

The London School of Economics and Political Science

**Multipurpose nature of telecentres: The case of e-governance
service delivery in Akshaya telecentres project**

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(Information and Innovation Group) of the London School of
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Declaration

I certify that the thesis I have presented for examination for the MPhil/PhD degree of the London School of Economics and Political Science is solely my own work other than where I have clearly indicated that it is the work of others (in which case the extent of any work carried out jointly by me and any other person is clearly identified in it).

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Some aspects discussed in this thesis were contained in an earlier publication of mine:
Gopakumar K. R. (2007) E-governance Services through Telecentres: The Role of Human Intermediary and Issues of Trust, Information Technologies and International Development, 4(1), 19-35.



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Date: March 31, 2014

Sampoorna samarpanam
*at the lotus feet of our beloved **Guru** and revered **Sishyapoojitha**¹*

“There would be more harm than ever before if we remain self-satisfied thinking that what we have so far discovered is mostly correct. If we continue in the belief that the past was mostly right we can only lead the whole world into darkness.”

Navajyothisree Karunakara Guru²

¹ **Sishyapoojitha Amritha Jnana Thapaswini**, the prime disciple of **Navajyothisree Karunakara Guru**. (Please see: www.santhigiriashram.org)

² **Navajyothisree Karunakara Guru** (1995: 59) A Dialogue on the Human Prospect, Second edition, Santhigiri Publications, Thiruvananthapuram, India.

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“making a decision was only the beginning of things. When someone makes a decision, he is really diving into a strong current that will carry him to places he had never dreamed of when he first made the decision.” - Paulo Coelho, The Alchemist

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Glossary

AEO	Agriculture Extension Officer
ANT	Actor-Network Theory
ARC	Administrative Reforms Committee
CSC	Common Service Centre
FIB	Farm Information Bureau
FRIENDS	Fast Reliable Instant Efficient Network for Disbursement of Services
GP	Gram Panchayath
ICT	Information and Communication Technologies
IDRC	International Development Research Centre
IITM-K	Indian Institute of Information Technology and Management- Kerala
KISSAN	<i>Karshaka</i> Information Systems Services And Networking
KSITM	Kerala State IT Mission
LDF	Left Democratic Front
MDG	Millennium Development Goals
MDP	Malappuram District Panchayath
MGP	Modernisation in Government Programme
NASSCOM	National Association of Software and Services Companies
NPM	New Public Management
OPP	Obligatory Passage Point
PDS	Public Distribution System
UDF	United Democratic Front
UID	Unique Identification Number

Abstract

Multipurpose telecentres are considered as a phenomenon in international development efforts and have been an integral part of e-governance strategies of most developing countries. Their significance arises from the ascribed multipurpose nature and their potential to act as outreach posts for a range of services to rural households. The notion of multipurpose nature is taken for granted and there is very little evidence of the realisation of the expectations. The research commences by reviewing the underlying governance reforms and e-governance agendas. Further discussions highlight how the vast complexities associated with different services are trivialised in the light of the powerful arguments of New Public Management, good governance, managerial notion of integrated services delivery and technologically deterministic position on telecentres.

The theoretical lens of the study is built by drawing on key concepts from institutionalism, bureaucracy, and functional simplification and closure. The analytical capabilities and methodological apparatus of actor-network theory are also employed for the study. The research conceptualises services as heterogeneous actor-networks that include institutional actors. The role of institutions is considered, particularly that of bureaucracy by reflecting on its social foundations, organisational configurations and diversity of tasks. Using the concept of functional simplification and closure, the research highlights the need for human intermediation in providing services and thereby questions the simplistic notion of the multipurpose nature of telecentres. The research also highlights the institutional implications such as trust on intermediation.

The arguments are made using an interpretive case study of e-governance services delivered through Akshaya telecentres in Malappuram district, Kerala, India. Case studies on two other specialised e-governance projects (offering specific sets of services) from Kerala were also undertaken to get insights on the phenomenon. The findings recommend the adoption of a multimode approach to service delivery. The research indicates that ICT interventions are more directly helpful to domain intermediaries than to rural households. The study also critically discusses the governance implications associated with outsourcing of government services through telecentres.

