

CPRsouth 2015***THE CHANGING LANDSCAPE OF ICT GOVERNANCE AND PRACTICE –
CONVERGENCE AND BIG DATA***

*(Hosted by the Innovation Center for Big Data and Digital Convergence,
Yuan Ze University, Taiwan: 26 – 28 August 2015)*

***Title of Paper: Capacity Building and People's Participation in e-Governance:
Challenges and Prospects for Digital India*****Introduction**

The UN e-government rankings assess the capacity of a country to fully leverage information and communication technologies (ICTs) in daily activities and production processes with efficiency and competitiveness to create an e-participation index to track the extent to which citizens participate in e-governance (UN, 2010). While political processes such as decentralization and participatory governance are high on the international development agenda, it must be recognized that the motivations and imperatives for adopting e-governance in a developing country like India are vastly different from those in the developed countries. India is the second largest nation with a population of over one billion, with the largest rural population (857 million) (UN, 2014) in 640,867 villages (Census of India, 2011). There are 22 officially recognized languages in India and 844 different dialects are spoken all over the country. Hindi is the national language which is widely spoken by at least 45 per cent of the population while English is the second official language used for commerce and official communication. But less than 10% of the population can speak English. Universal literacy is still a distant goal. IT literacy is very low, both in absolute and relative terms. Telephone, PC and Internet penetration levels are low in comparison. India is 135 out of 185 countries in human development with 55 percent of its population experiencing multi-dimensional poverty (UNDP, 2014). Hence e-governance initiatives need to be planned with reference to these ground realities in the country.

E-governance emerged out of a realization that ICTs can be utilised to effectively provide services to a population of over one billion people (Prasad, 2004; Prasad, 2009). E-Governance is now seen as a key element of the country's governance and administrative reform agenda. Taking note of the potential of e-governance to improve the quality of life of the vast population of the country, the Government of India has formulated a national programme – the National e-governance Plan (NeGP). The NeGP has been scaled up into the

Digital India project with an investment of Rs 1.13-lakh crore (\$ 2.1 billion) to provide thrust to nine pillars which include — broadband highways, everywhere mobile connectivity, Public Internet Access Programme, e-Governance, e-Kranti (which aims to give electronic delivery of services), information for all, electronics manufacturing, IT for Jobs and early harvest programmes (<http://digitalindiaproject.com/>). The Prime Minister is the Chairman of the Monitoring Committee of the Digital India project under which all central government ministries and departments will come up with their individual projects that can be delivered to public using ICT like health services, education, judicial services etc. The Digital India project aims to offer a one-stop shop for government services using the mobile phone as the backbone of its delivery mechanism. Government prefers to adopt Public Private Partnerships (PPP) wherever feasible for rolling out Digital India programme. The best example of this is the Akshaya Project in Kerala, a potential model for the rest of India and other developing nations interested in participatory e-governance initiatives.

Principal Research Question

What can one learn about the Akshaya e-literacy project in India about capacity building and inclusive governance for designing the Digital India Project? Access to ICTs alone does not make for successful national e-governance projects in developing countries but requires participatory efforts to promote democratic practices.

Policy Relevance

India's ambitious Digital India Project, key to its administrative reform agenda, proposes to extend the Internet to the remotest of villages by 2017. Digital India has three core components. These include creation of digital infrastructure, delivering services digitally and digital literacy. Digital India proposes to extend the Internet to the remotest of villages but making this relevant at the local level requires participatory efforts to promote democratic practices. The foundation of this initiative should be e-literacy, capacity building, and installation of ubiquitous broadband-enabled computer kiosks based on entrepreneurial public-private partnerships (Prasad, 2012:183). This paper 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 findings of this study have implications for planners and policy makers in India seeking to advance people's

participation in e-governance and apply to India as a whole – with its strategic geopolitical 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 Asia and Africa that have similar demographic, socio-economic, and cultural characteristics.

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 (Praveen, 2011). 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. 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. 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 which are presently scattered across multiple networks and servers.

Subsidiary Research Questions

1. Are the Akshaya centres being implemented in Kerala in line with the objective of increasing citizen participation in e-governance?
2. Are the Akshaya centres designed within a public-private partnership framework which would augment the financial viability of the centres?
3. Do these centres serve as anchor institutions or demand aggregators, and which provide digital literacy instruction, continuing education, job training and entrepreneurship classes for capacity building?

Review of Literature

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, 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. 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 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 and envisages a model for delivery of web-enabled anytime, anywhere access to information and services in rural India. 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. The vision of the NeGP is to “make all Government services accessible to the common man in his locality” (http://arc.gov.in/11threp/ARC_11thReport_Ch7.pdf). The integrated projects include e-business, common service centres, India portal, e-procurement and e-courts.

According to Kalam (2005:37), “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”. The NeGP would provide convenient access at the doorstep of citizens, thereby improving their quality of life, provide single window access for multiple services as well as better targeting of welfare schemes especially for below poverty line families. According to Bagga et al (2005:31) “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”.

Research has suggested that in developing countries, ICTs have largely been employed in efforts to streamline labour-intensive bureaucratic transactions rather than in participatory or consultative efforts to promote democratic practices (Bekkers and Homberg, 2007) or citizen engagement (Mosse and Whitley, 2009). Many e-government initiatives focused on adapting e-commerce models such as developing new ways of providing fee-for-service applications over the Internet (Holmes, 2001) to increase efficiency, for example tax administration (Jamaica, Guatemala); better services to customers, businesses and stakeholders in general (Brazil, India); and government for transparency and business efficiency (the Philippines, India, Chile) (Raman, 2014). Colle (2000) emphasised the need for participation by local communities in telecentres. Harris (2001) in his concept of participation refers not only to the

researcher-community relationships and the adoption of equality between them, but also to the inclusion of all sections of the community.

