

E-Governance in India: Sociological Perspective

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Abstract

e- Governance, especially in developing countries, is looked upon as a means to change the very concept of governance resulting in empowerment of the citizens and increased transparency in public sphere. The experience of production, diffusion and use of ICTs in India has been intriguing and complex, it is also home to one of the largest set of civil society experiments using ICTs to empower the marginalized. e- Governance in India, with its grand scale of investment, ambitious goals and pervasiveness, is one of the biggest spectacles of technological intervention in everyday life of people, especially in the rural areas. The paper aims to build a theoretically informed case for sociological enquiry into e-governance by problematizing the relationships between technology, development and governance – from the grand global narratives to the local contextual minutiae. The paper argues that there are structural constraints that confront initiatives in that direction there by reinforcing or aggravating inequities scripted by the current global capitalist dynamic.

Keywords: ICTs, Governance, Technology, India

Introduction

Recent academic and policy discourse has converged around the idea of ‘good governance’ is essential for human development. This discourse also promotes information and communication technologies (ICTs) as important instruments of development and has been integrated into a series of development projects and “good governance” initiatives. The e-governance is a result of a development which is revolutionizing the government and citizen interface. It is stated that, in recent years, e-governance has become a corner stone of the government policy and considered as one of the most important instruments in realizing the idea of good governance and this initiative will improve the functioning of the state by simplifying administrative process and enhance its accountability and transparency (Vandana and Ajay, 2012).

According WEF Global Information Technology Report, India’s ranks 24th out of 134 countries with 5.38 score in accessing and overall priority of ICTs. Therefore, there is tremendous potential for e-governance to provide exponentially benefit to their citizens, as result e-government initiatives have been undertaken both by the central government and various state governments to replace traditional modes of working (Sanjay and Ajay, 2005). According to NASSCOM, the e-governance market in India is witnessed year-on-year growth and is estimated to be 1400 crores in size in 2001-02, Rs 2200 crore in 2002-03 and e-governance market grew by 18% in 2002-03. Our National e-Governance Plan (NeGP, 2006) which assumes to take “a holistic view of e-Governance initiatives across the country integrating them into a collective vision, a shared cause”, exemplifies how technology has hegemonised policy in India. The NeGP aims to ‘*make all Government services accessible to the common man in his locality, through common service delivery outlets and ensure efficiency, transparency & reliability of such services at affordable costs to realize the basic needs of the common man*’. (ibid.)

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Concept of e-governance

Generally, governance refers to the system of directing and controlling the actions, affairs, policies and functions of a political unit, organization or nation (Majumdar, 2004). The concept of e-governance is of recent origin, e-governance is an attempt of government to harness information technology to improve the efficiency or effectiveness of the executive function of government (Schoeniger, 2002). It is further viewed that e-governance has emerged because of the increasing interest of government, citizens to exploit new media and the latest technologies which involves new styles of leadership, new ways of debating, deciding policy, investment, accessing education, listening to citizens, organization, delivering information and services (Sumanjeet, 2006).

Former Chairman NASSCOM Product Forum and CEO India Operations estimate “23 percent of government spending goes on defense, while 46 percent of it on governance. If a small fraction is spent on technology, namely to streamline the processes, it will really boost the domestic tech industry”*. In this context, e-governance is considered as a high priority agenda in India, as it is considered to be the only means of taking IT and governance to the “Common Public” and ICT has enabled governments to adopt holistic approach by connecting various departments and organs of government as never before. With the advancements in ICTs e-governance has become not only necessary but also essential in a set-up where people are the biggest stakeholders (Krishnaiah, 2001).

Evolution of ICTs

In some studies technology is considered an entity that shapes rural community life (Wisner, et al., 2004). Extreme pessimism or optimism characteristically greet introduction of new technologies that may radically transform socio-economic processes and structures. It is further argued that in the neo-liberal era of governance, technology has come to occupy a central role. Over the last few years the Internet is no longer what it was in the 1970s or 1980s; it has become a contested space with considerable possibilities for segmentation and privatization. The first phase of the internet was confined largely to a community of insiders – Scientists and select government agencies. The second phase of the Internet, centered in the 1980s, opened it up to a far larger and less specialized community. However with the establishment of the worldwide web in 1993 and its large scale discovered by business by 1995, the internet has entered a third phase, one characterized by attempts to commercialize it. With the advent of ICT initiatives, the way we communicate transact and deliver things has gone for a paradigm shift, the third phase of Internet witnessed increasing digitization and use of information processing technologies to reduce costs, improve speed and quality of delivery (Sassen, 1998).