1.0 Introduction

An extract from the resolution (number 66/184) adopted by the United Nations General Assembly on February 06, 2012 reads as follows:

“The General Assembly,...

Recognizes that information and communications technologies have the potential to provide new solutions to development challenges, particularly in the context of globalization, and can foster sustained, inclusive and equitable economic growth and sustainable development, competitiveness, access to information and knowledge, poverty eradication and social inclusion that will help to expedite the integration of all countries, especially developing countries, in particular the least developed countries, into the global economy;

Expresses concern regarding the digital divide in access to information and communications technologies and broadband connectivity between countries at different levels of development, which affects many economically and socially relevant applications in such areas as government, business, health and education, and further expresses concern with regard to the special challenges faced in the area of broadband connectivity by developing countries, including the least developed countries, small island developing States and landlocked developing countries;”

(UN, 2012a)

Bulk of the literature on information and communication technologies (henceforth ICT) have claimed that the technology can make pervasive changes across the development landscape of rural communities. The above resolution adopted by United Nations General Assembly in 2012 reflects the continuing global enthusiasm in this regard. These assumptions about the potential of ICT also led to an increasing belief in the need for making access to these technologies essential for the development of a region. On the basis of what was considered as a digital divide, a series of initiatives were taken by multilateral agencies, national governments and civil society organisations for bridging this divide. Significant among these initiatives was the telecentre movement. Telecentres are currently considered as ICT access centres that are multipurpose in

nature, having one or more computers and equipment, capable of providing a range of services including e-governance services, development information services, e-commerce and other ICT services (Proenza *et al.*, 2001). We will consider more aspects about telecentres in the next chapter. At this stage, however, it is important to consider a few key issues associated with telecentres that motivated this study.

The discussions on digital divide and measures to bridge the divide occupied much of the literature on ICT and development in the late 1990s and early 2000. The United Nations sponsored World Summit on the Information Society (WSIS) held in Geneva (in 2003) and in Tunis (in 2005) gave digital divide the status of a global crisis. The WSIS 2003 became a turning point in the global efforts for the promotion of ICT-based artefacts and for overcoming the digital divide (WSIS, 2003a). Connecting rural communities through the provision of ICT access centres was a key target identified under the plan of action adopted by WSIS (WSIS, 2003b). This vision was mostly articulated through telecentres with the initial mandate of trying to provide access to ICT and thereby bridging the digital divide (Rogers and Shukla, 2001; Madon, 2005; Ariyabandu, 2009). The idea of telecentres has been around, ever since the creation of telecottages in Scandinavian countries in the 1980s. So privileged was ICT that there seem to have been very little detailed research on the underlying aspect of the digital divide. Writers like Thomas and Parayil (2008: 431) point out that “social structures that tolerate illiteracy, landlessness and other inequities among large sections of the population deprive the individual of the capabilities to use ICTs and to benefit from the information that ICTs provide”. However others like Avgerou and Madon (2005: 206) argue that “...the root of counter-development obstacles to ICT, that find their expression in terms of the digital divide problem, might be the extent to which the information society conveys aspirations, and privileges technologies, information and knowledge that are irrelevant to the way the majority of people in the many communities in developing countries live their lives”.

The conceptualisation of telecentres by the late 1990s had, however, gone far beyond initial attempts to bridge the digital divide. Web based services started to be seen as the way forward for most e-governance projects during this period (Ho, 2002). There was increasing focus on how government services could be provided in an integrated

manner over the web or over decentralised ICT delivery centres. The history of these efforts, however, does not start from the popularisation of the Internet in the late 1990s, but are more profoundly based on a regime of governance reforms that was initiated in the western governments and spread later to the rest of the world. ICT was considered a strong ally of this reforms process (Avgerou, 2002).

1.1 Integration of services

The reforms programme under New Public Management (NPM), its philosophical underpinnings and its implications on e-governance and the telecentre movement would be discussed in detail in the subsequent chapters of the thesis. The core arguments are that governance was explicitly linked to development and that state intervention and the bureaucratic form of government were resulting in inefficiencies and governance failures (Leftwich, 1993). The dominant and prescribed solution to these were that governance needed to be more market based and that silo style functioning should give way to more citizen centric approach. For example, the Strategic Information Technology Plan of the State of Washington (1996) states: "In the private sector³, customers expect one-stop shopping-the ability to obtain diverse services in a timely, convenient and user-friendly manner from a single source....Increasingly this same kind of one-stop service is demanded by citizens seeking government services and information." The idea of 'single view' of citizens borrowed from the private sector lead to the concept of citizen centricity and gave legitimacy to integration (Hood, 1991; De Araujo, 2001).

