provide that calculus but actually creates (or reproduces) the universe of events, as a result of the continual reflexive implementation of that very knowledge (Giddens, 1990, 84). It follows that no one can completely opt out of the abstract systems involved in modern institutions and that the encounters at the access points with representatives or operators are extremely important in modern societies.

If a community believes in the doctor (as a facework representative at the access point of medicine as an abstract system) for treatment as well as for getting medical information, will they now turn to the local telecenter and seek medical information from the intermediary in the telecenter? One could question whether the local doctor is trusted because the doctor is local or because people believe in the institution of medicine. If the former is the case then one wouldn't expect people to go to another doctor even if the local one is not reliable. Do people trust in persons or institutions, or both? What are the conditions under which they do it? Are all these conditions satisfied in the case of a telecenter operated by a local intermediary to expect that the community will trust and use the range of diverse services from the telecenter?

One would at this stage like to see how the characteristic-based trust/process-based trust could be

11. *Modernity, according to Giddens (1990: 1), refers to modes of social life or organization that emerged in Europe from about the seventeenth century onward and subsequently became more or less worldwide in their influence.*

12. *The “lifting out” of social relations from local contexts of interaction and their restructuring across indefinite spans of time-space (1990, 21).*

13. *Giddens highlights the grave deliberations of the judge, solemn professionalism of the doctor and the stereotyped cheerfulness of the air cabin crew as examples.*

facilitated by intermediaries through encounters and transactions with citizens for some of the specific activities/services and how institution-based trust connects the local to the global. As pointed out by Giddens, citizens rely on individuals at access points to bridge the gap between their limited cognitive capacity to judge the economic, ecological, and political risks and contingencies that bear on their lives, and the abstract systems of knowledge and power that deal with them in modern society. It is hence interesting to analyze how the intermediary is trusted in cases where the service is expected by individuals based on existing institutional trusts.

Methodology

A case study of a large telecenter project was undertaken to understand how trust is implicated in e-governance service delivery over telecenters. The earlier telecenter studies had identified a set of factors that are prerequisites for e-governance service delivery to happen. These include the skill level of the user community, easy physical access to ICT and relevant content in the local language. Most of the telecenter projects studied to date do not seem to have all these factors simultaneously fulfilled. The Akshaya telecenter project is a unique case where all these aspects seem to have been addressed to some extent. The project was implemented in the south Indian state of Kerala, which is treated in the international development literature as a unique case in

terms of its development achievements. The study adopted an explanatory single-case embedded design (Yin 2003), considering the overall uniqueness of the case. Multiple data collection methods were employed for the study (Benbasat et al. 1987; Yin 2003). The data sources included documents, archival records, interviews, direct observations, and participant-observations.

Interviews were the most important source of information for the study. Guided conversations taking the form of semistructured interviews were conducted. The researcher has had direct association with the project and this helped in terms of gaining access to the project team and compiling a list of people to be interviewed. Interviews were held with political leaders and bureaucrats at the state and district levels, entrepreneurs, people under the “footprint” of telecenters, elected representatives of local bodies, officers of the Kerala State IT Mission (KSITM), which is the agency under the state Information Technology Department, government officers attached to utility departments and e-governance services delivery projects, and users of the other selected e-governance projects. Table 1 gives the details of the number of interviews conducted in the field.

The interviews ranged in its conduct from adhering to relatively formal semi-structured interviews to ad-hoc ones. While most of the formal interviews took an average of about 75 minutes, the less formal/ad-hoc interviews were done over a few minutes, mostly between other activities. Interviews with the district collector; secretary (IT); vice president, district panchayath; district coordinator, and 12 entrepreneurs were held more than once, basically with a view to corroborate the evidence collected. The data collection was guided by Yin’s idea of “levels of questions” (Yin, 2003, 74–75). Hence, occasionally, statements were made to trigger a conversation and let the interviewee speak for themselves, but with the idea that the verbal line of inquiry is different from the mental line of inquiry. All the interviews were made face to face, though fol-

Table 1. Interview List

No.	Category of people interviewed	Number
1.	Political leaders at state level	4
2.	Political leaders at district level	3
3.	Bureaucrats at the state level	7
4.	Bureaucrats at the district level	2
5.	Akshaya Entrepreneurs	83
6.	People under the “foot print” of telecenters	64
7.	Elected representatives of local bodies	26
8.	Officers of KSITM	
	• Trivandrum office	10
	• Project office	5
9.	Users of Kissan & FRIENDS	30
10.	Government officers attached to e-governance services delivery projects.	15
Total		249

low-up interviews were made using telephone and e-mail. Case notes were taken at the time or written immediately afterward. A total of 208 telecenters were visited during the course of the study.

