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E-GOVERNANCE POLICY FOR MODERNIZING GOVERNMENT THROUGH DIGITAL DEMOCRACY IN INDIA

BY KIRAN PRASAD*

Access to ICTs alone does not make for successful national e-governance projects in developing countries, argues Dr. Prasad. India's National e-Governance Plan, key to its administrative reform agenda, proposes to extend the Internet to the remotest of villages. Making this relevant at the local level requires participatory efforts to promote democratic practices. The foundation of this initiative is a program of e-literacy, capacity building, and installation of ubiquitous broadband-enabled computer kiosks based on entrepreneurial public-private partnerships. The best example of this is the Akshaya Centres project in Kerala, a potential model for the rest of India and other developing nations.

INTRODUCTION

International communication policy debates emphasize that creating digital opportunities in the 21st century is not something that happens after addressing "core" development challenges, but rather a key component of addressing those challenges.[1] In this context, the role and importance of information and communication technologies (ICTs) attracted the attention of the Indian government and the deployment of ICTs began as early as the 1970s. In 1985, under the direction of Rajiv Gandhi's, the Indian government decided to increase the pace of ICT use in the 1990s. The National Informatics Centres Network (NICNET) connected district-level and rural-level government offices to government secretariats in the state capitals and was in turn connected to the national network in New Delhi. Enacted in 2000, the Information Technology (IT) Act provided legal recognition for digital signatures in transactions carried out by means of electronic data interchange and other means of electronic communication, commonly referred to as electronic commerce. These involve the use of alternatives to paper-based methods of communication and the storage of information in order to facilitate the electronic filing of documents with government agencies. This policy was amended in the IT Policy (Amendment) Act of 2008 in which digital signatures are referred to as "electronic signatures."

E-governance in India steadily evolved from computerization of government departments to fragmented initiatives aimed at speeding up e-Governance implementation across the various arms of the government at the national, state, and local levels. These fragmented initiatives were unified

* Professor and Head, Department of Communication and Journalism, Sri Padmavati Mahila University.

[1] G8, Digital Opportunity Task Force, "Digital Opportunities for All," working paper, June 2002, last accessed Apr. 26, 2012, http://www.g7.utoronto.ca/summit/2002kananaskis/dotforce_reportcard.pdf.

into a common vision and strategy provided by the National e-Governance Plan (NeGP) in 2006. The NeGP takes a holistic view of e-Governance initiatives across the country, integrating them into a collective vision and a shared cause. Around this idea, a massive countrywide infrastructure reaching down to the remotest of villages is evolving, and large-scale digitization of records is taking place to enable easy, reliable access over the Internet. E-governance is now seen as a key element of the country's governance and administrative reform agenda. The NeGP has the potential to enable huge savings in costs through the sharing of core and support infrastructure, enabling interoperability through standards, and of presenting a seamless view of government to citizens. The ultimate objective is to bring public services closer to citizens, as articulated in the NeGP Vision Statement.

This article studies the challenges faced by NeGP in terms of investment and access to ICT infrastructure, Internet access, and the need for capacity-building for citizens to participate in e-governance and e-democracy. Research on e-governance in India has mainly focused on the various ICT initiatives for development from an administrative perspective and the role of the government agencies in implementing them in order to bring benefits to citizens. Research has suggested that in developing countries, ICTs have largely been employed in efforts to streamline labor-intensive bureaucratic transactions rather than in participatory or consultative efforts to promote democratic practices.[2]

In addition, this article seeks to situate and highlight the Akshaya e-literacy project in the specific context of Kerala. The only initiative to make ordinary citizens e-literate in India is in the state of Kerala, the study of which can assist in determining how e-literacy can impact e-governance. The e-governance initiatives in Kerala have been commended by international agencies and have also won admirers from outside India. The World Bank delegation found the Kerala State IT Mission (KSITM) competent to perform the role of an international consultant, especially to developing countries in Asia and Africa. The KSITM had the added advantage of practical experience in rolling out e-projects and is a pioneer in the use of free and open software in e-governance.[3] A delegation from Zimbabwe visited Kerala in December 2010 to study how to revive its economy through the application of ICT solutions. A delegation from Bangladesh visited Kerala in May 2011 to learn from its experience in mobile governance applications and the citizen-centric delivery of e-governance services undertaken by the state through the KSITM.[4]

E-literacy is integral to capacity-building for citizens to participate in modernizing governance and an effective way to advance digital democracy. The findings of the study in Kerala as detailed in this article have implications for other states in India seeking to advance people's participation in e-governance. The findings of this study that apply to India as a whole – with its strategic geopolitical

[2] Victor Bekkers and Vincent Homburg, "The Myths of E-Government: Looking Beyond the Assumptions of a New and Better Government," *The Information Society* 23 (2007): 373-382.
[3] M.P. Praveen, "e-Governance Scheme Gets Global Acceptance," *The Hindu*, May 22, 2011, accessed Apr. 26, 2012, http://www.hindu.com/2011/05/22/stories/2011052258340400.htm.
[4] Bangladesh is in the process of setting up 4,500 net-enabled information centers similar to Kerala's Akshaya Common Service Centres (CSCs) and wants an integrated application of ICTs in the delivery of e-governance services. Such efforts in Bangladesh are presently scattered across multiple networks and servers.

position as the largest country in South Asia and the largest stable functioning democracy in the world – have broader relevance in the context of other developing countries in South Asia that have similar demographic, socio-economic, and cultural characteristics. It must also be recognized that the motivations and imperatives for adopting e-governance in India are vastly different from those in developed countries. The government of India has found that ICTs and e-governance can be utilized to effectively provide services to a population of over one billion people.