Considering the governance reforms angle is extremely important for a good understanding of the conceptualisation of telecentres. If the enthusiasm for ICT alone propelled the services delivery concept, it was more likely that the services from government departments would have continued to be offered through the same department/agencies, but with the introduction of ICT. Telecentres would have at best been conceptualised as providing services such as training, communication and Internet browsing. The governance angle, however, brought in the idea of integration as a

³ Studies by Hirschheim and Klein (2003) point out that the efforts by private sector in this direction have not delivered the promise and that it continues to be a central problem.

seemingly technical solution to the issues arising out of the silo based organisational form. It assumed the role of a social construct pressurising and constraining governments and departments to follow a strategy of integrated services delivery. Whereas NPM based reforms programme has led to attempts for widespread adoption of frameworks and mechanisms from the business world, acceptance of the concept of integration was considered to fundamentally change the way governments work and interact with citizens and other societal actors.

The notion of integration was made more respectable through ideas such as citizen centricity as well as the replacement of the terminology *citizens* with *customer*; all fallouts of the philosophies of NPM. Integration assumed the status of an institution, as an organising vision blending the requirements of e-governance, Millennium Development Goals and NPM. Initially, e-governance programmes started with two central themes – integrated citizen centred services⁴ and joined-up government⁵ (Al-Kibisi *et al.*, 2001; Ho, 2002; Chan *et al.*, 2003; Basanya and Ojo, 2011). Increasingly, over the years (particularly in the context of developing countries) the focus has shifted mostly to integrate services at the point of delivery in the front-end, without any major attempts for back-end integration. In other words, in the schema of e-governance it became important to have a front-end ICT access mechanism (an outreach post of governance services) that would be able to integrate governance services at the point of delivery and thereby offer multiple e-governance services.

It is important to reemphasise that integration as a social construct drew on the philosophies of NPM and was powerful enough to promote integrated front-end services, making the alternate scenario of department level ICT based discrete services inconceivable, and functional and cross-departmental coordination not an explicit requirement. Thus, integration gave governments the hope of saving resources as well as avoiding direct and immediate confrontation with existing mechanisms.

⁴ At the point of delivery

⁵ Through functional and cross departmental integration

1.2 Telecentres – failure?

The construct of integration got translated into the ascribed multipurpose nature of telecentres by extending the idea to encompass a range of services including e-governance, e-commerce, communication, training, etc. This also led to the logic of multiple income streams arising out of the multiple services, providing a base for the economic rationale of telecentres. The concept of multipurpose telecentres gained the acceptance of international development community and governments, since it was portrayed as a mechanism capable of playing a profound role in governance and development and that too at decentralised levels. It is not surprising that the last decade witnessed the proliferation of telecentres as a mechanism for bridging the digital divide and more so as a development phenomenon.

Telecentres became a preferred choice as the outreach post of a range of services including e-governance, primarily in the light of the action plan developed in WSIS 2003 (WSIS, 2003b). Some writers like Ariyabandu (2009) point out that conventional telecentres are already transforming into knowledge networks aiding the achievement of Millennium Development Goals (MDGs). Writers like Stoll (2003) argue that telecentres in the context of rural setting are far more than ICT access centres since they provide a social space that encourages interactions and learning with implications on social and individual changes. Majority of the telecentre studies, which we will consider in the next chapter, still takes a techno-deterministic approach and highlights the possibilities and potentials. We, however, find very little evidence on the realisation of these assumptions or claims. The investments on telecentres does not seem to have yielded in any major *“dramatic digital and social inclusion outcomes as anticipated, leading to questions about the continued relevance of these ventures as well as calls for evidence of impacts to justify further resources and to inform design of e-inclusion programs”* (European Union, 2012: 7). According to Dagron (2001), only one out of every one hundred telecentres is really useful for the local community when they have been set up, in terms of supporting development and social change.