The Common Service Centre (CSC) is a strategic cornerstone of the National e-Governance Plan (NeGP), approved by the Government in May 2006, as part of its commitment to introduce e-governance on a massive scale. CSCs or broadband-enabled computer kiosks offer a range of government-to citizen and business-to-customer services, besides promoting sheer access to the Internet. Information management systems are focused to ensure that relevant information is available anywhere anytime and in any way for interactions between Government to Government (G2G), Government to citizens (G2C) and Government to businesses (G2B). The scheme creates a conducive environment for the private sector and NGOs to play an active role in implementation of the CSCs and become partners of the government in the development of rural India.

The PPP model of the CSC scheme envisages a 3-tier structure consisting of the CSC operator (called Village Level Entrepreneur or VLE); the Service Centre Agency (SCA), that will be 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 as well as 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 (<http://www.csc-india.org/>). The total number of CSCs in India as on 31st March 2014 are 1,33,847 (<http://www.csc.gov.in/>).

The Digital India project launched in August 2014 augments the services of CSCs to offer a one-stop shop for government services using the mobile phones as the backbone of its delivery mechanism. The Telecom Regulatory Authority of India (TRAI) pegged the number of Internet users in India at 278 million as of October 2014 (www.trai.com). It is expected that India's web user base will grow to 354 million by June 2015 and it is largely driven by increased Internet use on mobile phones with 173 million mobile Internet users (128m urban users and 45m rural users) in December 2014 (IAMAI and IMRB, 2015). India has the world's third largest internet users after China and the United States with three-fourths of its online population under the age of thirty-five. Access to the internet media is largely concentrated in the urban and semi-urban areas. One would think the number would be much higher, given the country's fairly advanced capabilities in the software field but this is typical

of India's political economy paradox, large swathes of backwardness amidst high economic growth rates (Ram, 2011).

Communities with greater capacity for learning will achieve more desirable outcomes from their telecentres than communities with low capacity for learning; this is identified as a success factor for telecentres (Harris, 2001). 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 vernacular press. Combined with appropriate content, connectivity and capacity building measures the media has 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 centre operators is a key area of attention (Das and Chandrasekhar, 2007).

The availability of the new media including mobile communications, social networking sites and the internet supported people's participation in movements for the right to information, anti-corruption and environmental conservation in India. The anti-corruption national people's campaign led by veteran social activist Anna Hazare who fasted for 13 days from August 16, 2011 to August 28, 2011 ended only after both houses of the Indian Parliament agreed to consider appointing an ombudsman with legal powers to act against corruption. The protest movement drew hundreds of volunteers who managed the telephone helplines, gave bytes to newspapers, radio and television, went online, sent emails, tweeted, formed online forums, sent mobile clips to media on the local protests organized the country and even abroad (Saxena, 2011: 46-48). The anti-corruption movement across India saw a convergence of social movements, new media, and civic engagement never witnessed before in post-independent India (Prasad, 2012; Prasad 2013).

There were more than 58 million tweets in the 2014 elections in India, a country which accounts for less than 5 percent of the world's internet users. Far from the days of using just posters and street banners, political parties now use digital, SMS, MMS and online media quite effectively in their campaigns. News organizations have made social media as the 'second screen' by reading tweets and comments on TV, inviting the audience to raise issues and questions and even hosting debates. The social media networks have also been influential in spreading protest movements such as the Anti-Corruption Campaign in India and environmental movements.

The Twitter Samvad, a service that allows people to receive tweets by government leaders and agencies as text messages over mobile phones, was launched on March 24, 2015

the same day on which the Supreme Court struck down the controversial Section 66A of the Information Technology Act, 2000 enacted through an amendment in 2008 which could be used by the government to regulate and curb the use of social media. The adoption of information and communications technologies is having a significant, yet often unacknowledged, impact on the way that governments administer policies and conceive of citizens (Henman, 2010). India's experience in e-governance/ICT initiatives has demonstrated significant success in improving accessibility, cutting down costs, reducing corruption (Bhatnagar, 2012) and increasing access to un-served groups (Das and Chandrasekhar, 2007). It is clear that the internet and new media in its myriad forms are gradually moving centre-stage to contour a digital culture even in societies like India which are sharply marked by the digital divide.

Methodology

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 occupies the first position among all states in India with its high human development status. It 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 (Prasad, 2011). These factors make Kerala an ideal setting to study people's participation in governance. Pathanamthitta in Kerala was purposively selected for study as it is a developed district. The overall literacy rate in the district is 95.09 percent. The male literacy rate is 96.62 percent while the female literacy rate is 93.71 percent.

Pathanamthitta district has its headquarters at Pathanamthitta. Tiruvalla and Adoor are the revenue sub-divisions. The district is divided into nine community development blocks. Subsequently three community development blocks from Pathanamthitta district, Mallappally, Parakkode and Koipram were selected for study. From the selected community development blocks, Kaviyoor Mallappally Kallooppara from Mallappally, Kalanjoor from Parakkode, Eraviperoor from Koipram, were selected for data collection. A random sample of both men and women were selected from each block to study people's participation in e-governance. The sample consists of 345 males and 355 females. The total sample from the three community development blocks is 700.

The study used an analytical survey from 2009 to 2011 to examine the factors influencing the participation of people in e-governance. Primary data was collected from the selected sample of 700 respondents through a structured questionnaire framed on the basis of the objectives of the study. A pilot study was carried out to pre-test the questionnaire for reliability and validity. It was revised and the finalized questionnaire was used for data collection. Secondary data for supporting the study was gathered during review of literature and publications on e-governance in Kerala. Data was coded with the help of a specifically prepared analysis plan. SPSS was used for data analysis.

Apart from using a quantitative survey, a qualitative method was also considered appropriate because the study intended to find from the Akshaya entrepreneurs the services provided by the Akshaya centres to the people in Pathanamthitta district of Kerala and to identify the e-governance interactions between the government, citizens and businesses. Case-studies were carried out using in-depth interviewing to gather information from ten entrepreneurs who run the Akshaya centres that is the mainstay of e-governance initiatives aimed at bridging the digital divide in Kerala. The officials responsible for the functioning of the Akshaya project were also interviewed to generate primary data for the study. The paper also critically examines the challenges and prospects of the Digital India Project for inclusive governance and citizen participation through e-literacy and training that could change priorities, save money, and deliver better results through digital empowerment of people.