E-GOVERNANCE IN INDIA

In the 1990s India began to apply several communication technology initiatives such as e-governance, telecommunication, telemedicine, e-commerce, and community information centers while promoting access to the Internet to bring economic benefits to the people. The applications of ICTs for e-governance in rural development can be classified as those that 1) provide decision support to public administrators for improving planning and monitoring of developmental programs; 2) improve service to citizens and enable transparency; 3) empower citizens through access to information and knowledge; and 4) train developmental organizations to improve their functions and expand employment opportunities in rural areas.[5] India's experience in e-governance/ICT initiatives has demonstrated significant success in improving accessibility, cutting down costs, reducing corruption,[6] and increasing access to unserved groups.[7]

Most of the state governments in India have approved e-governance initiatives through the use of ICTs and are in the process of enabling their citizens to use the Internet too. E-governance is viewed as ICT-enabled governance.[8] According to Bagga et al., "e-governance is government-to-people and people-to-government connections whereby citizens obtain direct access to records, rules and information about entitlements that they need or want in their daily lives… It also runs into strong resistance since disintermediation methods eliminate middlemen and others whose livelihoods and incomes depend upon the relative inaccessibility of government documents."[9]

The NeGP is a comprehensive program of the Government of India and is designed to leverage capabilities and opportunities presented by ICT to promote good governance across the country. The vision of the NeGP is to "make all Government services accessible to the common man in his

[5] Subhash Bhatnagar, "Information Technology and Development: Foundation and Key Issues," in *Information and Communication Technology in Development: Cases from India*, ed. Subash Bhatnagar and Robert Schware (New Delhi: Sage, 2000), 9.
[6] Subhash Bhatnagar, "E-Government and Access to Information," in *Transparency International: Global Corruption Report 2003*, accessed Apr. 26, 2012, http://www.transparency.org/publications/gcr/gcr_2003#download, 24-32.
[7] S. R. Das and R. Chandrashekhar, "Capacity Building for E-Governance in India," white paper (2007), accessed Apr. 26, 2012, http://www.apdip.net/projects/e-government/capblg/casestudies/India-Chandrashekhar.pdf.
[8] N. Vittal, "Digital Democracy: Vision for the 21st Century-An Agenda for Action," *Media Asia* 28, no. 1 (2001): 3-8.
[9] R.K. Bagga, Kenneth Keniston, and Rohit Raj Mathur, *The State, IT and Development* (New Delhi: Sage, 2005), 31.

locality."[10] E-governance is seen as a vehicle to initiate and sustain reforms by focusing on three broad areas:

Governance: Transparency; people's participation; promotion of a democratic society.

Public services: Efficient, cost-effective and responsive governance; convenient services to citizens and businesses; greater citizen access to public information; accountability in delivery of services to citizens.

Management: Simplicity, efficiency and accountability; managing voluminous information and data effectively; information services; swift and secure communication.

The NeGP includes 26 Mission Mode Projects (MMPs) and 8 support components to be implemented at the central, state, and local government levels. The plan attempts to cover all the important areas relating to e-governance – policy, infrastructure, finances, project management, government process re-engineering, capacity building, training, assessment, and awareness (among others) across the central and state governments. According to Kalam, "e-governance should enable seamless access to information and a seamless flow of information across the state and central government in the federal set-up."[11] The MMPs are comprised of projects under the central government, the state departments, and those integrated across multiple ministries, departments, or agencies.

The NeGP entails planned interventions that can come from government initiatives, especially in underdeveloped areas where such interventions are important and inevitable. The government usually has the resources, the infrastructure, and the authority to implement programs aimed at reducing the digital divide. The biggest advantage of government intervention is its enormous reach and the wherewithal to carry out and sustain a program such as e-governance.[12] The Common Service Centres (CSCs) are regarded as the strategic cornerstones of the NeGP as part of its commitment to increasing access to e-governance applications on a massive scale. Though developing countries like India have made moderate progress in developing online services, the cost of establishing computer and Internet networks and telecommunications infrastructure to serve the huge population is considerable.

Common Services Centers (CSC)

CSCs, which are broadband-enabled computer facilities, offer a range of government-to-citizen and business-to-customer services, besides promoting basic access to the Internet. Information management systems are designed to ensure that relevant information is available anywhere,

[10] Government of India, Department of Administrative Reforms and Public Grievances, "National e-Governance Plan," accessed Apr. 26, 2012, http://arc.gov.in/11threp/ARC_11thReport_Ch7.pdf, 106.
[11] A.P.J. Abdul Kalam, "A Vision of Citizen-Centric E-Governance for India," *in The State, IT and Development*, ed. R. K. Bagga, Kenneth Keniston, and Rohit Raj Mathur (New Delhi: Sage, 2005), 3.
[12] Subhash Joshi, "Bridging the Digital Divide in India," in *Information and Communication Technology: Recasting Development*, ed. Kiran Prasad (New Delhi: B.R. Publishing Corporation, 2004), 415-449.

anytime, and in any way for government-to-government (G2G), government-to-citizen (G2C), and government-to-business (G2B) interactions.

The scheme creates a conducive environment for the private sector and NGOs to play an active role in implementation of the CSCs and to become partners of the government in the development of rural India. The public/private partnership model of the CSC scheme envisages a three-tier structure consisting of the CSC operator (called Village Level Entrepreneur or VLE); the Service Centre Agency (SCA), which is responsible for a division of 500-1000 CSCs; and a State Designated Agency (SDA), identified by the state government responsible for managing the implementation over the entire state.

The CSCs are aimed at providing high-quality and cost-effective video, voice, and data content and services in the areas of e-governance, education, health, telemedicine, entertainment, and other private services. CSCs also offer web-enabled e-governance services in rural areas, including application forms, certificates, and utility payments such as electricity, telephone, and water bills.[13]

ADDRESSING THE CHALLENGES

There are three key challenges in stepping up e-governance in India: investments in and access to ICTs, capacity building to utilize e-governance services, and promoting people's participation in e-democracy. It is hoped that improved access to information and services will provide economic and social development opportunities, facilitate participation and communication in policy and decision-making processes, and promote the empowerment of the marginalized groups.