In development literature ICT is created as a monolithic and homogeneous entity. Kling (2000) states that a monolithic view leads to overestimating the generalizability of specific information technology applications from one context to another. Orlikowski and Iacono (2001) point out that ICT is anything but a monolithic entity. It has many facets, it is fragmented and undergoes constant change. ICT use is contextual and its consequences are intended as well as unintended. Markus (2000) observes that the unintended consequences of ICT are far more prevalent. Sein and Harindranath (2004) in a review of ICTs’ use in national development identify four views. They are i) ICT as a driver of the economy, and ICT directed at specific development activities. ICT is seen as a commodity or product to be used to earn foreign currency through export. ii) ICT as supporting general development activities. This view suggests that ICT helps in activities related to development, that is, development planning and the management to development projects, development training, and as support for agencies engaged in development activities such as nongovernmental organizations (NGOs) (Madon 1994). It is a widely accepted fact that one of the most important problems facing developing countries is the problem of ‘information poverty’ (i.e. the scarcity of the reliable information essential for the efficient and effective functioning of both governments and firms). iii) ICT is viewed as force to have a macro-level influence (e.g. in infrastructure development, education, in the development of the private sector). ICT can help enhancing the working of markets and reducing transactions and coordination

*. Deepak Ghaisas, 2007, [<http://egovindia.wordpress.com/2007/04/22/National-Policy-on-egovernance-required>]

costs within and across organizations. iv) ICT directed at specific development sectors or projects. This view suggests that ICT is conceptualized as having a developmental impact when it is used within the context of targeted developmental initiatives.

In this context, it is stated that, the introduction of e-governance will mitigate social inequalities inherited through the hierarchical division of society (where the structural discrimination directly impedes equal access to benefits of development by excluding marginalized), or what is called “resilience of social structure”, (Resilience of social Structure” refers to the perpetuation of social inequalities inherited through the hierarchical division of society. Access to resources might be restricted, prevented and inhibited by various (structural) forces and cultural, institutional or law related processes) (D’Souza, 1990). With this is objective, e-governance in India, has been one of the biggest STS experiments of 21st century and the policy makers tend to justify the adoption and expansion of e-governance on the grounds that it cost less, reduces waste, promotes transparency, eliminates corruption, generates possibilities to resolve rural poverty and in guarantees a better future for citizens. In other words, government tends to portray e-governance as the panacea for all ranges of problems confronting India[†].

The proponents of “IT for Development” view technology as a means of overcoming inequalities and poverty and much of the policy – oriented discourse, pointed out that, technology is a “neutral tool (whose)... Impacts ... are essentially conditioned by the kind of users to which it is put” Thus, technology is a neutral tool, which could produce detrimental impact only if it was applied in inadequate ways (i.e. overuse, exploitation). After all, it is argued that, a “weapon doesn’t kill” while the shooter does. Technology, then, does not seem to carry an inherent dimension of usefulness or harm[‡]. The largely positivist narratives, thus formed, have left little room for sociological concerns in the technological interventions of the state. But it is also true that such a ‘network society’ discourse of globalization generalizes epistemologies, and ushers new forms of hegemony of technology (Visvanathan, 2001; Wade, 2004). The global pitch for e-governance, which is situated in the ‘network society’s’ politics of knowledge and the neo liberal “trans-national state” (Gupta & Sharma, 2006), is largely yet to be appropriated in the Indian context.

Technology Vs Development

The concept of technology transfer was long considered as a potent engine for development in particular (Ruttan, 1998). Classic models of technology transfer assumed that the movement of predetermined and prescriptive ensembles of artifacts, practices and knowledge would impact on economic growth and push societal development, and that such technology packages – just like suitcases – would travel and be unpacked at the final destination without much deformation (Agnew, 1982). Recent scholarship in the field of Development Studies (DS) and Science and Technology Studies (STS) concentrated on the malleability of technologies that shift into new geographic, institutional and cultural contexts (Shrum, 1995). Technology’s malleability is also relevant to the relocation of local practices, processes and experiments to wider regional spaces – a process also described as scaling up (Edwards, 2008; Mitlin & Satterthwaite, 1992).