The limitations of the study lie in the fact that Kerala is a highly literate state with the highest human development indicators and better gender equality; the findings of the study may not apply to backward regions of India. It is also the only state with the Akshaya e-literacy policy initiative in India which makes comparisons with other states rather limited. The study was limited to a developed district in Kerala and the gender related findings may also differ in other states of India with a wide gap in education and status of women.

Socio-economic Characteristics of Respondents

The socio-economic characteristics of the respondents of the study are described in table 1.1 below:

Table 1.1: Socio-economic Characteristics of Respondents

Sl.No.	Socio-Economic Characteristics	Total
1. Residence	Rural	35.4
	Urban	64.6
2. Age	18-35years	40.3

	36-50 years	46.1
	50 years and >	13.6
3. Sex	Male	49.0
	Female	51.0
4. Marriage	Married	73.4
	Unmarried	26.3
5. Religion	Hindu	50.9
	Christian	44.4
	Muslim	4.7
6. Caste	High caste	73.6
	Backward caste	18.7
	SC/ST	7.7
7. Education	Degree	40.9
	HSC	38.9
	Diploma	10.0
	Primary	7.9
8. Occupation	Govt./Public	12.0
	Private	15.3
	Self-employed	14.6
	Agriculture	13.1
	Unemployed	45.0
9. Income	Low income	29.7
	Middle income	52.4
	High income	17.9

N=700

While over one-third of the respondents (35.4%) live in the rural areas, around two-thirds of them live in semi-urban areas. This is due to the characteristic nature of Kerala where rural areas and urban areas are contiguous. Over one-third of them (40.3%) are aged between 18 and 35 years whereas 46.1% are 36 to 50 years old while 13.6% of them are above 50 years. While 49% of the respondents are male and 51% of them are female. This is in line with the sex ratio of the state of Kerala where women outnumber males. Around two-thirds (73.4%) of the respondents are married and around one-third (26.3%) of them are unmarried. While half of the respondents (50.9%) are Hindus, 44.4% are Christians and 4.7% are Muslims. Nearly two-thirds (73.6%) of the respondents belong to the higher castes while around one-fifth (18.7%) of them belong to backward castes and less than one-tenth of them (7.7%) belong to the SC/ST communities.

It is found that 40.9% of the respondents hold a degree or have higher educational levels, while 38.9% have secondary or higher secondary education while one-tenth of the respondents hold diploma or certificate in technical education. Only 7.9% have primary education especially those who are working in the agricultural sector. More than one-tenth (12%) of the respondents are employed in government or public sector and 15.3% are

employed in private sector. About 14.6% are self-employed or have their own business and 13.1% are employed in agriculture sector. Interestingly nearly half of the respondents (45%) are unemployed, women account for a majority of the unemployed in the district. While over a third of the respondents have a family member working abroad, one-fifth (20.4%) of the respondents had a family member employed in government service. Over half of the respondents (52.4%) belong to the middle income group followed by nearly one-third of them (29.7%) who belong to the low income group and less than one-fifth of the respondents (17.9%) in the high income group.

Exposure to Mass Media and e-Governance Information

An overwhelming majority (92.3%) of the respondents both men and women read newspapers daily. While about two-third women (73%) have expressed their interest in reading political news, an overwhelming majority of men (92.5%) expressed their interest in reading political news. Men and women were equally interested in reading social and development news. While men and women were equally interested in reading news on e-governance programmes and services, men were more interested in reading business news and economic matters compared to women. Over half of the respondents (54.7%) were interested in reading news related to agriculture since many of the respondents reside in the rural areas where agriculture is a dominant occupation. While 46.7% had read governance related news in newspapers, one-third of the respondents (33.1%) made use of governance programmes that they read in the newspapers. Half of the respondents (50.1%) recall seeing posters which convey e-governance related news, advertisements and messages. About three-fourth of the respondents (71.1%) watch e-governance related programmes on TV.

Results and Discussion

It is widely recognized that timely availability of information enables good decisions, increases productivity and improves governance. However, to ensure that information is available in a timely manner, systems for collating data and converting them into information inputs are essential. It is essential to have systems, which ensure that relevant information is available anywhere anytime and in any way for interactions between Government to Government (G2G), Government to citizens (G2C) and Government to businesses (G2B). The emphasis of citizen relevant data has been on reducing the transaction costs incurred by the individual citizen as on date. The transaction cost here does not refer to the pricing of services (user charges) but the cost involved in getting information, like cost of repeated travel, wastage of time and opportunity cost, etc. Currently, citizens would need to make

many visits to various government offices to get details of schemes or entitlements including certificates required by him. Invariably they would be required to file applications in a defined format and many a time they would require to buy application forms and then fill it up. If some clarification were required on filling up certain fields, they would again have to take the help of 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 costs. Though such expenditure is not directly linked to the availing of the benefit, the impression is that the benefit comes free of user charges. Since many offices have limitations in physical infrastructure, citizen interface of the above nature is sub-optimal leading to customer dissatisfaction. Hence it is critical to have decentralised information access centres that cater to a range of citizen needs and has an inbuilt integrated front-end system.

Are the Akshaya centres being implemented in Kerala in line with the objective of increasing citizen participation in e-governance?

The Akshaya e-literacy project of Kerala Government was implemented in 2002 jointly by the Kerala IT Mission and Department of Science and Technology, with tie-ups 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 are connected via the Internet and mailing facility in Malayalam, the local language is also provided. Akshaya centres were set up within a distance of 2-3 km to serve as an ICT access points, one for every 1000 families. There are 2328 Akshaya centres out of which 2662 (87.50%) are in the rural areas. It is to be enhanced to 3180 centres in the near future thus covering every part of the State, even the remotest villages (<http://akshaya.kerala.gov.in/>). All these centres are recognized by the Central government as CSCs. Thus the access to Akshaya centres is the first step towards bridging the digital divide.