Case Study

As mentioned above, Akshaya is a unique telecenter project implemented in Malappuram district of Kerala. Launched in November 2002, this project was conceived with the idea of bridging the digital divide by simultaneously addressing issues of ICT access, skill, and content. The project is a key component of the e-governance roadmap of the state. In the initial phase, one person from every family in the district was targeted to receive functional ICT skills; 630 centers (kiosks) owned and run by entrepreneurs were started in the district as part of the project. Digital content pertaining to health care, agriculture, education, and legal issues was created in the local language for the project. The project has one of the largest wireless IP-based external networks in the world. Originating from a proposal of the district panchayath (district level local body) of Malappuram for 100% districtwide e-literacy training, the project was converted into a telecenter project by the KSITM. The project implementation was led by KSITM, with support from state as well as local governments. They were supported by the local and national-level private sector firms and local civil society organizations. The centers (415 surviving toward the end of 2005, when the study was completed) primarily offer training, payment facilities, Internet browsing, e-mailing, and some other IT services.

Kerala

Kerala is one of the 29 states in the Republic of India. It has an area of 15,005 square miles (38,860 km²), which is about 1% of the total land area of India. It has a population of 31.84 million people with a population density of 2,121 persons/square mile (Census of India, 2001). The state stretches for

about 360 miles along the Malabar coast on the western side of the Indian peninsula. It is bordered by the states of Karnataka in the north, Tamilnadu to the east, and the Arabian Sea to the west. The state has 14 districts, and the capital is Thiruvananthapuram (Trivandrum). Kerala has advanced social¹⁴ and digital¹⁵ infrastructure. The state has prudent political culture and consists of two equally popular political fronts—the leftists and the centralists. The net state domestic product in 2001–2002 was about US \$ 8,018 million. The economy is dominated by the tertiary services sector which contributes 54.51% of the state domestic product. The primary sector contributes 26.01% and secondary sector 19.48%. Migration to all parts of the world has affected every facet of life in Kerala: economic, social, demographic, political, and even religious. Nearly 1.5 million Keralites live outside India and they send home more than US \$785 million a year by way of remittances (Zachariah et al., 1999).

The initial wave of enthusiasm on Kerala development studies, as is now widely known, had its origin in the mid 1970s, when some important studies highlighting certain key development achievements of Kerala, especially in health and education were published (CDS, 1975). What engaged the scholars and students of development was the paradox that a Third World region such as Kerala could achieve high physical quality of life for its people, in spite of sharing almost all signs of underdevelopment, especially in its commodity producing sectors, with other such regions. Kerala came to be hailed as an inexpensive model of development (the Kerala model), a model for ensuring reasonably high quality of life for people in poor regions without having to wait for reaching higher stages of economic growth and development.

Certain signs of vulnerability were, however, visible even as the initial statements on Kerala model were being made (George, 1993; Joseph & Harilal, 2000). The critics of Kerala's experience and "Kerala model" of development have highlighted that the

14. Indicators of PQLI, like infant mortality (13%), female literacy (87.86%), and life expectancy at birth for males (70.2) and females (76.6), are well above all India levels. HDI for Kerala was 0.638 in 2001 as against the National level of 0.472 (Census of India, 2001; Economic Review, 2003).

15. All the telephone exchanges in the state are digital and 98% of them are connected by fiber optic cables to the National Internet Backbone. The state also has the highest telephone density in the country of 7 per 100, which is India's target for 2005. It also has the highest rural telephone density in the country with 5.1 per 100, which is India's target for 2010. Moreover, submarine cables like the SEA-ME-WE-3 and SAFE have their landings at Kochi and are capable of providing connectivity at 15 gigabytes per second (Economic Review, 2004).