Most studies reveal that telecentres have neither been financially sustainable nor have they been used by those who are targeted by this initiative (Suzuki and Chamala, 1998;

Robinson, 2000a; 2000b; Pigato, 2001; IDRC, 2003; Parkinson, 2005; Dossani *et al.*, 2005; Rangaswamy, 2006; Kiri and Menon, 2006; Kuriyan and Toyama, 2007; Sey and Fellows, 2009; Toyama, 2010; Sumbwanyambe, 2011; Gollakota *et al.*, 2012). A range of reasons have been identified for the failure of telecentres. Almost all of them tend to assume that the issue is not with the conceptualisation of the multipurpose telecentre but is on account of the way the implementation and the *social* were managed. The issues highlighted include the lack of proper consideration of local needs and community relations (Kyabwe and Kibombo, 1999; Baron, 1999; Benjamin and Dahms, 1999; Dagron, 2002; Heeks, 2002b; IDRC, 2003; MSSRF, 2003), managing stakeholders (Suzuki and Chamala, 1998; Bailur 2007; Rao, 2008) and lack of relevant and local content (Dagron, 2001; Heeks, 2001; 2002; Roman and Colle, 2003; Eke Miss, 2011; Johansson Hedberg, 2011).

Other factors include lack of literacy and ICT skills (Pigato, 2001; Dagron, 2001; Kenny, 2002), location and accessibility issues (Heeks, 2001; McConnell, 2001; Oestmann and Dymond, 2001; Proenza, 2001; Jorge, 2002; Roman and Colle, 2002; Mahmood, 2005), donor funding (Proenza, 2001; Harris *et al.*, 2003; Conroy, 2006), affordability (Proenza, 2001; Pigato, 2001; Kenny, 2002; Roman and Colle, 2002; Conroy, 2006) and issues associated with disadvantaged groups (Kyabwe and Kibombo, 1999; Pigato, 2001; Cecchini and Raina, 2002; Roman and Colle, 2002; Huyer and Mitter, 2003; Harris *et al.*, 2007).

The failure led many projects and telecentres to drift towards economic entrepreneurship leaving behind the development and governance philosophies envisioned in such projects (Madon, 2009). The success of e-governance programmes has also been questioned and so are the efforts to adopt integration within government (Bellamy and Taylor, 1998). Yet there seems to be an increasing belief in the possibility of offering integrated e-governance services over telecentres.

For example, the national e-governance plan of India envisages the setting up of one hundred thousand ICT based Common Service Centres (CSCs) across the country. The plan considers these centres as the decentralised non-state actor run integrated e-governance service delivery outlets (Naik, 2011). The Bangladesh Telecentre Network

(BTN) has plans of setting up 40,000 telecentres with a view to providing a range of services including e-governance services aimed at bettering the life of rural communities (Raihan, 2007). The Nanasala project in Sri Lanka aims to create 1000 telecentres in the country (ICTA, 2008). *Report on the WSIS stocktaking 2012* (WSIS, 2012) identifies a range of telecentre and community ICT centres across the globe. The countries specifically reported include Dominican Republic (Community Technology Centres (CTC) programme), Bangladesh (Bangladesh Telecentre Network (BTN) and Dhaka Resource Centre (DRC) providing local support services for telecentres), India (Common Service Centres (CSCs)), Iran (National Culture Network Project and 10,000 basic rural ICT centres under Ministry of ICT), Tanzania (Internet Cafe by Vision Traders Company) and Sudan (Telecentres connecting the unconnected by the Gedaref Digital City Organization (GDCO)). Initiatives and efforts of IDRC and telecentre.org have provided a legitimate base for the further proliferation of telecentres.

Massive deployment of centres and resources by developing countries raises questions on how far these telecentres are going to operate the way they are anticipated to be. The economic and social logic of telecentres are centred on two aspects intrinsically related to the construct of integration (a) the perceived possibility of integrated services delivery and (b) assumption that the multiple income streams generated on account of the range of these services would make the centres viable. While many studies have tried to look at sustainability, particularly financial sustainability, no scholarly work seems to have explored/questioned the implications of the ascribed multipurpose nature on sustainability. There is dearth of scholarly understanding on the extent to which telecentres enable multipurpose service delivery. The implications of ICT implementation in a complex setting such as telecentres need further in-depth research. Aspects of intermediation associated with ICT based service delivery as well as sustainability of services have also not been researched adequately. There is lack of understanding on the underlying issues of telecentres. This study has tried to bridge these identified gaps in literature.