The United Nations Conference on Trade and Development (UNCTAD) has credited India with a projected economic growth of 8.1% – the fastest rate of expansion in the world after China.[14] Nevertheless, it is also a country of stark contrasts. India is home to the largest rural-urban disparities in the world. It is a painful reality that almost 260 million people (around 25% of the total population) live below the poverty line. The 2010 United Nations Human Development Report ranked India's development index at 119 out of 169 countries.[15] India is beleaguered by a host of crises: the failure to improve productivity in agriculture; over a quarter million suicides among farmers from 1995 to 2010; high maternal and infant mortality rates; low status of women; gross violation of the rights of children, with the largest number of child laborers (around 100 million) in the world; spiraling corruption and scams of every hue and kind; an era of jobless economic growth; the shadow of hunger that increasingly stalks people across the country, resulting in substantial poverty and starvation deaths; and the neglect of the disadvantaged and marginalized masses. There are fundamental questions of utilizing development funds on a priority basis for education and basic

[13] See for example CSC India, accessed Apr. 26, 2012, http://www.csc.com/in.
[14] "UNCTAD Projects 8.1% GDP Growth for India in 2011, Next Only to China," *The Hindu*, Sept. 6, 2011, accessed Apr. 26, 2012, http://www.thehindu.com/business/Economy/article2430147.ece.
[15] United Nations Development Programme, "The Real Wealth of Nations: Pathways to Human Development," report (2010), accessed Apr. 26, 2012, http://hdr.undp.org/en/reports/global/hdr2010/.

needs which have a direct effect on people's lives, rather than incurring huge spending on ICTs for e-governance that will trickle benefits down to them.

Penetration and Access

The penetration of and access to ICTs is higher in developed countries than in developing countries like India. Given this situation there is the question of how e-governance can cater to the vast population of India that does not have regular access to ICTs such as computers and the Internet. Information and communication technology expenditures[16] by country in 2003-2008 as a percentage of GDP show that India (4.5%), Pakistan (4.4%) and Sri Lanka (4.3%) have similar levels of expenditures on ICTs. Of the countries in the region, Bangladesh is an outlier with 9.0%. See Table 1 below.

Table 1: Information and communication technology expenditures by country as percentage of gross domestic product, 2003-2008.[17]

Country	2003	2004	2005	2006	2007	2008
India	3.2	3.8	4.4	4.1	3.9	4.5
Sri Lanka	2.4	2.7	3.3	3.8	4.6	4.3
Pakistan	3.2	3.3	3.9	4.2	4.4	4.4
Bangladesh	1.9	2.4	4.1	5.9	8.0	9.0
Indonesia	1.9	3.3	3.3	3.2	3.2	3.3
Singapore	10.1	9.7	9.6	8.7	7.5	7.1
Thailand	5.8	6.2	6.1	6.2	6.1	6.2

It is estimated that there are about 177 million households in 604 districts comprising 640,000 villages across India. The highly acclaimed Warana Wired Village Project covering 70 contiguous villages in Maharashtra cost $600,000. The costs of covering over 600,000 villages can well be imagined. Financing affordable Internet access and ICT competence including investment and training to create, maintain, and expand computer networks will be a challenge in India and also in many other developing countries in South Asia.

On the one hand there is the fundamental question of whether the solution to the digital divide lies not in increasing hardware access but in some other area, such as education, which could change

[16] Information and communications technology expenditures include computer hardware (computers, storage devices, printers, and other peripherals); computer software (operating systems, programming tools, utilities, applications, and internal software development); computer services (information technology consulting, computer and network systems integration, web hosting, data processing, and other services); communications services (voice and data communications); and wired and wireless communications equipment.

[17] Data collected from "Indicators" figures as recorded by the World Bank. See http://data.worldbank.org/indicator.

priorities, save money, and deliver better results.[18] On the other hand, the low human development status of countries in South Asia has also been linked to their ICT poverty. The United Nations has identified a strong correlation between a country's information and communication technology diffusion index (ICTDI) and its income and level of human development as measured by the United Nations Development Programme's Human Development Index (HDI). The top rankings are dominated by industrial countries from North America, Western Europe, and the Asian Tigers, while many of the lower ranking countries are from Africa. India and its neighbors Nepal, Bhutan, Pakistan, and Bangladesh fall into this group.[19]

Table 2 below shows the 20 leading countries with highest numbers of Internet users in 2009. It can be observed that the top 20 countries account for 76% of the world Internet users while the rest of world accounts for only 24% of Internet users. In South Asia only 21% of the population uses the Internet.[20] In India only 7% of the billion-plus population uses the Internet, accounting for a miniscule 4.7% of the world's Internet users. The potential impact of Internet usage suggests that the utilization of e-governance services will be influenced by access to and use of the Internet.

The 1984 Maitland Commission Report, sponsored by the International Telecommunications Union, drew attention to the extreme inequalities of telephone access between rich and poor nations and argued that telecommunications was not to be seen as a luxury service for corporations and elites, but as an essential service that directly leads to economic growth. Telecommunication reforms were reinforced by Structural Adjustment Programmes by the World Bank in India and in several other developing countries such as Brazil, Kenya, Ghana, and Chile. Despite the pace of reforms, teledensity in the rural areas of India is still very low leading to a major divide between urban and rural areas. Rural teledensity in India stands at a meager 2%, compared to 31% for urban areas.[21]

[18] C. P. Chandrasekhar, "India is Online but Most Indians Are Not," *The Hindu*, Sept. 25, 2006, accessed Apr. 26, 2012, http://www.hindu.com/2006/09/25/stories/2006092501601000.htm.
[19] United Nations Conference on Trade and Development, "The Digital Divide Report: ICT Diffusion Index 2005," report (2006), accessed Apr. 26, 2012, http://www.unctad.org/en/Docs/iteipc20065_en.pdf.
[20] World Bank, *Information and Communications for Development: Global Trends and Policies* (Washington, DC: World Bank, 2006).
[21] Harsimran Singh, "Teledensity Target to be Revised for 2006, Says DoT," *The Financial Express*, Jan. 9, 2006, accessed Apr. 27, 2012, http://www.financialexpress.com/fe_full_story.php?content_id=113956.