The Akshaya centres being implemented in Kerala are in line with the objective of increasing citizen participation in e-governance. They are access centres 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 is a critical information management issue. Given the fact that all the government departments and individual offices do not have automated systems or computerised backend information systems, currently such data flows are in the manual mode using defined

proformas in specified periodical statements and has issues of delay and retrievability for analysis attached to it. The capturing of data in proformas and forwarding the same in electronic format to central repositories through the infrastructure available at Akshaya Centres are crucial in 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 that some of the transactions in these categories are also brought to decentralised and integrated front-ends. This would essentially mean that Government can then concentrate more on the critical core backend operations that it is mandated to do and would channelize its information and transactions through a wide spread network of access points. A key component of such a decentralized system wherein the information and if possible transaction services happens outside the premises of government offices/institutions, would be the presence of electronic access points which could serve as information/transaction dissemination points as well as data collection and capture points. Akshaya, seeks to provide such access points. The Akshaya centres also offer over 23 government services on continued e-learning programme, data entry under e-governance programme, DTP and job-typing work, computer training for public, design of invitation cards, visiting cards, banners, posters, paper bags, screen printing, data bank services and telemedicine applications.

Are the Akshaya centres designed within a public-private partnership framework which would augment the financial viability of the centres?

There are several community telecentres in different countries initiated by the public and private sector funded by individual entrepreneurs, local bodies, government and international institutions. Harris (2001) studied five rural telecentre projects in Asia funded by the Canadian Government's International Development Research Centre (IDRC), which include the e-Bario in Malaysia, MS Swaminathan Research Foundation (MSSRF) Village Information Shops in India, Foundation of Occupational Development (FOOD) in Chennai, India, Multipurpose Community Telecentres in Philippines and Internet Information Centres in Mongolia. All these projects envisaged communication systems encompassing people, organisation, infrastructure and processes to support rural communities in achieving sustainable development. The projects located in India had demonstrated success while others were at an early stage to demonstrate significant development gains (Harris, 2001). In Nepal the telecentres showed no systematic participation of people in learning, information and

training except for providing incidental technical assistance (Tulachan, 2010). Similarly, in Vietnam the telecentres have yet to make people part of the information society (Colle and Van Dien, 2013). In a study of Akshaya and the two UNESCO ICT initiatives Nabanna in West Bengal and Namma Dhwani in Karnataka, the most striking difference was one of scale (Nair et al, 2006). While Nabanna and Namma Dhwani both operated in a maximum of five centres, Akshaya had state-wide operations. The Akshaya project was on a sound financial footing due to its backing by the State Government and municipality which together invested 13.2 crores (132 million in 2006) and it was amply supported by the technical teams at KSITM and TULIP IT services and given entrepreneurial training by STED (Science and Technology Entrepreneurship Development). When compared to the UNESCO initiatives, the Akshaya project has achieved an impressive level of success in putting into place various administrative, technical and training responsibilities. The critical difference between Akshaya and UNESCO's ICT centres—lies in Akshaya's strategy of involving and building ICT entrepreneurs from the community while both Nabanna and Namma Dhwani are projects that are working with the community, but nonetheless have largely been conceived and executed by the NGO partners (Nair et al, 2006).

Akshaya has been modelled as ICT access points that 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 which would augment the financial viability of the centres. The investment for setting up the e-centres is made by the entrepreneurs. It costs around Rs.3.00 lakhs (\$4,800 approx.) for setting up an Akshaya e-centre with five to ten computers, printers, scanners, webcam, other peripherals and necessary software. The entire recurring expenditure for running the e-centre is also borne by the entrepreneur. KSITM provides the support required to sustain the project by way of e-literacy, training fund, connectivity, advanced courses, content CDs software, e-governance and various others services. KSITM focuses on creating effective market mechanisms for demand – driven delivery of services in a Public Private Partnership (PPP) framework.

Akshaya's strategy builds ICT entrepreneurs from the community supported by the technical teams at KSITM and TULIP and given entrepreneurial training by STED (Science and Technology Entrepreneurship Development). The project has achieved an impressive level of success in putting into place various administrative, technical and training responsibilities (Nair et al, 2006). Akshaya operates within an economic model linked to the

management skills and social commitment of the entrepreneur in terms of its social and financial sustainability. The service delivery phase opens up ample opportunities for entrepreneurs to earn a steady income by offering a variety of services such as e-learning, e-commerce, advanced IT training, e-governance, communications and specific community based services.

The planned interventions that can come from government initiatives, especially in the developing countries are important and inevitable. The Government usually has the resources, the infrastructure and the authority to implement programmes aimed at reducing the digital divide (Joshi, 2004). Government policies will influence the ability of telecentres to induce desirable development outcomes (Harris, 2001). Market forces can play an important part only if the Government policies are favourable. The private sector is primarily responsible for providing access and competitive private sector-led markets go a long way toward making these services widely available. The public sector's main role is to provide a sound policy framework, regulate markets where they do not work well enough on their own, and support additional service provision where markets do not achieve economic and social objectives. The Government of India has undertaken an initiative namely Bharat Net -- a high speed digital highway to connect all 2.5 lakh Gram Panchayats of country. This would be the world's largest rural broadband connectivity project using optical fibre. The public telecom service provider BSNL has undertaken large scale deployment of Wi-Fi hotspots throughout the country which will render affordable access to the internet.

Do these centres serve as anchor institutions or demand aggregators, and which provide digital literacy instruction, continuing education, job training and entrepreneurship classes for capacity building?

The Akshaya project was aimed to make at least one person in each of the 65 lakh families in the State e-literate through a 15-hour course in the first phase of Akshaya Project from 2002 to 2006. 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-centres in at least six different locations within the division. Thus, Kudumbasree units (women's self-

help groups), anganwadis (child care centres), political party offices, vacant buildings of the corporation, individual households and even police stations were turned into centers for computer learning (Praveen, 2009). Of the 5,12,270 e-literate people in the Ernakulam district, 3,43,753 were trained in basic computer literacy by Akshaya (Praveen, 2009). Near universal e-literacy was achieved in eight districts in Phase 1. The pilot project in Malappuram district had multipurpose community training centres to train people to handle computers, data entry, desktop publishing and Internet browsing. Malappuram was declared as the first e-literate district in India. Malappuram and Kannur districts were declared as 100% e-literate. Kollam, Kozhikode, Thrissur and Kasargodu districts achieved e-literacy above 90%. So far around 33 lakh beneficiaries have been trained under the Akshaya e-literacy project.