1.3 Motivation and scope of research

Like many countries in the 1980s and 1990s, India went through major financial crisis in the late 1980s culminating in a severe balance of payments crisis in 1991. This fuelled a series of economic reform programmes that were market based and initially driven by the conditionality from the World Bank and International Monetary Fund (Patel, 1992; Baru, 1993; Bhagwati and Srinivasan, 1993; Virmani, 1997; Ahluwalia, 2000; Chaudhuri, 2002). What surprised many economists and political scientists was that this phase of reforms sustained far beyond the initial reasons, unlike other similar phases in Indian economic history since independence in 1947⁶.

Analysts point out a combination of factors in this regard, including the collapse of the command economies, perceptions regarding state interventions, and the rise and consolidation of the middle and upper middle class⁷ in the country (Bhagwati, 1994; Sridharan, 2004; Kulkarni, 2006). The significance of this class and their acceptance by the political process led even minority and/or coalition governments (since 1996) formed of parties with differing fundamental philosophical positions to continue the reforms programme (Singh, 2001). What further legitimised the reforms process were the changes in governments across the world in the mid-1990s to central-leftist regimes and the acceptance (within market reforms) of Amartya Sen's concepts of social sector development and human development (Kuczynski, 2003). Today, there continues to be a near unanimity in India that economic reforms with a human face are irreversible (Sharma, 2011).

The enthusiasm for ICT in India was both a product of as well as a fuel for the reforms programme in India. The launch of the ICT sector in the country was an aftermath of the then Prime Minister (1984-1989), Rajiv Gandhi's economic liberalisation programme. At the core of the enthusiasm was the success story of the Indian software and IT services sector that raised the aspiration of the people, more particularly the middle and upper middle class of the country. Estimates provided by the powerful

⁶ For a detailed analysis of the economic history post Indian independence, please read Sharma (2011)

⁷ Kulkarni (2006) points out that the middle and upper-middle class in India emerged as an outcome of the then Prime Minister (1984-1989) Rajiv Gandhi's economic liberalisation programme.

software and services industry association, NASSCOM⁸ gives an idea of the characteristics of the sector (NASSCOM⁹). Revenues from software and IT services increased from US \$5 billion in 1997-98 to US\$12.1 billion in 2000-01 and further to US\$ 88 billion in 2011-12. The year 2011-2012 also witnessed the aggregated revenue from the sector crossing US\$ 100 billion. From a sector that contributed only 1.2 per cent to the GDP of the country in 1997-1998, its contribution has grown to 7.5 per cent in 2011-2012. In the same year, the sector employed about 2.8 million people directly and about 8.9 million people indirectly.

The success of the sector illustrated to India the possibilities of a technology that can fundamentally address two of the major problems in its economy – *lack of industrial and export growth* and *unemployment*. By the mid-1990s, ICT had already attained the status of divinity in the country. Emergence of a new *priestly class* (ICT professionals), lifestyle, office environment, myths and ceremonies, social norms and regulations, and other taken for granted assumptions about ICT gave it an institutional status¹⁰ in India.

The reforms of 1991 were as much about governance as they were about economic strategies. This was based on a growing public perception that an inefficient state was the primary cause of the economic crisis (Sharma, 2011). Like the rest of world, bureaucracy as an organising form of the government was criticised and reforms attempted to adopt practices and frameworks based on NPM. Efforts were also made to embrace the ideologies of NPM through a programme of e-governance.

Government of India felt that ICTs could fundamentally change the way governments interact with citizens and business entities. It was hence decided that the priority of e-governance programme should be “to transform Government departments and agencies from department-centric mode of working to a citizen-centric way of working”. The vision statement makes it clear that the integration of services would be attempted at the front-end¹¹.