Table 2. Malappuram in Comparison [73]

Characteristic	India	Kerala	Malappuram
Area (km ²)	30,65,027	38,863	3,550
2001 Population (million)	102.70	31.83	3.63
Density of population (per km ²)	324	819	1,022
Sex ratio	933	1,058	1,063
Literacy rate	65.38	90.92	87.94
Male literacy	75.99	94.20	90.04
Female literacy	54.02	87.86	85.96

poor growth performance of commodity-producing sectors like agriculture and industry have resulted in the slow down in the rate of growth in employment and income generation within the state. All these have tended to threaten the sustenance of the achievements already made in health, education, and other human development spheres.

The state has been making many attempts to move out of this scenario in the past. Of late, it has been attempting changes through administrative reforms and through the introduction of neoliberal policy measures. The democratic decentralization and the ongoing efforts to “modernize” the government¹⁶ in line with the philosophy of NPM, with financial support from the Asian Development Bank requires special mention. Meanwhile, toward the end of the 1990s there was an increasing expectation on the prospect of ICT as an enabler of the region’s economic development and as a growth engine to provide solutions to some of its most important problems, like high unemployment and low income generation. Considering the weaknesses of the state that limited it from emerging as a industrial destination in the “old economy,” it seemed inevitable that such a new vision and strategy, which could fully utilize Kerala’s comparative advantage in human resources and place greater emphasis on developing knowledge-based and service industries, would be devised (Subramanian & Azeez, 2000). This, the state believed, could be achieved through planned interventions for the rapid development and diffusion of ICT (IT Policy, 1998). The enthusiasm for ICT was widespread, and this affected the way planning was being undertaken by decentral-

ized democratic local bodies in the state. One such local body at the district level, the Malappuram district panchayath, conceived a project in April–May 2002 for providing ICT literacy to at least one person in every family in that district. They approached the state government for technical support to implement their plan. The beginnings of Akshaya can be traced back to this decision taken by the district panchayath.

Malappuram

Malappuram is one of the rare districts in the country where the majority (60%) of people are Muslims. The district lags behind Kerala’s other districts in terms of social development (see Table 2), although in recent years there have been improvements in health and education achievements. This is reflected in indicators such as the increase in pass percentage for the secondary school leaving examination (from about 30% in the mid 1990s to more than 58% in 2004), and achievements in competitive entrance examinations (*Economic Review*, 2004). The district recorded one of the greatest declines in population growth in India. The decadal rate in the district declined from 28.87% in 1981–1991 to 11.65% in 1991–2001 (Census of India, 2001). One aspect of Malappuram that needs to be considered here is the outward migration of mostly unskilled labor from the district. The Middle East has remained the preferred destination for emigrants from the state in general and Malappuram in particular. The district accounts for the largest number of emigrants (more than one-fifth of the nearly 1.5 million Keralites) and receives about 17% of the total external remittances to the state (Zachariah et al., 1999).

16. *Modernizing Government Programme (MGP)*—www.keralamgp.org

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Decreasing employment opportunities in the Middle East, deteriorating domestic commodity production, and increasing unemployment over a period of time has led to serious socio-economic issues within the district. On the other hand, the past two decades also simultaneously witnessed Jamaya-e-Islami- and Mujahideen-led movements, emphasizing reforms within the community and promoting education and women's empowerment. Toward the end of the last century there was a growing belief among the people in the district that modern education was possibly the only "escape route" for their social backwardness. This has been reflected in the educational performance of the district, as mentioned earlier.

The district panchayath, while initiating action on the education front, felt that the district also needs to focus on knowledge based sectors like IT, a decision largely based on the growing enthusiasm about the sector in the state and the country. It is with this enthusiasm about ICT and their strong belief in education and identifying the need for imparting specialized skill for aiding employment in the gulf that they planned to undertake a program of total computer literacy in the district with their own funds. When KSITM was approached for technical assistance, they did not show keen interest in undertaking a one-time literacy program. They believed that a computer literacy program in itself may not have the desired impact, since the elements for sustaining the newly acquired skill sets were not integrated into the approach. KSITM constituted a committee of officers to reformulate the project. A survey of other models in ICT dissemination efforts was undertaken to identify key success factors and also explore the possibility of using the project as outreach posts of the ongoing e-governance program. After discussions within KSITM, state government, district panchayath, and other local bodies in the district, it was decided to have a telecenter project in the district.