In 2007 Akshaya moved into the second phase two of the project, covering the balance six districts and also rendering new G2C and B2C Services. Akshaya has to its credit over 200 crore rupees worth transactions besides providing multitude of services through its 2000+ Akshaya centres. 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 the 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 (<http://www.akshaya.kerala.gov.in>).

The Akshaya Project is an e-governance initiative that has succeeded in drawing people to use technology in a socially deterministic ways to satisfy local needs. In an evaluation of the Akshaya Project it was found that it was successful in generating employment, providing IT literacy, enhancing communication and providing e-services (Ghatak, 2006). The Akshaya programme generated employment for the youth, particularly women, for work like DTP, typing etc. Trainees particularly women could search for better employment opportunities at the end of their course. Akshaya programme provides cheaper e-literacy courses to the people. The courses offered ranges from easier ones (like MS Office, DTP) to harder ones (like Diploma courses). E-learning programmes like Intel learning, Learn English, Arabic Tutor, Internet for Mass, Medical Transcription, e-Vidhya etc are already introduced and are implemented by a number of e-centres. Internet enabled kiosks are used by people to contact their relatives/ friends who are staying abroad (such as the Gulf

countries) or other States in India. Communication is also done for marketing of products. Akshaya kiosks are providing a range of services like registration of births and deaths; collection and feeding of health related data (in a way acting as databanks) of the local population (by tying up with village administrative units) (Ghatak, 2006).

In the third phase from 2011 the Akshaya centres were recognized as CSCs by the central government to provide a range of 23 citizen services. A flagship project funded by UNESCO in association with Akshaya called *Entegramam* (My Village) was launched which is an online community portal in Malayalam and maintained by the citizens of each village. The project aimed at bringing forth web portals that cater to the needs of the citizens locally. Each village has its own space in the portal and the information ranges from a catalog of 'useful services' from coconut tree climbers, carpenters, and more along with their phone numbers and location where they live. The portal also has the history of the land, governance, information on public services, locally relevant news and announcements. This project has been implemented in Kannur district. In the course of time the portals will be used for local transaction, enabling in it with more business features.

The access to information, backed with relevant infrastructure and services, not only allows rural populace to improve its quality of life but also support and supplement its existing incomes in a sustainable way. Access to information and services like e-governance, micro-credit, literacy, education, health, etc., can provide a solid foundation for the economic prosperity of rural villages. Rural consumers were willing to pay for products and services that meet their needs and are offered at affordable prices. The potential of extending Akshaya ICT facilities would not only facilitate better communication, with a direct improvement in the quality of family lives and positive impacts on savings, but it would also open up unlimited opportunities to develop training resources, up-grade human resources and improve trade and job opportunities (Nair et al, 2006).

Akshaya Centres, e-literacy and Participation in e-governance

A great majority of the respondents (84.3%) reported that Akshaya centre is available near their residence while less than one-fifth of the (15.7%) reported that there was no Akshaya centre near their home (see Table 1.1). An attempt is made to find how the respondents came to know about Akshaya centres. Nearly half of the respondents (43.6) know about Akshaya through their friends and neighbours followed by one-fifth of them (22.6%) through mass media and advertisements. Less than one-fifth of them (17.3%) came to know Akshaya through Akshaya entrepreneurs while less than one-tenth of them (7%) came to

know through local government functionaries. About one-tenth of the respondents (9.6%) had never heard about Akshaya centres (see Table 1.2). The results about awareness of Akshaya centres among men and women are highly significant.

Table 1.2: Percentage distribution of respondents' awareness about Akshaya Centres

Awareness about Akshaya Centres		Gender		Total
		Male	Female	
Never heard	Count	39	28	67
	% within Gender	11.3%	7.9%	9.6%
Through friends and neighbours	Count	123	182	305
	% within Gender	35.7%	51.3%	43.6%
Mass media and advertisements	Count	95	63	158
	% within Gender	27.5%	17.7%	22.6%
Local government functionaries	Count	20	29	49
	% within Gender	5.8%	8.2%	7.0%
Through Akshaya entrepreneurs	Count	68	53	121
	% within Gender	19.7%	14.9%	17.3%
Total	Count	345	355	700
	% within Gender	100.0%	100.0%	100.0%

Pearson Chi-Square = 23.075; $P \leq 0.000$

Table 1.3: Percentage distribution of respondents' knowledge of Akshaya services

Knowledge of Akshaya services		Gender		Total
		Male	Female	
No	Count	109	143	252
	% within Gender	31.6%	40.3%	36.0%
Yes	Count	236	212	448
	% within Gender	68.4%	59.7%	64.0%
Total	Count	345	355	700
	% within Gender	100.0%	100.0%	100.0%

Pearson Chi-Square = 5.731; $P \leq 0.02$

About two-thirds (64%) of the respondents were aware of the various services available at Akshaya centres while one-third of them (36%) did not know about them (see Table 1.3). A similar trend is reported by both men and women. Irrespective of gender, people's awareness about various services is high. The services offered by the Akshaya centres

include payment of utility bills, various certificates, insurance, application for ration cards, web browsing and e-learning.

Majority of the respondents (72.7%) were aware that Akshaya centres were conducting computer training while about one-fourth of them were not aware of it (see Table 1.4). It is also found that majority of the respondents (71.7%) were aware that Akshaya centres has internet browsing facility while one-fourth (28.3%) of them were not aware about it (see Table 1.5). Similar trends are reported by both men and women.