⁸ National Association of Software and Service Companies

⁹ Available from, < <http://www.nasscom.org/indian-itbpo-industry>>.[23 November 2012]

¹⁰ Please see Avgerou (2002)

¹¹ Report on NDTV, leading TV channel and news website in India - dated December 18, 2012: “Telecom and IT Minister Kapil Sibal on Monday asked his ministry officials to lay a road map by 2014

"Make all Government services accessible to the common man in his locality, through common service delivery outlets (integrated service delivery) and ensure efficiency, transparency & reliability of such services at affordable costs to realise the basic needs of the common man."

Vision statement of the Indian National e-governance Plan¹²

Though the government of India articulated its national e-governance plan (NeGP) in May 2006 with the above vision, the focus on e-governance since the beginning of 2000 was on the provision of integration. The four elements that form the basis of this service delivery framework are the front-end outlets for integrated services delivery i.e. Common Service Centres (CSCs), National Knowledge Network (NKN¹³), State Wide Area networks (SWANs), and the State Data Centres (SDCs). The NeGP comprises of 27 mission mode projects (MMPs) and 8 support components that are to be implemented at the central, state and local government levels. The proposed MMPs¹⁴ would require substantial functional and cross-departmental integration.

Typical of e-governance plans across the world, while the MMPs are aimed at integration at the back-end, CSCs are supposed to achieve integrated e-governance services delivery at the point of delivery or the front-end. The CSCs are also supposed to provide a range of other services including private and social sector services. Whereas MMPs, the back-end e-governance programmes have only crossed the conceptualisation stage, a total of 96,411 CSCs have been established across the

for creation of a "Google" type of comprehensive website that will enable citizens to access service of all government departments with a click of a mouse... He said he always has a question in his mind that why is India not having a Google-like platform instead of the existing system where people have to access the website of each ministry for information. The Minister said there should be one common platform for providing all kind of services that can be provided through Internet. (Please see: <http://gadgets.ndtv.com/Internet/news/sibal-wants-one-government-website-for-all-public-services-306694?pfrom=home-otherstories>)

¹² Available from, <<http://www.indg.gov.in/e-governance/e-governance/egov-plan>>. [23 November 2012]

¹³ High speed network backbone connecting knowledge related institutions in India.

¹⁴ Like e-procurement, service delivery gateway, etc.

country by October 31, 2012¹⁵. India already had the largest number of telecentres in the world (15,000 out of an estimated 60,000) by 2006 (Fillip and Foote, 2007). In line with the underlying philosophy of citizen centricity embedded in NPM, the country has also launched an ambitious programme of providing a unique identification number to all its citizens. A statutory Unique Identification Authority of India was constituted to undertake this task. The Mission of the authority is the following:

“The role that the Authority envisions is to issue a unique identification number (UIDAI) that can be verified and authenticated in an online, cost-effective manner, which is robust enough to eliminate duplicate and fake identities.”

(UIDAI, 2010)

The national government now believes that with unique identification number for citizens (through UIDAI), connectivity and knowledge infrastructure (SWAN and NKN) and state data centres (SDCs), it has a comprehensive framework to operationalise the CSCs centred integrated services delivery model of its national e-governance plan (UIDAI, 2010). The status and concepts involved in each of these elements are debatable and calls for in-depth research. For example, the national government did not undertake country wide consultations or take into consideration learning from international experiences¹⁶ before deciding to introduce the unique identification number initiative. This study, however, is concerned with the aspects associated with the telecentre mode of delivery and to that extent would look at details in this regard.

As discussed earlier, one of the key components of the national e-governance plan was the setting up of 100,000 Common Services Centres (CSCs). According to this plan a CSC each would be available to 6 -7 villages, thereby ensuring that their services reach

¹⁵ Available from,
<[http://deity.gov.in/sites/upload_files/dit/files/CSC_map_October_2012_\(website\).pdf](http://deity.gov.in/sites/upload_files/dit/files/CSC_map_October_2012_(website).pdf)> [23 November 2012]

¹⁶ There are widespread criticisms across the world on the use of unique identity systems connected to issues of privacy and civil liberties. For details please see the Identity Project at LSE, see <http://identityproject.lse.ac.uk>. A recent example of the issue of ID cards can be found in the Kingdom of Saudi Arabia. The country uses unique identity numbers embedded in electronic passports for tracking cross border movement of women and to automatically alert male guardians using sms (Please see: <http://www.bbc.co.uk/news/world-middle-east-20469486>).