Science and Technology are inextricably related to Development, but there has been little appreciation of the complex relationship between them. “The last sixty years have repeated a refrain of scientific breakthrough, technological promise and developmental disappointment” (Smith, 2009, p. 125), yet the grandiose of technology based development projects, has only increased, especially in the developing world. Nandy (1988) argues that the national invocation of the ‘scientific temper’ after independence generated euphoria for development that overshadowed the moral components and the obsolescence created by the very same science. Even worse, the standing of scientists as almost “god-kings” and only source of legitimate knowledge gives “no scope for any assessment and evaluation of scientists by non-scientists” (ibid). In the process they’ve manufactured and cultivated concepts and

[†] Ministry of Information Technology (MIT) 2001 ‘Electronic Governance — A Concept Paper’, Ministry of Information Technology, India. [<http://egov.mit.gov.in/>]

[‡] Julia Quartz, 2011. Constructing Agrarian Alternatives

ideas, like “take-off” from ‘traditional society’ to a ‘drive to maturity’, finally to the ‘age of mass consumption’ (Rostow, 1960); Transfer of Transfer (TOT) from ‘developed’ to ‘underdeveloped’ countries; “leapfrogging” as the “only way to reconcile the aspirations of developing countries for modernisation...” (Goldemberg, 1992); “technological catch up” which developing nations must undertake (Juma & Clark, 2002); and the “fast race” to use science and technology for economic growth and development (Leach & Scoones, 2006).

Science, according to Nandy, became “the new reason of the state” and “in the name of science and development one can today demand enormous sacrifices from and inflict immense sufferings on the ordinary citizen”. Vulnerability research in STS partly rests upon existing research that emphasizes the failure of (complex) technological systems. Most of the vulnerability research in STS pays attention to the ways in which technology shapes the social and vice versa. Scholars within this social constructivist tradition of research attend to the ways in which a society, a system or a group of people is embedded into particular socio-cultural, political and historical contexts that are constituted by modern science and technology.

India has long been on the receiving end of “technological imperialism” (Headrick, 1981), initially by the colonizers and later by the colonial ideas which they left behind, which includes our identification as a third world country and the baggage that comes with it. The deeply historical tenet of ‘cultural neutrality’ of science and technology in India continues to grant validation, to technological interventions for development (Prakash, 1999). Similarly, the discourse on information and communication technologies and development has engendered the digital divide - as a binary divide that can be fixed technologically and with ‘change in attitudes’ of people, to allow technology to succeed (Selwyn, 2003; Warschauer, 2003).

The above arguments can help to trace the footsteps of the modernisation theory and the ‘technological optimism’ which pervades it – and how ‘technological determinism’ has dominated the clichéd narratives of ‘development’ and ‘progress’, and in turn has rendered them even more clichéd. For example, ‘Asian Tigers’ progress actually happened because of “specific set of relationships between the state, economy and society” (Castells, 2000a). But their story is often touted as the grand success of the modernization project of technology. Their example reveals how ‘technology and ‘development’ have been ‘black-boxed’ – de-historicised and de-contextualized to simplify the globalization discourse.

Issues of e-governance

Reviewing extensive amount of literature on governance and development, one of the key issues which Shirin Madon (2009) identifies is: [T]he agenda of good governance is a policy directive launched by the international development agencies to support their policies of economic and political liberalization. There are two main elements to this agenda – a bureaucratic and a political element. The bureaucratic element focuses on administrative simplification through decentralization. In recent years, this has been coupled with the introduction of managerialist influences within development policy through techniques such as capacity building, integration and increased usage of ICTs. Its political element focuses on strengthening systems of democratization in developing countries by making government information transparent and by promoting accountability mechanisms to enable citizens to hold government responsible for the provision of public services and welfare. (p. 45). However, these ideas (administrative simplification, decentralization, transparent and accountability) are accepted “unproblematically,” the “evidence so far shows that the linkage between better technology and better governance and ultimately better development is not automatic”[§]. Technology can’t solve anything unless the objective is properly stated and sought to be achieved with deliberate action. Further it is argued that any problematization must acknowledge governance not as a formal managerial or technological issue, but as a historically specific social activity (Madon, 2009).