Table 2: The top 20 countries per quantity and percentage of Internet users in 2009.[22]

Rank	Country or Region	Population (million)	Internet users (million)[23]	Penetration (% of population)	Growth of Internet users 2000-2009	Share of world users (%)
1	China	1,339	360	26.9	1,500.0	20.8
2	United States	307	228	74.1	138.8	13.1
3	Japan	127	96	75.5	103.9	5.5
4	India	1,157	81	7.0	1520.0	4.7
5	Brazil	199	68	34.01	250.2	3.9
6	Germany	82	54	65.9	126.0	3.1
7	United Kingdom	61	47	76.4	203.1	2.7
8	Russia	140	45	32.3	1,359.7	2.6
9	France	62	43	69.3	407.1	2.5
10	South Korea	49	37	77.3	96.8	2.2
11	Iran	66	32	48.5	12,780.0	1.9
12	Italy	58	30	51.7	127.5	1.7
13	Indonesia	240	30	12.5	1,400.0	1.7
14	Spain	41	29	71.8	440.0	1.7
15	Mexico	111	28	24.8	917.5	1.6
16	Turkey	77	27	34.5	1,225.0	1.5
17	Canada	33	25	74.9	97.5	1.4
18	Philippines	98	24	24.5	1,100.0	1.4
19	Vietnam	89	22	24.8	10881.6	1.3
20	Poland	38	20	52.0	615.0	1.2
	Top 20 countries	4,375	1,325	30.3	359.9	76.4
	Rest of the World	2,393	409	17.1	461.5	23.6
	Total World	**6,768**	**1,734**	**25.6**	**380.3**	**100.0**

Despite being the fastest-growing cellular market in the world with around 15 million new mobile subscribers being added every month, over 37,000 villages in India are still deprived of mobile telephony. As a result, rural teledensity has failed to match the growth of that in urban areas.[25] There is a similar challenge in some other countries of South Asia. According to 2006 figures, fixed teledensity continues to be lower than mobile teledensity in India (4.6% vs. 8.8%), Pakistan (4.2% vs. 25.2%), and Sri Lanka (9.5% vs. 27.1%). Most of the growth in teledensity in these countries is due to the growth of urban mobile services and fail to paint a true picture for many rural communities who are still often unserved by any form of ICT.[26] Although mobile phones are diffusing rapidly, fast and data-capable third generation mobile networks are less common in low-income countries. India has also begun to use mobile government applications for e-governance,

[22] Internet World Stats, "World Internet Population and Usage Statistics (2010)," accessed Aug. 28, 2011, http://www.internetworldstats.com/stats.htm.
[23] Population figures are estimated.
[25] Sandeep Joshi, "Remote Villages Yet to Get Mobile Telephony," *The Hindu*, Sept 5, 2011, accessed Apr. 27, 2012, http://www.thehindu.com/news/national/article2424511.ece.
[26] International Telecommunications Union, "ITU Launches New Development Initiative to Bridge the Digital Divide," press release, June 16, 2005, accessed Apr. 27, 2012, http://www.itu.int/newsroom/press_releases/2005/07.html.

which offer great opportunities for expanding access to citizen services. The utilization of such applications, however, will be influenced by the growth of mobile teledensity.

DEMOGRAPHICS AND LANGUAGE

Basic literacy represents an important prerequisite for Internet access, and has been realized by only a small subset of potential Internet users. Universal literacy is still a distant goal in India, and IT literacy is very low, both in absolute and relative terms. While India has a literacy rate of 65.4%, the country is home to the highest number of illiterate persons (302 million) in the world. As a result, part of the e-governance effort in India involves innovative forms of ICTs that allow citizens to use touch screens, integrated voice response systems, dedicated helplines (e.g. for farmers), videos, mobile applications, and community radio to overcome some of the problems of literacy. It is expected that faster expansion of literacy and education in the country will result in greater demand for and utilization of citizen services offered by e-governance.

There are concerns about the gender divide, as women apparently have lower access than men to the Internet; however, data on women's access in South Asia is scarce. The Pew Global Attitudes Poll (2006) found that there is a sharp divide between men and women. Men's use of computers exceeds that of women in 14 out of the 16 countries surveyed; only in Canada and Lebanon do the genders share the same amount of computer activity. Despite India's thriving computer-related industries, only 28% of men and 14% of women have access to a computer either at home or at work.[28]

Women's lesser access to the Internet can be offset by the use of m-government (mobile e-government) strategies as has been demonstrated by the experience of the Self Employed Women's Association (SEWA) in India. The Theli Phone (shoulder-bag phone) initiated by SEWA with tie-ups to cellular and limited mobility service providers and the handset manufacturers of the state enabled 5,000 members to buy mobile handsets as well as subscribe for mobile services. The main intent is to increase efficiency and business outputs of its members like salt farmers, artisans, vegetable producers, and midwives through effective communication. The SEWA experience has also been shared internationally, resulting in similar models like the Self Employed Women's Union (SEWU) in Durban, South Africa and the Women's Economic Empowerment Association (WEEA) in Yemen.[29]

There is also a linguistic and cultural divide on the Internet because the language of web pages is predominantly English, with the recent addition of Chinese, and hence excludes a large number of people who lack formal education, especially in those languages. The English and Chinese languages used in web content are not understood by the majority of the developing countries' rural

[28] "Web-Based Translation Facility from Oct '08," *The Hindu*, Feb. 26, 2007, accessed Aug. 16, 2011, http://www.hindu.com/thehindu/holnus/001200702260311.htm.
[29] Kiran Prasad, "Gender Sensitive Communications Policies for Women's Development: Issues and Challenges," in *Feminist Interventions in International Communication: Minding the Gap*, ed. Katharine Sarikakis and Leslie Regan Shade (Lanham, MD: Rowman and Littlefield, 2008), 74-89.

communities and this is a fundamental barrier for them in using web content. Training in other languages that can give people greater familiarity to content on the Internet is a rare opportunity for majority of the poor in South Asia. According to Global Reach, in 2005, 43% of Internet users spoke English and 68% of content was in that language.[30] More recent figures show Chinese approaching English for dominance.[31] Most of the remaining content is in languages like French, Spanish, and Japanese.[32] (See Table 3 below.)