all the 600,000 villages of India. The project was estimated to cost about INR 5742 crores (1148 US\$m¹⁷), of which the central government was estimated to contribute INR 856 crores (171 US\$m) and the state governments, INR 793 crores (159 US\$m). Since the project was conceived as a contracting out scheme under public-private partnership arrangement, it was expected that the balance resources would come from the private partners. According to the plan, the CSCs were to be designed along the lines of telecentres with PCs, wireless connectivity, and general and specialised equipment.

Telecentre projects of varying sizes (in terms of the number of actual kiosks associated with a project) have been attempted from the year 2000 in various parts of India. Though most of these projects have different sets of proposed activities and business models, almost all of them explicitly portrayed integrated e-governance services delivery as a key activity of the centres as well as the project. The projects¹⁸ include Aksh, Akshaya, Aravind nethralaya, Azim Premji foundation, Bhoomi, Datamation Foundation, Drishtee, e-Choupal, EID Parry, Gramin Mahiti Parishat, Gyandoot, MSSRF Knowledge Resource Centres, Namma Dhwani, n-Logue, One Roof, Pradan, Rural eSeva, Rural Service Delivery Points, SARI, TARahaat, Times Rajiv Internet Villages and WorldCorps.

Such telecentre projects have come up all over Africa, Latin America, other parts of Asia and Eastern Europe. What is the basis for spending resources on these kinds of projects? Does the collective experience of telecentres suggest that the anticipated integrated services delivery is possible through them? Bulk of the research regarding telecentres suggests that these centres have failed in offering e-governance services and cast doubts over the sustainability of centres. Moreover, writers like Kuriyan *et al.* (2007) found that focus on a single class of service seems to increase the likelihood of success of telecentres, questioning the fundamental multipurpose or integrated nature ascribed to telecentres. While the empirical and theoretical research in the area has been growing over the last many years, there is a dearth in literature on fundamental aspects

¹⁷ Considering 1 US\$= INR 50

¹⁸ List of projects adapted from Kuriyan and Toyama (2007) Review of Research on Rural PC Kiosks; (Available from, <<http://groups.csail.mit.edu/cag/ict4dev/papers/Kiosks%20Research.pdf>> [15 December 2011])

(or assumptions) associated with telecentres. For example, the links between telecentres, governance and development does not seem to have undergone substantial scholarly research.

Though the integrated services delivery notion is core to the concept of telecentres, we know very little about it or the arising ascribed multipurpose nature of telecentres. Similarly, in spite of increasing indications about the significance of intermediation in ICT mediated transactions, very little research has considered this aspect in the context of telecentres. Greater part of sustainability studies on telecentres have narrowly focussed on the financial sustainability angle alone without any serious research at the services level.

So to what extent do telecentres enable multipurpose service delivery? Does the ascribed multipurpose phenomenon have implications for e-governance services delivery? How do ICT implementation and the need for intermediation affect (multiple) service delivery over telecentres? How is the sustainability of telecentres implicated by the attributed multipurpose nature of telecentres?

In the absence of any systematic understanding about such issues, how can developing countries like India undertake such massive roll-out of telecentres based purely on assumptions? The enthusiasm seems to reflect the global race to claim a leadership position among the players and proponents of e-governance. One could join the management bandwagon and laud the deployment strategy as visionary steps by the government to take advantage of ICT for integrated service delivery, development and improved governance. The alternative is to stand back and probe whether a developing country like India with 1,241 million¹⁹ people (72 per cent of whom are living in 600,000 villages) and encountering issues of basic necessities including food, water and sanitation, should venture into such massive deployment of resources based purely on a set of assumptions.