[§] . Balaji Parthasarathy, 2011. “Book Review”. Information Technologies & International Development, Volume 7, Number 4.

So the epistemology of modern technology and the political ontologies of developing nation-states can be seen as producing new forms of governmentality, that would be 'e-Governmentality'. It is a lot more than just the electronic or digital form of Foucauldian governmentality. In the same way as e-governance is lot more than its traditional form. If government is 'the conduct of conduct' and governmentality is 'governmental rationality' (Foucault, 1991), what happens when they engage with technological rationalities, especially with interpretively flexible technologies like ICTs? Heidegger's 'The Question Concerning Technology' (1977) can provide an answer. If "technology is a way of revealing" (ibid.) then ICTs do reveal the world in a particular way or in other words, they develop a world-view of their own.

Sarukkai's (2008) argument that technologies are not merely subservient to some notion of governance that is already there. Rather, they begin to dictate what good governance should be and modify the discourse of governance and development to suit their strengths and weakness. What they dictate will very much depend upon the nature of these technologies. For example, one of the most important characteristics of ITs is speed, speed by which information is transmitted, databases are checked, and as so on. This element of speed now becomes an important element of good governance-not necessarily because this is the way we conceive of good governance, but that is what these technologies are best suited to do ... [this] points to the usefulness of these technologies in having speedy governance and not necessarily effective or humane governance. (p. 54). To add to Sarukkai's example – along with time, ICTs also annihilate space. So, the idea to reach out to the people on the margins, who could not be reached through traditional governance in the villages through e-governance, is not as simplistic as it seems to be.

Sreekumar (2008) rightly explains the problem with e-governance research in India: clumping of e-governance initiatives as inherently good from a macro perspective is a major assumption in the literature on e-governance. The basic problem with this rationale is not only the hype or even the 'sweeping grandiloquence' of its rhetoric ... But more importantly, our attention to macro-level impacts often ignores what really happens on the ground. These technologies are actually used and experienced in everyday practice quite differently from the way their potential uses and benefits are configured for public consumption by their progenitors as well as commentators. (p. 167).

Socio-Technological Constraints

One common finding encountered by researchers studying the shaping of social policy in India is that the social structure ensures that benefits of social development are distributed according to inequality of status i.e., those who are in relatively higher status get the maximum benefit of social development and the vice versa. Thus, programmes for social development always end up in benefiting privileged section of the society. In case of Internet technology, it is continuously diffusing around the world but they enter in different social contexts and behave differently. Most of the literature considers only the lack of infrastructure and resources, capacity building, e-readiness indices, 'bridging' a pathological (mis)conception of digital divide, need for change in attitudes of the government and the people, identification of various stake holders in ICT4D projects, etc., as problems and challenges for e-governance in India (for example: Misra, 2009; Agarwal, 2007).

e-governance depends not only the supply of infrastructure enabling individuals to access the Internet but also on growth in the percentage of internet users within a society. There are enough surveys carried out on e-government projects which tend to conclude that many e-government projects fail to achieve the intended objectives in India. It is said that 35% of e-government projects are total failure and 50% of the e-governance projects are partial failures^{**}. Lack of solid project plan, undefined objectives, inadequate planning and poor containment of the project scope and goals are main reasons for the failure of e-governance projects. However, there is ample evidence that many e-governance projects, in the developing and the developed world have not resulted in significant improvements in citizen services and welfare, rather they are considered as e-administration or e-services applications despite their "overtly developmental objectives.