Table 3: The top 5 languages among Internet users in 2009.[33]

Language	Users[34]
English	478 million
Chinese	384 million
Spanish	137 million
Japanese	96 million
French	79 million

The use of dominant languages on the Internet poses problems for the majority of Indians who have had their early education in the regional languages. Only an estimated 10% of South Asians speak fluent English while the rest (more than 900 million Indians and about 1.2 billion South Asians altogether) speak other languages. Therefore computer use and Internet access is effectively out of reach for those who do not know English. Adding to the linguistic inaccessibility in South Asia is the absence of culturally-relevant content, and from this springs the dominance of "Anglo-Saxon" Internet culture.[35] Most of the websites in the world originate from predominantly English-speaking countries like the United States, United Kingdom, Canada, Australia, New Zealand, and South Africa, or from English-fluent city states like Singapore and Hong Kong. This has led to an "Anglo-Saxon linguistic and cultural hegemony"[36] with many cultures and culturally-relevant content absent from the Internet.

Language diversity, particularly in rural areas, limits the role of ICTs in e-government as translation software is still in its nascent stage. There are 22 officially recognized languages in India and 844 different dialects are spoken across the country. Hindi is the national language and is widely spoken by at least 45% of the population while English is the second official language used for commerce and official communications. However, less than 10% of the population can speak English. The number of websites in Indian languages is miniscule and some attempts are being made to change this situation. While e-government sites have started to offer content in the local languages, most of the information is still in the English language.

[30] United Nations Conference on Trade and Development, 47.
[31] Internet World Stats, "World Internet Population and Usage Statistics (2010)."
[32] United Nations Conference on Trade and Development, 47.
[33] Internet World Stats, "World Internet Population and Usage Statistics (2010)."
[35] Kenneth Keniston, "Introduction: The Four Digital Divides," in *IT Experience in India: Bridging the Digital Divide*, ed. Kenneth Keniston and Deepak Kumar (New Delhi: Sage, 2004), 16.
[36] Ibid.

India's Department of Information Technology launched a web-based translation facility in October 2008 to help people translate from English to regional languages and also edit scanned or handwritten documents on tablet personal computers. The facility includes development of machine translation from English to six Indian languages and bi-directional translation of nine Indian languages. It also includes "cross lingual information access" in which query results are available in Hindi, English, and one of the six regional languages. With the help of the machine further modules could be developed that would, with artificial intelligence technology, enable a person speaking one language to converse with a person speaking another language. This translation facility will enable Internet users in rural and poor urban communities to overcome their linguistic limitations and access web content in several languages.[39] This facility is useful for e-government sites that can provide texts in multiple languages.

Capacity Building for Citizens

India has a very large pool of highly skilled IT professionals and has the third-highest quantity of scientific manpower in the world.[40] The country has emerged as a major player in the sphere of IT-enabled services and the knowledge industry, but this development has, by and large, remained urban-oriented with the exception of a few rural initiatives in some states. It is important to understand that even if e-government initiatives are implemented successfully, it would still be a big challenge to ensure that citizens use the services effectively. There is an urgent need to address the digital divide in the country in an integrated and holistic manner. This is only possible when citizens are made aware of e-government initiatives and how they can effectively utilize them in their day-to-day affairs. Das and Chandrasekhar opine that "NeGP is a massive initiative that can be successfully implemented in the 28 states and 7 Union Territories covering more [than] 1 billion population only if comprehensive capacity building is undertaken covering all segments likely to be touched by the Plan. Through such capacity building measures, India would further strengthen the strong and dynamic democratic institutions and thereby secure growth and development for all its citizens in an equitable manner."[41]

It has taken India more than eight decades to transition from an opaque system of governance, legitimized by the colonial Official Secrets Act of 1923, to one in which citizens can demand information via the Right to Information (RTI) Act of 2005.[42] One of the biggest barriers to development is the corruption that pervades all levels of administration and the lack of access to information regarding the use or misuse of development funds.[43] The RTI forms the crucial

[39] "Web-Based Translation Facility from Oct '08."
[40] Kiran Prasad, "The Digital Divides: Implications of ICTs for Development in South Asia," working paper No. 3/08, ISSN 1752-1793, Centre for International Communication Research, Institute of Communication Studies, University of Leeds (2008), accessed Apr. 30, 2012, http://ics.leeds.ac.uk/papers/cicr/exhibits/56/Leeds-CICRworkingpaper-Kiran.pdf.
[41] Das and Chandrashekhar, 18.
[42] Kiran Prasad, *Communication for Development: Reinventing Theory and Action*, Vol. 2 (New Delhi: BRPC, 2009).
[43] Kiran Prasad and P.P. Shaju, "Mass Media and Exposing Corruption," in *Political Communication: The Indian Experience*, Vol. 2, ed. Kiran Prasad (New Delhi: B.R. Publishing Corporation, 2003), 597-624.

underpinning of participatory democracy – it is essential to ensure accountability and good governance. The awareness of the right to information has influenced the people's demand for greater transparency in government, improving citizen satisfaction by delivering efficient services and improving government performance through the use of ICTs in e-governance.

The capacity building amongst citizens began with awareness to the right to information created by all media like Internet, cable TV, community/FM radio, and the traditional press. Combined with appropriate content, connectivity and capacity-building measures, the media have helped in ushering in higher awareness about governance and motivating people's participation in political processes. Since India has opted for a model of assisted access, particularly in rural areas, building capacity amongst the service center operators is a key area of attention.[44] E-governance initiatives have begun to catalyze development and to facilitate better-quality public services in areas such as education, employment, environment, health, provision of business services, providing market prices, e-trade opportunities, e-entertainment, e-banking, e-learning, digital photos, e-booking of tickets, Internet-linked services, etc. The government has also established effective partnerships with apex organizations that are working for the empowerment of citizens and the use of ICTs for this purpose. For example, Common Service Centres are being implemented in close collaboration with Mission 2007, a National Alliance of nearly 200 civil society and private sector organizations aiming to leverage ICTs for rural development and empowerment.

Civic Engagement and People's Participation

The first civic engagement with governance involving a cross section of people in India began with the campaign for the Right to Information (RTI) Act, as a need for information about public dealings and transactions later snowballed into a mass movement. This campaign is a striking one and worthy of emulation in many of the poorer parts of the world, especially since it is the ordinary, illiterate, and oppressed rural folk who spearheaded it and not the educated, politically aware people of urban centers. The RTI campaign is thus integrally linked to the right to livelihood for poor people.[45] This is regarded as a major step in e-governance as the right to information is fundamental for people in monitoring the use of development funds, protesting against corruption, and participating in government.