The Project

As mentioned above, the project was based on earlier experiences within the state and that of similar projects elsewhere. It was felt that, apart from functional ICT literacy, cheaper accessibility options and availability of local content were essential for the

long-term sustainability of such a project. Moreover, the project team felt that demand (usage) and supply (content) markets functioned suboptimally and that the state had to intervene to create a critical mass of users and content so that markets can operate in the long run. This was attempted by creating a critical number of ICT access centers, a critical mass of users (through the literacy program), and a critical mass of locally relevant content. The project thus involved (a) setting up of multipurpose community technology centers/telecenters, one each for approximately 1,000 families; (b) making at least one person in every family functionally ICT literate; and (c) creating relevant local content (health, education, etc.).

The telecenter project conceived within KSITM was presented before the full council of the district panchayath at Malappuram in October 2002, when, for the first time, it was called Akshaya. The Panchayath members endorsed the plan and suggested a detailed location survey to identify the possible locations for the Akshaya centers. They decided that the centers should be run by entrepreneurs selected from the local community. It was also decided that the center would provide e-literacy for one person in each family and that local bodies would fund this effort. Accordingly, training charge of Indian Rupees (Rs.) 120¹⁷ per person was provided by the three tiers of local governments in the district; Rs.80 by the village panchayath, and Rs.20 each by the block and district panchayaths.

The centers focused only on e-literacy during the six months after their inauguration in May 2003. Officially, 560,000¹⁸ people were given e-literacy training. Using a CD with 15 hours of games and multimedia content, the e-literacy training focused on enabling individuals to use computers without fear or inhibition. Discussions at that time revealed great enthusiasm among the neoliterates, especially in the rural areas about the provision of e-governance services and communication facilities at the centers.

According to the original plan, all centers would have been provided high-speed Internet connectivity by January 2004. However, this was delayed by more than 11 months and most centers had to rely primarily on educational activities for their income.

17. 1 US \$ is about 45 Rs.

18. The district has about 640,000 families.

Some attempts to use the center for providing information, social activities as well as for providing e-governance services were undertaken.

The project was identified as part of the Modernization in Government Programme (MGP) and is planned to be rolled out across the state in phases by 2008. The project is viewed both as the key front-end e-governance infrastructure as well as data capture points for the government's management information system.

Trust & Services

In the case of the Akshaya project, a combination of factors seems to have built a particular level of trust between the entrepreneur/intermediary and the people in the village. The fact that the person belonged to the same village was definitely a key reason. Further, the e-literacy program that was initially conducted familiarized at least one member in the family with the entrepreneur and this relationship led to furthering the trust. The trust that people had in government as an institution and the fact that this project was spearheaded by the government were, however, the most important reasons.

It is important at this stage to classify the various kinds of e-governance services generally envisaged through telecenters so as to understand the implications of trust in these services. An e-governance service delivery framework, described below, is formulated for this purpose. This framework classifies all major direct government to citizen interactions that can be ICT enabled in the context of developing countries into (a) making payments, (b) getting entitlements (including certificates, licenses, etc.), and (c) getting and providing information and grievance redressal. While making payments is a highly repetitive interaction, getting entitlements is less repetitive. Seeking information has an uncertain degree of regularity. Entitlements are, however, more important for citizens in their life than making payments. The kind of information being sought would determine the importance assigned for getting that information. These three processes also differ over the need for undertaking backend computerization before attempting to provide front-end services.

One of the most active e-governance services being offered by the Akshaya telecenters is e-pay. The system enables Internet-based payment of govern-

ment-related payments. On the other hand, except for some repetitive information that a few of the intermediaries provide to citizens, there is a general lack of trust in the intermediary providing sectoral information like agricultural information, healthcare information, and so forth.

There are no specific entitlements-based services being provided over the ICT medium since the back end for the same has not been developed and deployed yet in the state. The intermediaries, however, are able to undertake some of the activities like getting birth certificate, income certificate, death certificate, etc., from the various government offices by physically doing the whole work. This helped the people in the village in terms of getting appropriate advice from the intermediary for filling out forms/ applications as well as getting the work done without repeatedly going to many offices. The intermediary was acting like an informed courier agent in this case. Citizens trusted the mechanism on account of the fact that all of the final documents were from the government. Detailed enquiries with citizens revealed that they wouldn't be comfortable receiving these documents as a print out directly from the telecenter since they do not trust such a system.