^{**} . www.nisg.org/docs/539_Report.pdf

In India, although some scholars have critiqued the hegemony of science (e.g. Nandy, 1988), and technological determinism and optimism (Saith & Vijayabaskar, 2008), still critical questioning of the role of technology in delivering 'development' remains little. And the critique on the role of development in shaping 'technology', i.e., how the politically and culturally loaded agenda(s) of 'development' influence the concept, design and access of 'technology'; is zilch in the public sphere and inappreciable in academia. This problem escalates further for ICTs, as they are "pervasive and cross-cutting and can be applied to the full range of human activity, from personal use to business and government uses ... [and] foster the dissemination of information and knowledge by separating content from physical location" (Task Force on Science, Technology and Innovation, 2005, p. 49). Richard Heeks (2006), a pioneer in the field of Information Communication Technologies for Development (ICT4D), compares the research work in the field to "stones being thrown into a pond, each one making a ripple but then sinking without trace". Political economist Robert Hunter Wade (2004) goes one step further to call ICT4D literature, "a pot-pourri of anecdotes and correlations, where the criteria of inference are so elastic that the correlations become causations".

The failure of many e-governance programmes once again hinting at a need for a more complex understanding of the processes and structures that shape technology use. Many state governments have launched e-governance initiatives to use ICTs to ensure improved quality and delivery of public services without adequate understanding of the technology use and its interface with society. Technologies as they are available through imports are more likely to aggravate social inequities if they are deployed without taking into account the needs of the poor and marginalized. ICTs do not have any intrinsic ability to undermine existing traditional institutions of power, economic or social, unless agents direct them towards such ends. Digital space, whether private or public, is partly embedded in actual societal structures and power dynamics^{††}.

Conclusion

India is suffering from the "vicious circle" of defective e-governance, as the basic input i.e. governance itself is poor. Further, there is a complete lack of transparency and accountability among the persons dealing with these projects. As a result the money and resources meant for the common man are misappropriated by corrupt governmental officials and departments. Despite the island of excellence, e-governance has not been able to make rapid progress in India (Sinha, 2009). It is said that, government in developing countries boasts too much and delivers too little and not sufficiently responsive or accountable (Sumanjeet, 2006). Surprisingly India has neither a mandatory legal framework for e-governance nor are there any policies or strategies for effective e-governance and it argued that for successful implementation of e-governance it requires proper environment in which e-governance can be operated (Rangan and Mehrotra, 2003).

It is always been easier to develop e-governance applications which rely on obtaining and inputting quantitative data for measuring progress but which may or may not have a bearing on improving the living conditions of communities. One needs to focus on the social appropriation of ICTs rather viewing e-governance as a mere techno-managerial process without tensions over the social meaning of technology. Nandy argues that technology, which introduces undesirable social change to rural communities in the name of progress, should be considered as morally inferior (Nandy 1987: 136). To worsen the situation the Government of India is concentrating more upon the image rather than upon the end results. The grass root level action is missing and the benefits of ICT are not reaching to the under privileged and deserving masses due to defective ICT strategies and policies of Indian Government

Sein and Harindranath (2004) while presenting the different perspectives which locate ICT in the national development agenda argues for using the 'ensemble' view. The ensemble view conceptualizes ICT beyond the technology (i.e. hardware and software) extending to the social and cultural contexts where ICT based initiatives are situated. In this view, the social and contextual

^{††} . Latour, Bruno (1991) 'Technology is Society Made Durable', in J. Law (ed.) *A Sociology of Monsters*, pp. 103–31. London: Routledge.

aspects determine how ICT is conceived. The ensemble view allows us to examine the socio-technical components of ICT which in turn help us to understand the design and its functioning. It is important for social scientists not to promote ICT developments uncritically, but to subject them to critical analysis to help citizens exercise their power and responsibility to influence the pattern of developments. He also argues that the nature of the information society will largely reflect whatever the dominant sections in society believe the information society should be. It is believed that ICTs will reinforce existing inequalities and create new inequalities. Sassen (2000) argues that internet reproduces hierarchies of power which does not mean that the old hierarchies would disappear, but rather new hierarchies emerge alongside the old ones.