Table 1.4: Percentage distribution of respondents' knowledge of computer training at Akshaya

Knowledge of Akshaya's service on computer training		Gender		Total
		Male	Female	
No	Count	102	89	191
	% within Gender	29.6%	25.1%	27.3%
Yes	Count	243	266	509
	% within Gender	70.4%	74.9%	72.7%
Total	Count	345	355	700
	% within Gender	100.0%	100.0%	100.0%

Table 1.5: Percentage distribution of respondents' awareness of Internet browsing facilities in Akshaya

Knowledge of Akshaya's service on Internet browsing		Gender		Total
		Male	Female	
No	Count	89	109	198
	% within Gender	25.8%	30.7%	28.3%
Yes	Count	256	246	502
	% within Gender	74.2%	69.3%	71.7%
Total	Count	345	355	700
	% within Gender	100.0%	100.0%	100.0%

Table 1.6: Percentage distribution of respondents who prefer to go to various offices directly than use the services of Akshaya

Prefer to go to various offices directly than use the services of Akshaya		Gender		Total
		Male	Female	
No	Count	241	248	489

	% within Gender	69.9%	69.9%	69.9%
Yes	Count	104	107	211
	% within Gender	30.1%	30.1%	30.1%
Total	Count	345	355	700
	% within Gender	100.0%	100.0%	100.0%

Over two-thirds of the respondents (69.9%) favour utilizing the services available at Akshaya instead of going to various offices. About one-third of them (30.1%) reported that they prefer to go to various offices as Akshaya centres were more distant than the government offices. The same trend is reported by both men and women (see Table 1.6). During the course of the study, interviews with people revealed that those who live in the vicinity of the government offices often go there rather than to the Akshaya centres which are further away. Kerala has a sizeable population employed outside the state and the country. They would like to make payments for property tax, electricity, telephone and other services on an annual basis which is normally facilitated at government offices after checking their account balances for such payments.

Table 1.7: Percentage distribution of respondents, family members, neighbours, friends who underwent computer training at Akshaya

Undergone computer training at Akshaya		Gender		Total
		Male	Female	
Individual	Count	47	78	125
	% within Gender	13.6%	22.0%	17.9%
Family member	Count	78	92	170
	% within Gender	22.6%	25.9%	24.3%
Neighbours/friends	Count	120	88	208
	% within Gender	34.8%	24.8%	29.7%
No training	Count	102	95	197
	% within Gender	29.5%	26.7%	28.1%
Total	Count	345	355	700
	% within Gender	100.0%	100.0%	100.0%

Pearson Chi-Square = 8.314; $P \leq 0.004$

More than two-thirds of the respondents, one of their family members, neighbours or friends (71.9%) had received e-literacy training at the Akshaya centres. More than one-fifth of the women respondents (22%) underwent computer training at Akshaya while more than

one-tenth of men (13.6%) underwent computer training. About one-fourth (24.3%) of the respondent's family members were trained in the use of computers at Akshaya. Over a quarter of them (29.7 %) reported that either their neighbours or friends were trained in the use of computers at the Akshaya centre. Over a quarter of them (28%) had not received e-literacy training a majority of them being agricultural workers and mothers with small children.

Table 1.8: Percentage distribution of respondents who think they can work more efficiently with computer skill

Work more efficiently with computer skill		Gender		Total
		Male	Female	
No	Count	82	59	141
	% within Gender	23.8%	16.6%	20.1%
Yes	Count	263	296	559
	% within Gender	76.2%	83.4%	79.9%
Total	Count	345	355	700
	% within Gender	100.0%	100.0%	100.0%

Pearson Chi-Square = 5.558; $P \leq 0.02$

A great majority of women (83.4%) think that they can work more efficiently with computer skills while three-fourth of the men (76.2%) reported the same. More than one-fifth of men (23.8%) think they may not work more efficiently with computer skill while less than one-fifth of women reported the same (see Table 1.8). A comparison of the data reveals that more women think they can work efficiently with computer skills.

Table 1.9: Percentage distribution of respondents who use Internet for e-mail, chat, facebook, etc to communicate with friends and colleagues

Use Internet for e-mail, chat, facebook, etc to communicate with friends and colleagues		Gender		Total
		Male	Female	
No	Count	190	249	439
	% within Gender	55.1%	70.1%	62.7%
Yes	Count	155	106	261
	% within Gender	44.9%	29.9%	37.3%
Total	Count	345	355	700
	% within Gender	100.0%	100.0%	100.0%

Pearson Chi-Square = 16.989; $P \leq 0.000$

Nearly half of men (44.9%) and less than one-third of women (29.9%) use internet for e-mail, chat and some of the social networking groups to communicate with their friends and colleagues (see Table 1.9). The empirical findings establish that more men use internet facility to communicate with friends and colleagues than women. Capacity building programmes can bridge the gender divide in the digital world.

Table 1.10: Percentage distribution of respondents who use Internet to access market networks

Use Internet to access market networks		Gender		Total
		Male	Female	
No	Count	311	342	653
	% within Gender	90.1%	96.3%	93.3%
Yes	Count	34	13	47
	% within Gender	9.9%	3.7%	6.7%
Total	Count	345	355	700
	% within Gender	100.0%	100.0%	100.0%

Pearson Chi-Square = 10.714; $P \leq 0.001$

While a great majority of the respondents (93.3%) did not use the internet to access market networks (see Table 1.10) it is heartening to note that 6.7% of them used the internet to access with market networks. Around one-tenth of the men had accessed market networks when compared to women who account for a majority of the unemployed in the district.

Table 1.11: Percentage distribution of respondents who know about e-governance programmes through digital /social media (internet/ facebook, twitter)

Know e-governance programmes through digital/social media (internet/ facebook, twitter)		Gender		Total
		Male	Female	
No	Count	280	321	601
	% within Gender	81.2%	90.4%	85.9%
Yes	Count	65	34	99
	% within Gender	18.8%	9.6%	14.1%
Total	Count	345	355	700
	% within Gender	100.0%	100.0%	100.0%

Pearson Chi-Square = 12.364 $P \leq 0.000$

A majority of the respondents (85.9%) did not receive any information about e-governance programmes and facilities through digital/social media which includes e-mail,

facebook and twitter. More than one-tenth of them (14.1%) received such information through social media (see Table 1.11). It was found that messages related to e-governance would be delivered only to those who registered their e-mail addresses or mobile numbers to the concerned authority. The Digital India project proposes to use mobile platforms to reach people who were hardly in touch with government departments.