With a view to understanding the mechanism of trust as applicable for payments as well as information, a comparative study with two other e-governance projects in the state was undertaken. The FRIENDS (Fast Reliable Instant Effective Network for Disbursement of Services) project was taken to consider the payment aspect and the Kissan project for the information aspect. FRIENDS centers offer a one-stop, front-end, IT-enabled payment counter facility to citizens to make all kinds of government payments and are currently available in all 14 district headquarters of the state. Madon & Kiran (2002) found that 97.4% of users prefer FRIENDS to conventional department counters (CDC). Investigation during the current study revealed that citizens were able to even compare across CDCs and FRIENDS only because of their taken for granted understanding that both are state operated. What was being seen by citizens in this case was the institutional trust in government, making the government service officers an automatically accepted and trusted intermediary. Will citizens be forthcoming to make payments at privately owned centers that are authorized by government to collect money? While the

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personal trust between the people and the intermediary was critical, the fact that government had authorized Akshaya telecenters to collect government money made the center trustworthy. Moreover, collection of money from citizens by persons in villages for bulk submission to government counters is in itself an institutional arrangement in these regions. So, in spite of the fact that majority of the citizens are not aware¹⁹ of how the payment happens through the computer,²⁰ many were ready to transact.

The Karshaka Information Systems Services and Networking (KISSAN-Kerala) project has a multimode approach of providing information to farmers, agriculture workers and government officials. The project encompasses a Web services component, a data center, a weekly television program, a call center, and 10 agro-advisory services kiosks. The kiosks are situated in the field level office (called the Krishi Bhavans) of the state agriculture department and are headed by agricultural officers (AOs), who are qualified agricultural scientists. When farmers have specific queries, they have the option of directly visiting the website of the project and getting the questions answered from experts in the Kissan project office. However, what was observed was that most farmers approach the AOs and use their help for both querying as well as getting the answers. While the apparent problems were the lack of skill to use the computer as well as the difficulty to converse/transact in English, it had much more profound reasons. The AO as an intermediary was important both for the experts as well as the farmers. The AO is conversant with technoscientific language used by the experts and thereby acts as a "translator" between the farmer and the expert. Solutions to the simpler or known queries are directly addressed by the AO without querying on the website. If the query seems difficult to answer at his or her level, it is posted on the web after the AO includes the necessary context²¹ for the

query. Similarly when the answer from the expert is received, the reverse translation, as well as personalizing²² the information, is undertaken by the AO. The AO is able to do this on account of his or her technoscientific knowledge of agriculture and understanding of the region as well as of the farmer. The reason why the farmer approaches the AO could be seen as the information seeker approaching the access point of the abstract system of agricultural information. However, it may be noted that the personal trust as well as the trust in the knowledge of the officer were also very critical for this interaction between the farmer and the AO, as pointed out by Giddens (1990). However, this kind of trust does not exist between the people and the telecenter intermediary. While they trust him or her personally and hence might have no objections to handing him or her money for effecting payments, they do not see the intermediary as the person to approach for getting agriculture information since he or she is not seen as part of the established institution of agriculture extension and hence as someone with knowledge of agriculture practices. The same holds true in the case of health-related information.

One of the most interesting experiments undertaken by the district administration through Akshaya telecenters was 100% health mapping²³ of Cheekkode village in Malappuram. The initial idea was to collect and create a database of some of the basic individual health indicators such as blood pressure, blood sugar, height, and weight from all the adults in the village. Teams consisting of Akshaya entrepreneurs of the village and students from the local university were constituted for home visits. Standardized digital equipment for collecting the values was provided to each team. However, in the first few hours of this activity, the teams found it extremely difficult to collect the data because the people in the village insisted that a medical person should mandatorily be there in the team. While they

19. In most of the cases the money is collected from the citizens' home and they do not come over to the telecenter.

20. Some of the comments from the citizens included "I think he feeds the money into the screen," "I think he is putting the money into the printer," and "I think the money is scanned and sent."