The RTI campaign held consultations, street-corner meetings, and street plays, and reached out to large numbers of people. Apart from mobilizing people and creating pressure, the street meetings also became platforms for democratic debate, eliciting local views on the draft orders passed by the

[44] Apex organizations include an Apex Committee under the chairmanship of the Cabinet Secretary of the Prime Minister's Office, which was constituted for overseeing and providing policy directions for the implementation of the NeGP and ensuring inter-ministerial coordination. The Department of Information Technology (DIT) serves the Apex Committee with the Secretary, with DIT serving as the convenor of the committee. The National Institute of Smart Government (NISG), set up jointly by the Government of India with the IT industry body NASSCOM (National Association of Software and Services Companies) and under public/private partnership, is also an apex organization tasked with building partnerships with civil society organizations and Internet organizations for combining resources from the government and the private sector in the national e-governance effort. See Prasad, *Communication for Development: Reinventing Theory and Action*.

[45] Ibid.

government. This people's movement, which gained widespread support from the mainstream media, began for the first time to pierce the curtain of secrecy that guarded the bureaucracy. The movement brought together intergovernmental organizations, civil society, media organizations, common people, and even many bureaucrats who bowed out from the government for a common cause as never before. The right to information movement has influenced civic engagement and people's participation on many national and international issues of women's rights, the environment, climate change, and the rights of marginalized communities which now occupy an important place on the government agenda.

The availability of new media including mobile communications, social networking sites, and the Internet led to the organization of large-scale popular movements against corruption, the campaign for the right to information, rights to indigenous resources, and environmental conservation in India. These broad-based mass campaigns include inter-governmental organizations, people's interest groups, social activists, academicians, public servants, mass media professionals, business groups, and individual citizens creating a new synergy between government, business, and citizens. For instance, the policies of the Indian government for financial inclusion of large sections of the population through banking linkages have led to mobile banking operations. This has led to an innovative movement for branchless banking in rural and remote areas.[46]

In response to governmental policy and civic engagement on environmental issues, many supermarkets send messages to their customers' mobile devices reminding them to bring their own shopping bags in a bid to reduce the number of plastic bags in the environment. The government and various public health organizations send mobile messages on mother and child health including information on vaccinations in the community to encourage people's active participation in reducing maternal and infant mortality.[47] The ongoing mass campaign to create awareness about the law to fight corruption received the overwhelming support of common people who received SMS messages about the venues and modes of protests being organized in towns and cities across the country.

The nationwide anti-corruption people's campaign was led by veteran social activist Anna Hazare who fasted for 13 days in August 2011. Hazare broke his fast only after both houses of the Indian Parliament agreed to consider the draft of the Lok Pal Bill by Team Anna that proposed an ombudsman with legal powers to act against corruption. The anti-corruption movement across India saw a convergence of social movements, new media, and civic engagement never witnessed before in the country. Given the size of the population, its rural character, and the supposed lawlessness of some regions, the anti-corruption campaign was peaceful and devoid of any of the violence that often characterizes such social movements. The protests and large-scale national uprisings in some African and Middle Eastern countries have largely been attributed to western democratic influences and the exposure of the people to global media. But the totally indigenous methods of Gandhian

[46] Abhishek Sinha, "Dialing Numbers 4 Development," paper presented at the 3rd International Conference on Mobile Communication for Development (M4D2012), Feb. 2009.
[47] Kiran Prasad, "Mobile Communication for Sustainable Development: Change and Challenges in South Asia," paper presented at the 3rd International Conference on Mobile Communication for Development (M4D2012), Feb. 2009.

fasts and peaceful protests made the Indian government relent and give in to people's demands for stringent laws against corruption. While people from all walks of life staged sit-in protests at designated venues, led marches, and took part in relay hunger strikes, the mass media in the country gave considerable support to and coverage of the movement to spur people's participation.

The protest movement, known as Team Anna and championed by people of all ages and classes, drew hundreds of volunteers who dealt with donations, food and water, managing stage activities, and setting up telephone helplines. The movement created awareness by holding candlelight vigils, fasting in support of Anna Hazare, giving media interviews, sending e-mails, tweeting, forming online forums, and sending mobile clips on the protests organized across the country and even abroad.[48] In addition to the longstanding tradition of Gandhian fasts, indigenous channels of communication include public hearings, theatre, and songs of social awakening. These converged with the mass media and new technologies including the Internet and social media, through which the anti-corruption movement raised a host of questions to which they sought truthful answers. The anti-corruption movement attracted spontaneous grassroots participation and gained support across the country as a symbol of the aspirations of millions of people for good governance not only in India but in many developing countries. Information provided by e-government sites are seen as vital in the fight against corruption.

E-GOVERNANCE IN KERALA: A CASE STUDY

The state of Kerala presents an interesting case in the study of e-governance in a region with high literacy and educational status, access to ICTs, civic engagement, and political participation as compared to other states in India. Kerala is in the forefront of implementing e-governance and m-governance. It is also the only state to implement the Akshaya e-literacy project towards facilitating capacity-building for citizens to participate in modernizing governance and implementing an effective plan to bridge the digital divide.

In India, Kerala ranks first among states in literacy, human development, infrastructure development, and quality of life. Kerala citizens have high exposure to mass media and demonstrate high levels of political participation. The state of Kerala is also in the forefront of implementing e-governance initiatives. These factors make Kerala an ideal setting to study people's participation in e-governance. The Union Ministry for Information Technology identified the Palghat and Kannur districts of Kerala for implementing the people-friendly e-District project as part of the NeGP. This section of the article uses the case study method with the interpretative research approach in which the phases of data gathering and data analysis comingle, as data analysis often leads to a new round of data gathering. The data are drawn from primary statistics, existing literature and publications on e-governance in Kerala, and in-depth interviews to gather information from ten entrepreneurs who run the Akshaya Centres.

[48] Payal Saxena, "The Protest Party," *The Week*, Sept. 4, 2011, 46-48.