Table 1.12: Percentage distribution of respondents who benefited from information on the Internet

Benefited from information on Internet	Gender		Total
	Male	Female	
Received information about jobs	45.2% (156)	42.5% (151)	43.9% (307)
Received information about educational opportunity	57.1% (197)	61.7% (219)	59.4% (416)
Received information about health issues	20.9% (72)	23.9% (85)	22.4% (157)
Received information about income generation and business opportunity	11.0% (38)	9.3% (33)	10.1% (10.1)

Note: Total percentage is not equal to 100 as multiple responses were reported.

An attempt was made to evaluate whether the information they received from the internet was beneficial to the respondents. More than half (59.4%) of them reported that they benefited from the educational opportunity information through internet followed by less than half of them (43.9%) who reported that they benefited from information about job openings/opportunities. Less than one-fourth of them were benefited from health information followed by about one-tenth of them who reported that they were benefited for income generation and business opportunity from internet (see Table 1.12). A majority of them benefited for educational opportunities as the government of Kerala made a single window admission procedure for the Plus 2 courses (11 to 12th class). Moreover admissions to all professional courses were administered through on-line counselling. It is reported during field study that people who do not have computer skills also take help of others or avail the service of Akshaya centre or any Internet Cafe to access educational opportunities and enrolling for admission tests and counselling.

Table 1.13: Percentage distribution of respondents who offer suggestions on development works in your neighbourhood

Respondents who offer suggestions on development works in their neighbourhood	Gender		Total
	Male	Female	

No	Count	92	162	254
	% within Gender	26.7%	45.6%	36.3%
Yes	Count	253	193	446
	% within Gender	73.3%	54.4%	63.7%
Total	Count	345	355	700
	% within Gender	100.0%	100.0%	100.0%

Pearson Chi-Square = 27.226 $P \leq 0.000$

About three-fourth of the men (73.3%) offer suggestions on development works in their neighbourhood while more than half of the women respondents (54.4%) offer suggestions on development works in their neighbourhood (see Table 1.13). More men were offering suggestions for development works in their area compared to women as expected due to the dominant role of men in public life in the State and country.

An overwhelming majority of the respondents (87.1%) opined that e-literacy is needed to get more access to government services and information online compared to about one-tenth of them (12.9%) who does not think so (see Table 1.14). This revelation has an important bearing on policy making. The government needs to continue capacity building efforts to offer free e-literacy classes to all those who do not have e-literacy. The Kerala government's initiative of providing e-literacy through Akshaya centres been successful in enabling people to communicate and interact online and access online services with the help of the Akshaya staff but they need more digital skills to engage in e-commerce and e-governance.

Table 1.14: Percentage distribution of respondents who think e-literacy is needed to get more access to government services and information online

e-literacy is needed to get more access to government services and information online		Gender		Total
		Male	Female	
No	Count	38	52	90
	% within Gender	11.0%	14.6%	12.9%
Yes	Count	307	303	610
	% within Gender	89.0%	85.4%	87.1%
Total	Count	345	355	700
	% within Gender	100.0%	100.0%	100.0%

Kerala is also in the forefront of setting up mobile governance. M-Governance is defined as the strategy and implementation involving the utilization of wireless and mobile technology services, applications and devices for improving benefits for citizens, business and all Government units. The rapid diffusion of mobile ICT gadgets such as laptops, mobile phones, Personal Digital Assistants (PDAs), along with emails, instant messaging and other networking services have rapidly fuelled the mobile interaction. In order to take advantage of mobile and wireless ICT technologies as well as dealing with the fluidity of the interaction with the mobile society and booming mobile usage rates, the Kerala State Government has initiated action to set up about 20 m-Government Services offered by 8 departments identified for pilot level implementation and to deliver services through mobile phones accessible to the citizens in the field, in the street, at home or other convenient locations on a 24 x 7 basis, rather than the users having to visit Government offices or log on to the Internet portals to access services.

The case studies of the Akshaya centres and personal interviews with entrepreneurs revealed that there are some factors that contribute to the successful running of the centres. The knowledge of computers, IT skills, ownership of premises, an additional occupation to beset the operational costs of running the centre, entrepreneurial skills and the ability to build a rapport with the community. Entrepreneurs who understood the nature of the programme, the need to provide e-literacy to bridge the digital divide and felt that running Akshaya Centre was a social responsibility were successful in running the CSC than those who viewed it purely from a business perspective (Prasad, 2011).

Summary of Findings

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. The findings of this study suggest that the Indian government's e-governance programme, with the CSCs promoting sheer access to the Internet, 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.

It is also clear that literacy skills, greater awareness, education, and capacity-building efforts such as the Akshaya e-literacy project in Kerala are 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. Akshaya Project is a bottom-up model for imparting e-literacy training, delivery of content, services, information and knowledge, that integrates public and private enterprises - through a collaborative framework - to integrate their goals of profit as well as social objectives, into a sustainable business model for achieving rapid socio-economic change in the State. It is unique as local ownership of Akshaya centres has fostered its sustainability even in difficult times. Many projects that were externally owned, donor-funded and had limited timeframes often resulted in wastage of resources and had to close down as the necessary skills to sustain them were not honed through entrepreneurial capacity building.

Future research projects can study various capacity building measures to determine the efficiency of e-literacy of communities and frame suitable policies for digital inclusion of people of developing countries. ICT initiatives can be studied for UCD (User-Centred Design) that gives attention to the target audience's perspective. Capacity-building initiatives like the Akshaya project can bridge the digital divide and advance digital democracy by including women who have often been restricted and received limited benefits of access to ICTs (Prasad, 2007; Prasad 2008). The study demonstrates that Akshaya has provided equitable access to women in e-literacy training, ICT access, availing various services and even becoming ICT entrepreneurs themselves. 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 with the implementation of Digital India Project 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 (Prasad, 2011).

REFERENCES

- Arul Aram, I. (2004). E-governance: Ushering in an era of e-democracy, in Prasad, K. (Ed.). *Information and Communication Technology: Recasting Development*, pp. 355-372, New Delhi: B. R. Publishing Corporation.