21. Suppose the farmer wants to know about the solution to "yellowing of coconut leaves." The expert on the other hand can understand the problem only if this is corroborated with a set of information like what fertilizer was the farmer using, whether he was watering the plant, is this a problem with only one coconut tree? The AEO inquires about these, "value adds" or adds the necessary context for the query, and mails it to the experts.

22. Based on the information about the farmer, his practices and the area where the cropping is undertaken.

23. Though referred to as health mapping by the authorities, it was closer to a health screening activity.

“trusted” the entrepreneur and were hence ready to participate in the activity, it was difficult for them to see the entrepreneur or the team members as anyone belonging to the established institution of medical science. The activity could finally be undertaken only after nurses were included in the teams.

One of the activities that were identified as a revenue earning activity for the Akshaya telecenter was the setting up of a health kiosk. Standardized digital measuring equipment was installed in a few select centers as a pilot case. The idea was that people could frequent the telecenter for checking their blood pressure, blood sugar, and other basic health measures. However, it was soon found that people were not visiting the centers for this purpose.

Conclusion

Comparative study of the Akshaya telecenter project with the other e-governance projects in the state provide evidence on how the interactions between citizens and individuals providing specific e-governance service are guided by citizens’ trust in abstract systems. This trust in abstract system also comes with a strong “objectified” belief in the institutional characteristics including access point associated with the abstract systems. While a doctor is seen as the access point for the abstract systems of medicine, an AO is seen as the access point to the abstract system of scientific agriculture. It is therefore argued in this article that the institutional membership of the intermediary is critical for an engaging relationship between citizens and providers of such services.

It is clarified that the argument is not that the access point defined by the abstract system will be accepted universally without any change. On the contrary, like all cases of diversity (Avgerou, 2002), the access point to an abstract system in a region would be determined on account of the institutional interactions of the global disembedded institutions like the abstract systems with the local. The resultant institutional framework will decide the exact way the access point is defined in a particular area. The development history of the region under study and the influence of the “hidden curriculum”²⁴ (Giddens, 1990, 89) in the processes of formal education seems to have created substantial trust in institutions of modernity. In a region where the local

factors are different, a different set of access points might emerge. The essence of the argument is that telecenters will not be able to automatically replace the accepted access points to different abstract systems in a region or the institutionalized arrangements associated with any e-governance service.

It is seen from the study that though the personal trust between the people and the intermediary seems apparently important for making a payment system successful, a deeper investigation reveals that it is on account of the institutional trust in government that the payment system is able to function. In the case of providing sectoral information, the study clearly shows the link between trust in abstract systems and identified access points to these abstract systems as important for effective information exchange. In the case of entitlements as well, citizens would trust the telecenters/intermediaries only to the extent to which they are seen as an extension of government offices. The study shows the importance of institutional trust and questions the idea in literature that a local intermediary will lead to increased trust in the services of telecenters. While the availability of a local intermediary might be helpful for one set of services, it does not in itself ensure that the local intermediary will be trusted for providing another set of services. This also leads one to question whether “multipurpose telecenters” are really “multipurpose.” Although the technology in itself might have the potential for integrating services, the institutional factors like trust associated with the service determine whether the services are actually used or not.

Looking specifically at e-governance services, the study gives an indication that it may be more appropriate to use the technology within existing intermediary institutions like local hospitals or agriculture offices. As an alternate strategy, one could argue that the telecenters could be used by existing institutions of governance or intermediary institutions as much as the initial target of citizens. Doctors or agricultural officers could work from such telecenters on specified days in a week or month. Extending the argument by Bhatnagar (2004) and other telecenter studies (Ernberg, 1998; Baron, 1999; Benjamin & Dahms, 1999; Kyabwe & Kibombo, 1999; Robinson, 2000; Pigato, 2001; IDRC, 2003; MSSRF, 2003), it

24. Giddens points out that teaching of science not only conveys the content of specific technical findings but also creates an aura of respect for technical knowledge of all kinds.

seems inevitable from the point of view of sustenance and relevance that telecenters should have greater linkages with the local administration in order to identify applications (content) and provide them to support growth in key economic sectors such as health, education, and agriculture. The aforementioned requires administrative reforms in most cases and is a matter of policy choice. This, of course, raises the question of policy making in a governance network and issues of coordination, accountability, and so forth. While these are beyond the scope of this article, the theme highlights the complex relations that underlie the reforms agenda, development and telecenters. ■

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