The National Human Development Report 2009 ranks Kerala as the first among Indian states in the Human Development Index.[49] The data presented in the report are dramatic, and Kerala had achieved a high level of human development by the early 1990s. Kerala's birth rate in 1991 was 20 per 1,000 females compared with a national rate of 31 and an average of 38 in the world's poor countries. Kerala's infant mortality was 17 per 1,000 live births versus 85 for India as a whole and 91 for other poor countries. Kerala's adult literacy rate was 91% while India's was 52% and other poor countries' 55%. Yet Kerala's per capita income in 1991 was $298 compared to the all-India average of $330 and a world poor country average of $350. By comparison, in 1991 the United States had a per capita GNP of $22,240. Yet Kerala's material quality of life indicators were far closer to those of the U.S. than to those of the rest of India or those countries with similar income levels. Kerala's high level of human development achieved during the 1990s is remarkable because in the present day it continues to be first among all Indian states in human development.

Kerala achieved the UNESCO standards of mass media requirements (minimum number of newspaper copies, radio sets, cinema seats, and TV sets) in an undeveloped country, as early as the 1960s.[50] In the mid-1980s, though Kerala accounted for only 3.5% of India's population, 8.5% of all daily newspapers in India were in the local Malayalam language. After Hindi (the language of 38% of India's population) and English, Malayalam ranked third in the number of newspapers published each day. The ratio of Malayalam newspapers to population was roughly 71 copies for every 1,000 speakers of the language as early as 1991.[51] There are more than 120 daily newspapers being published in Kerala since 1991, more than in any other state in India. *The Hindu*, *The New Indian Express*, *Malayala Manorama*, *Mathrubhoomi*, *Kerala Kaumudi*, *Desabhimani*, *Deepika*, *Madhyamom*, and *Janmabhoomi* are a few of the prominent daily newspapers, and all have online editions. Apart from the state-owned All India Radio (AIR) and Doordarshan TV channels, there are a dozen private satellite television channels in Malayalam, and over 200 satellite TV channels in different languages reach the people in the state. As of 2009 Kerala has the highest exposure to mass media in India (81%), particularly print media, due to high literacy.[52]

The high levels of exposure to the mass media have led to high levels of political participation among the people of Kerala. The high rate of political participation can be illustrated by the high turnout at elections. The voter turnout (percentage of eligible voters) in Kerala during elections is consistently over 70%, which is significantly higher than the 60% average voter turnout for India as a whole.[53] The state is also in the forefront of implementing e-governance capacity-building initiatives.

[49] Government of India, *National Human Development Report 2009* (New Delhi: Oxford University Press, 2010).
[50] Bangalore Kuppuswamy, *Communication and Social Development in India* (New Delhi: Sterling Publishers, 1976), 332.
[51] Malayala Manorama Group, *Manorama Yearbook 2010* (Kottayam, India: Malayala Manorama, 2010).
[52] Government of India, *National Human Development Report 2009*.
[53] Election Commission of India, *Statistical Report on General Election, 2006* (New Delhi: Government of India, 2006).

Akshaya Centres

The emphasis of citizen-relevant data collected thus far has been on reducing the transaction costs incurred by the individual citizen. The transaction cost here does not refer to the pricing of services (user charges) but the cost involved in getting information – like the cost of repeated travel, wastage of time, opportunity cost, etc. Currently a citizen would need to make many visits to various government offices to get details on schemes or entitlements, which may require him to bring certificates. Invariably he would be required to file applications in a defined format and often he would be required to purchase application forms and then complete them. If some clarification were required upon completing certain fields, he would again have to ask for help from the office staff or intermediaries. For filing the application and enquiring the fate of the same, as well as to finally receive the benefit, repeated visits would be required to the same office, all of which adds to the transaction cost. Though such expenditure is not directly linked to the reception of the benefit, the impression that the benefit comes free of user charges is not accurate. Since many offices have limitations in physical infrastructure, citizen interface of the above nature is sub-optimal and leads to customer dissatisfaction. Hence it is critical to have decentralized information access centers that cater to a range of citizen needs and have inbuilt integrated front-end systems to facilitate a one-stop multimode arrangement for all G2C information exchanges.

The Akshaya Centres being implemented in Kerala are in line with the objective of increasing citizen participation in e-governance. They provide access for G2C information interaction as well as for a substantial range of G2B information interaction. Apart from G2C information flows, G2G information flows, especially data from field-level offices to higher tiers, create a critical information management issue. Given the fact that all the government departments and individual offices do not have automated systems or computerized back-end information systems, currently such data flows are in the manual mode using defined formats in specified periodical statements. This creates problems of delay and retrieval for this data and its analysis. The capturing of data in specific formats, and forwarding the same in electronic format to central repositories, through the infrastructure available at Akshaya Centres is crucial for strengthening e-governance until the capabilities are acquired in all the government offices concerned.

Apart from G2G, G2C, and G2B information interactions, it is also critical for governments and citizens that some of the transactions in these categories are also brought to decentralized and integrated front-end systems to enable quick decisions, increase productivity, and improve governance. This would essentially mean that government can then concentrate more on the critical core back-end operations as it is mandated to do and can channelize its information and transactions through a widespread network of access points. A key component of such a decentralized system, wherein the information services and (if possible) transaction services happen outside the premises of government offices and institutions, would be the presence of electronic access points that could serve as information/transaction dissemination points as well as data collection and capture points. The Akshaya project seeks to provide such access points.

Akshaya for Bridging the Digital Divide

The Kerala model of development, which has enabled the state to achieve substantive levels of social progress, has essentially ensured that access points are available within the easy reach of every family whether it is via educational institutions, health care institutions, Public Distribution System outlets, or anganwadis (child care centers).[54] The Akshaya project has been modeled on this social philosophy, but with the critical difference that ICT access points are not state-run institutions but entrepreneurial ventures. The Akshaya Centres, as key stakeholders in information and transaction dissemination, are designed within a public-private partnership framework that would augment the financial viability of the Centres. State support also facilitates the creation of a networked access points system that could have long-ranging implications in governance, social improvement, and bridging the digital divide in Kerala.