References

- Agnew, J. A., Technology Transfer and Theories of Development. *Journal of Asian and African Studies*, 1982, 17, pp 16-31.
- Agarwal, A. (ed.), *E-Governance Case Studies*, Universities Press, Hyderabad, 2007.
- Castells, M., *The Rise of the Network Society*, Blackwell Publishers, Oxford, 1996.
- Castells, M., *End of The Millennium* (2 ed.), Blackwell, Oxford, 2000a.
- D'Souza, V. S., *Development Planning and Structural Inequalities: The Response of the Underprivileged*, Sage Publications, New Delhi, 1990.
- D'Souza, V. S., Urban Development in India: Demographic Function and Socio-cultural Perspectives. *Indian Journal of Social Work*, 1975, 35, pp 3-4.
- Edwards, M., Have NGOs 'made a difference'? From Manchester to Birmingham with an elephant in the room. In A. Bebbington, S. Hickey & D. Mitlin (eds.), *Can NGOs make a Difference? The Challenge of Development Alternatives*, Zed Books, New York, 2008.
- Foucault, M., Governmentality. In G. Burchell, C. Gordon, & P. Miller (eds.), *The Foucault Effect: Studies in Governmentality*, University of Chicago Press, Chicago, 1991, pp. 87-104.
- Goldemberg, J., Technological Leapfrogging. Retrieved May 23, 2013, from Digital Commons at Loyola Marymount University and Loyola Law School, 1992. <http://digitalcommons.lmu.edu/ilr/vol15/iss1/11>
- Gupta, A., & Sharma, A., Introduction: Rethinking Theories of State in an Age of Globalization. In A. Gupta, & A. Sharma (eds.), *The Anthropology of the State: A Reader*, Blackwell Publishing, USA, 2006, pp 1-42.
- Headrick, D. R., *The Tools of Empire*. Oxford University Press, New York, 1981.
- Heidegger, M., The Question Concerning Technology. In *The Question Concerning Technology and Other Essays* (W. Lovitt, Trans.), Garland Publishing, New York, 1977, pp. 3-35
- Heeks, R., Theorizing ICT4D Research. *Information Technologies and International Development*, 2006, 3(3), 1.
- Henman, P., *Governing Electronically*, Palgrave Macmillan, London, 2010.
- Juma, C., & Clark, N., *Technological Catch-Up: Opportunities and Challenges for Developing Countries*. SUPRA Occasional Paper, University of Edinburgh, Research Centre for Social Sciences (RCSS), 2002.
- Kling, R., Learning about information technologies and social change: The contribution of social informatics. *The Information Society*, 2000, 16 (3), pp 217-232.
- Krishnaiah, V.S.R., The Emerging E-Citizens: Information Handling in a Democratic Government, 2001, Vol. 42 (4), pp 580-581.
- Leach, M., & Scoones, I., *The Slow Race: Making Technology Work for the Poor*. London, Demos, 2006.
- Madon, S., *E-Governance for Development*. Palgrave Macmillan, London, 2009.
- Madon, S., *Designing information systems for development planning*. Alfred Waller, 1994.
- Markus, M.L., Toward a integrated theory of IT-related risk control. In R. Baskerville, J. Stage, and J.I De Gross (eds.), *Organizational and social perspectives on information technology*, Kluwer/Plenum, New York, 2000, pp167-178.
- Misra, H. (ed.), *Governance of Rural Information and Communication Technologies – Opportunities and Challenges*, Academic Foundation, New Delhi, 2009.