- Bagga, R. K., Kenniston, K. and Mathur, R.R. (Eds.) (2005). *The State, IT and Development*, New Delhi: Sage.
- Bekkers, V. and Homburg, V. (2007). The Myths of E-Government: Looking Beyond the Assumptions of a New and Better Government, *The Information Society* 23 (2007): 373-382.
- Bhatnagar, S. (2012). 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.
- Chandrasekhar, C. P. (2006). India is Online but most Indians are not, *The Hindu*, September 25.
- Colle, R. (2000). Communication Shops and Telecentres in Developing Countries, in Gurstein, M. (ed.) *Community Informatics: Enabling Communities with Information and Communications Technologies*, Hershey, USA: Idea Group Publishing.
- Colle, R. and Tran Van Dien (2013). A Role for Universities in ICT for Development Interventions, in Jan Servaes (ed.). *Sustainable Development and Green Communication: African and Asian Perspectives*, UK: Palgrave Macmillan.
- Das, S.R. and Chandrashekhar, R. (2007). *Capacity Building for E-Governance in India* available at www.apdip.net/projects/e-government/capblg/ (accessed on August 16, 2011).
- Ghatak, S. (2006). Gender Facts in Malappuram, Kerala: Evaluating the Akshaya Programme. Retrieved on 9th January 2009 from http://www.i4donline.net/news/top_news.asp?catid=3&newsid=8704.
- Harris, R. (2001). *Telecentres in Rural Asia: Towards a Successful Model*, Conference Proceedings of International conference on Information Technology, Communications and Development (ITCD 2001), November 29-30, 2001, Kathmandu, Nepal. www.itcd.net Accessed 3 July 2015.
- Henman, P. (2010) *Governing Electronically: E-Government and the Reconfiguration of Public Administration, Policy and Power*, Palgrave Macmillan.
- Holmes, D. (2001). *E.gov: e-business strategies for government*, London: Nicholas Brealey Publishing.
- <http://akshaya.kerala.gov.in/>
- Jayakar, K. (2012). Promoting Universal Broadband through Middle Mile Institutions: A Legislative Agenda, *Journal of Information Policy*, 1 (2011): 102-124.
- Joshi, S. R. (2004). Bridging the Digital Divide in India, in Prasad, K. (Ed.). *Information and Communication Technology: Recasting Development*, pp. 415-449, New Delhi: B. R. Publishing Corporation.

- Kalam, A.P.J. Abdul (2005). A Vision of Citizen-Centric E-Governance for India, in Bagga, R. K., Keniston, K. and Mathur, R.R. (Eds.) (2005). *The State, IT and Development*. New Delhi: Sage.
- Keniston, K. (2004). Introduction: The four Digital Divide, in Keniston, K. and Kumar, D. (Eds.). *IT Experience in India: Bridging the Digital Divide*. New Delhi: Sage.
- Mosse, B. and Whitely, E.A. (2009). Critically Classifying: UK e=government website benchmarking and the recasting of the citizen as customer, *Information Systems Journal*, 19(2), 142-173.
- Nair, S., Jennaway, M. and Skuse, A. (2006). *Local Information Networks: Social and Technological Considerations*, New Delhi: UNESCO.
- NeGP (2006). National e-Governance Plan. Retrieved on 2 February 2011 from http://arc.gov.in/11threp/ARC_11thReport_Ch7.pdf.
- Prasad, K. (2004). Information and Communication Technology for Development in India: Rethinking Media Policy and Research, in Prasad. K. (Ed.). *Information and Communication Technology: Recasting Development*. pp. 3-48, New Delhi: BRPC.
- Prasad, K. (2007). From Digital Divide to Digital Opportunities: Issues and Challenges for ICT Policies in South Asia. In *Global Media Journal*, Indian Edition, July 2007. <http://www.manipal.edu/gmj/issues/jul07/prasad.php>.
- Prasad, K. (2008). The Digital Divides: Implications of ICTs for Development in South Asia. Papers in International and Global Communication, No 3/08, ISSN 1752-1793, Centre for International Communication Research, Institute of Communication Studies, University of Leeds, available at <http://ics.leeds.ac.uk/papers/cicr/exhibits/56/Leeds-CICRworkingpaper-Kiran.pdf>
- Prasad, K. (2009). *Communication for Development: Reinventing Theory and Action*, Volume 1 & 2, New Delhi: BRPC.
- Prasad, K. (2011). *ICTs and e-Governance: A Study of People's Participation in Kerala*, UGC Major Project Report, New Delhi: University Grants Commission.
- Prasad, K. (2012). E-Governance Policy for Modernizing Government through Digital Democracy in India, *Journal of Information Policy*, Vol. 2 (2012): 183-203.
- Prasad, K. (2013). *New Media and Pathways to Social Change: Shifting Development Discourses*, New Delhi: B.R. Publishing Corporation.
- Praveen, M.P. (2009). Ernakulam district to become e-literate. *The Hindu*, February 24, 2009 Retrieved on February 24, 2009 from <http://www.hindu.com/2009/02/24/stories/2009022458320200.htm>.
- Praveen, M.P. (2011). "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>.

- Raman, V. (2013). Technologies for Governance Reconsidered: A Capabilities-based Model from Developing Countries, in Kiran Prasad (Ed.). *New Media and Pathways to Social Change: Shifting Development Discourses*, New Delhi: B.R. Publishing Corporation.
- Sinha, D. (2005). Information Technology and Citizen Participation: Macro-Lessons from a Micro-Study, *Global Media Journal*, Indian Edition, Retrieved on 15th April 2009 from <http://www.manipal.edu/gmj/issues/nov05/dipankar.php>.
- Tulachan, A. (2010). Telecentres as local institutions: Present landscape in Nepal, *The Journal of Development Communication*, 21 (1), 62-68.
- United Nations (2010). *United Nations E-Government Survey: World e-government rankings*, New York: United Nations.
- United Nations (2014). *World Urbanization Prospects: The 2014 Revision, Highlights*, New York: UN, Department of Economic and Social Affairs, Population Division.