The Akshaya e-literacy project was implemented in 2002 jointly by the Kerala IT Mission and the Department of Science and Technology, with tie-ins with local bodies and voluntary agencies. This project aims at making Kerala the first completely e-literate state in India. Under this project, state and local self-government bodies will be connected via the Internet, and a mailing facility in the Malayalam language will also be provided. The pilot project in the Malappuram district featured multipurpose community training centers to train people to handle computers, data entry, desktop publishing, and Internet browsing. The CTC (computer training center) kiosks also offer continued e-learning programs; data entry under e-governance programs; desktop publishing and typing; computer training; online banking services; telemedicine applications; screen printing; and design services for invitation cards, visiting cards, banners, posters, paper bags, etc.

The project is aimed to develop over 10,000 networked multi-purpose community information facilities (Akshaya Centres) to provide ICT access to the entire population of Kerala. At least one person in each of the 65 lakh families in the state will be made IT-literate. Ernakulam district is set to become totally e-literate as a part of the first phase of Akshaya Project. The objective of the e-literacy project that was launched in the Ernakulam district in December 2005 was to make at least one member from every household e-literate through a 15-hour course. The target was set based on the 2001 census according to which the district had 512,270 households. Of the 512,270 e-literate people in the district (one from each household), 343,753 were trained in basic computer literacy by the Akshaya project.[55]

A unique method was adopted to spread e-literacy in Ernakulam after it was found that the 14 Akshaya Centres initially allotted within its limits were insufficient to achieve the stated objective. To overcome this, 30 efficient Akshaya entrepreneurs from the Kochi city outskirts were roped in to cover the corporation area with the approval of the Corporation Council. Each entrepreneur was allotted two divisions each with sub-centers in at least six different locations within the division. Thus, Kudumbasree units (women's self-help groups), anganwadis (child care centers), political party

[54] Prasad, *Communication for Development: Reinventing Theory and Action*.
[55] M.P. Praveen, "Ernakulam District to Become e-Literate," *The Hindu*, Feb. 24, 2009, accessed Apr. 30, 2011, http://www.hindu.com/2009/02/24/stories/2009022458320200.htm.

offices, vacant buildings of the corporation, individual households, and even police stations were turned into centers for computer learning.[56]

The Akshaya project has an additional objective of enhancing the quality of available IT infrastructure in the state to bridge the rural-urban digital divide. It is expected that the IT infrastructure will be expanded to rural areas to create and expand economic opportunities in the knowledge economy, empower individuals and communities through enhanced access to information, modernize and upgrade skill sets, integrate communities through creation of e-networks, create awareness of ICT tools and usage, generate locally relevant content, and generate direct employment opportunities.[57]

Evaluation of the Akshaya Project

The Akshaya project is an e-government initiative that has succeeded in encouraging people to use technology in a socially deterministic way to satisfy local needs. An evaluation of the Akshaya project found that it was successful in generating employment, promoting IT literacy, enhancing communication, and providing e-services.[58] The Akshaya project generated employment for youth, particularly women, in desktop publishing and typing. Trainees, particularly women, could search for better employment opportunities at the end of their course. The Akshaya project provides cheaper e-literacy courses to the people, ranging from easy (such as using Microsoft Office and desktop publishing) to difficult (such as diploma courses). Internet-enabled kiosks are used by people to contact relatives and friends who are staying abroad or in other states in India. The marketing of products is also conducted at the kiosks. The Akshaya kiosks provide a range of services like registration of births and deaths; and collection and distribution of health-related data for the local population (in a way acting as databanks by coordinating with village administrative units).[59]

Kerala is also at the forefront of setting up mobile governance. M-governance is defined as the utilization strategy and implementation of wireless and mobile technology services, applications, and devices for improving benefits for citizens, businesses, and government units. The rapid diffusion of mobile ICT gadgets such as laptops, mobile phones, and personal digital assistants (PDAs), along with e-mails, instant messaging, and other networking services, has rapidly fuelled mobile interaction. In order to take advantage of mobile and wireless ICT technologies as well as dealing with booming mobile usage rates and the fluidity of interaction with the mobile society, the Kerala state government has initiated action to set up about 20 m-government services offered by eight departments identified for pilot level implementation; and to deliver services though mobile phones accessible to citizens in the field, in the street, at home or in other convenient locations on a 24/7 basis, rather than requiring users to visit government offices or log on to Internet portals to access services.

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[56] Ibid.
[57] Government of Kerala, "Akshaya: Gateway to Opportunities," accessed Apr. 30, 2012, http://www.akshaya.kerala.gov.in.
[58] Shambhu Ghatak, "Gender Facts in Malappuram, Kerala: Evaluating the Akshaya Programme," *i4D*, Oct. 2006, accessed Apr. 30, 2012, http://issuu.com/i4d_magazine/docs/i4d_october_2006_issue, 31-32.
[59] Ibid.

CONCLUSION

Evidence from both theoretical and empirical studies reveals that ICTs and new media technologies have become inevitable in e-governance. But the motivation for adopting e-governance in developing countries like India is quite different from that in developed countries. E-governance in India is regarded as a key element in administrative reform and in improving citizen-government interactions. The Indian government's e-governance program, with the CSCs promoting sheer access to the Internet, suggests that it wants to promote citizen access to ICTs for encouraging their participation in e-governance. Providing access to the Internet alone is not enough – people must be enabled to use ICTs for citizen-government interaction.

Literacy skills, greater awareness, education, and capacity-building efforts such as the Akshaya e-literacy project in Kerala are regarded as important factors that will enable greater civic engagement and citizen participation in e-governance. The Akshaya project is a unique partnership involving the government, private entrepreneurs, community volunteers, and citizens in improving the e-literacy skills of the community. Capacity-building initiatives like the Akshaya project can bridge the digital divide and advance digital democracy. Kerala had achieved almost total literacy before embarking on providing e-literacy to the people of the state. Though the 28 states of India are at various stages of development, the project attempts to highlight the possibilities for other states that are similar to Kerala in levels of development. It can be regarded as a model for emulation in other states of India and has also generated considerable interest throughout South Asia. Nevertheless, financing affordable Internet access and ICT competence – including investment and training to create, maintain, and expand computer networks – may challenge the sustainability of e-governance in developing countries like India as they continue to grapple with the many complexities of development.

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