- Majumdar, S., Government Information in the Digital Era, *Libraries, Information and Knowledge*, 2004, 21 (1), pp 27-42.
- Mitlin, D., & Satterthwaite, D., Scaling-up in urban areas. In M. Edwards & D. Hulme (eds.), *Making a difference. NGOs and Development in a Changing World*, Earthscan, London, 1992.
- Nandy, A., *From outside the imperium: Gandhi's cultural critique of the West Traditions, Tyranny and Utopias*. Oxford University Press, New Delhi, 1987.
- Nandy, A. (ed.), 1988. *Science Hegemony and Violence: A Requiem for Modernity*. Oxford University Press, New Delhi, 1988.
- National e-Governance Plan.*, Retrieved May 25, 2013, from <http://www.negp.gov.in/Default.aspx>, 2006.
- Orlikowski, W. and Iacono, C.S., Research commentary: Desperately seeking "IT" in "IT" research – A call to theorizing the IT artifact. *Information system Research*, 2001, 12, pp 121-134.
- Prakash, G., *Another Reason: Science and The Imagination of Modern India*. Oxford University Press, New Delhi, 1999.
- Rangan, Alok and Mehrotra, P.K., E-Governance: Options and Opportunities. In Vayunandan, E. and Mathew, Dolly (ed.), *Good Governance Initiatives in India*, Prentice- Hall, India, 2003, pp52-56.
- Ruttan, V. W., Models of agricultural development. In E. C.K. & J. M. Staatz (eds.), *International Agricultural Development*, John Hopkins University Press, Baltimore, 1998.
- Rostow, W., *The Stages of Economic Growth: a Non-Communist Manifesto*. Cambridge University Press, Cambridge, 1960.
- Rochlin, G. I., Broken plowshare: system failure and the nuclear power industry. In J. Summerton (ed.), *Changing Large Technical Systems*. Westview Press, Boulder, 1994.
- Sanjay Kumar and Ajay Kumar., E-Governance in India – Problems and Acceptability, *Journal of Theoretical and Applied Information Technology*, 2005.
- Sumanjeet., E-Governance: An Overview In The Indian Context. *The Indian Journal of political Science*, 2006, 67(4), pp 857-886.
- Schoeniger, E., The Future of E-Governance, *e-commerce*, 2002, pp 45-50.
- Sassen, S., On the Internet and Sovereignty. *Indiana Journal of Global Legal Studies*, 1998, 5(2), pp 545-559.
- Sinha, R.P., *E-Governance in India –Initiatives and Issues*, Concept Publishing Company, New Delhi, 2006.
- Saith, A., & Vijayabaskar, M., Introduction: ICTs and Indian Social Change -- An Agenda of Concerns. In A. Saith, M. Vijayabaskar, & V. Gayathri (eds.), *ICTs and Indian Social Change*, Sage Publications, New Delhi, 2008, pp. 13-33.
- Shrum, W., Science and technology in less developed countries. In S. Jasanoff, G. E. Markle, J. C. Petersen & Trevor Pinch *Handbook of Science and Technology Studies*, Thousand Oaks, 1993.
- Smith, J., *Science and Technology for Development*, Zed books, London, 2009.
- Selwyn, N., Apart from technology: understanding people's non-use of information and communication technologies in everyday life. *Technology in Society*, 2003, 25, pp 99-116.
- Sarukkai, S., Culture of Technology and ICTs. In A. Saith, M. Vijayabaskar, & V. Gayathri (eds.), *ICTs and Indian Social Change*, Sage Publications, New Delhi, 2008, pp. 34-58.
- Sreekumar, T.T., Decrypting E-Governance: Narratives, Power Play and Participation in the Gyandoot Intranet. In A. Saith, M. Vijayabaskar, & V. Gayathri (eds.), *ICTs and Indian Social change*, New Delhi, Sage Publication, 2008, pp 192-214.
- Sein, M. K. and G. Harindranath., Conceptualizing the ICT Artifact: Toward Understanding the Role of ICT in National Development. *The Information Society*, 2004, 20 (1), pp 15-24.
- Thomas, P. N., *Digital India*, Sage Publications, New Delhi, 2012.
- Visvanathan, S., Democracy, Governance and Science: Strange Case of the Missing Discipline. *Economic and Political Weekly*, 2001, 36 (39), pp 3684-3688.
- Visvanathan, S., The Grand Sociology of Manuel Castells. In J. Müller, N. Cloete, & S. Badat, *Challenges of Globalization: South African Debates with Manuel Castells.*, Maskew Miller Longman, Cape Town, 2001, pp. 35-49.

- Vandana Gupta & Ajay Sharma., E-Governance in India: Problems, Challenges and Prospects, *Research Journal of Economics and Business*, 2012, 1 (9), pp 50-54.
- Wackers, G., & Kørte, J., Drift and vulnerability in a complex technological system: reliability of condition monitoring systems in North Sea offshore helicopter transport. *International Journal of Engineering Education*, 2003, 19 (1), pp 192-205.
- Wade, R. H., Bridging the digital divide: new route to development or new form of dependency? In C. Avgerou, C. Ciborra, & F. Land (eds.), *The Social Study of Information and Communication Technology* Oxford University Press, New York, 2004, pp. 185-206.
- Warschauer, M., *Technology and Social Inclusion*. MIT Press, Cambridge, 2003.
- Wisner, B., Blaikie, P., Cannon, T., & Davis, I., *At Risk: Natural hazards, People's Vulnerability and Disasters* (2nd ed.), Routledge, London, 2004.