My research interest as well as the basis of this study stems from the above queries. This thesis is primarily motivated by the need to identify and bridge the evident gaps in

¹⁹ Census of India – 2011 (Available from, <<http://censusindia.gov.in>> [20 November 2012])

the area of telecentre research. It is further motivated by my own experience in having worked closely with one telecentre project and having done research work in many others in India. Through my field observations in multiple telecentre project locations, I have found that these projects have some form of implications for the region it serves. Many researchers have tried to capture different dimensions of these implications. It was, however, important to understand the fundamental ascribed “multipurpose” nature of telecentres. This required the opening up of the complex relationships between technology, processes, people, institutions, other actors, governance arrangements, etc. that make up the telecentres. In the light of the discussions so far, the significance of the theoretical, practical and policy contributions from the study could very well be understood.

This study was based on Akshaya telecentre project in Malappuram district of the south Indian state of Kerala. Two domain specific e-governance projects aimed at providing specialised sets of services (unlike multiple services) were also studied with a view to compare and contrast the phenomenon being researched. Among the states in India, Kerala was one of the first states to frame policies to use the perceived potential of ICT to improve the “day to day life of people from all walks of life” (GoK, 1998). There was huge enthusiasm and hope in a financially crippled state on the prospects of ICT as an overall “enabler of the economy²⁰”. Programmes of e-governance and telecentres were initiated as part of this widely held belief. Hailing from the same state, I was interested in tracing the basis of the complexly articulated phenomenon of multipurpose telecentres in the context of the state. Through this process, I was continuously trying to use the learning to address the research questions.

1.4 The state of Kerala

The story of Kerala would be revealed across the many chapters of this thesis as part of contextual understanding. Kerala is one of the 29 states in India with an area of 38,863 square kilometres and population of 33.39 million^{21,22}. The state stretches for about 360

²⁰ IT Policy, 1998

²¹ Census of India - 2011

²² Population density of 859 persons/square kilometre.

miles along the Malabar coast on the western side of the Indian peninsula. It is bordered by the states of Karnataka in the north, Tamilnadu to the east and the Arabian sea to the west. The state has 14 districts and the capital is Thiruvananthapuram (Trivandrum). Kerala has a fairly advanced social²³ and digital²⁴ infrastructure.

The state is popular amongst scholars of development studies on account of the unique *Kerala model of development* (CDS, 1975). That, reasonably high quality of life could be provided for people in poor regions without attaining higher stages of economic growth and development had raised interest among international development scholars. The model has, over a period of time, been subject to substantial studies (Dreze and Sen, 1992; Jeffrey, 1992; Isaac and Tharakan, 1995; Frankie and Chasin, 1999; Kannan, 1999; Parayil, 2000; Raman, 2010). These studies highlight the role of social mobilisation in initiating public policies for social provision as well as legislative action for redistribution.

Development in Kerala is typically attributed to welfare activity of the state under popular pressure (Frankie and Chasin, 1999; Ramachandran, 1997). There were also important contributions made by Christian missionaries, social and political movements, and other civil society movements (Charvak, 2005). The “Kerala model” or Kerala’s experience, however, soon gave way to certain signs of weaknesses (George, 1993; Harilal and Joseph, 2000). The poor performance of commodity producing sectors like agriculture and industry reflected in huge unemployment and reduced income generation within the state. The resultant financial crisis threatened the sustenance of social achievements that contributed to the model.

²³ Indicators of Physical Quality of Life Index (PQLI) like infant mortality (13 per cent), female literacy (87.86 per cent), and life expectancy at birth for males (70.2) and females (76.6), are well above all India levels. HDI for Kerala was 0.638 in 2001 as against the National level of 0.472. Source: Census of India 2001 and SRS annual reports, Directorate of Economics and Statistics, Government of Kerala.

²⁴ All the telephone exchanges in the state are digital and ninety eight per cent of them are connected by fibre optic cables (OFC) to the National Internet Backbone (NIB). The state also has the highest telephone density in the country of 7 per 100 and the highest rural telephone density in the country with 5.1 per 100. Moreover, submarine cables like the SEA-ME-WE-3 and SAFE have their landings at the port district of Kochi and are capable of providing connectivity at 15 gigabytes per second. Source: Department of Information Systems, Government of Kerala (www.keralaitmission.org)

The democratic decentralisation process initiated in the late 1990s, on account of the 73rd and 74th constitutional amendments, resulted in the creation of three tier²⁵ local governments in the state with about 40 per cent of the state resources and substantial institutions being transferred to these tiers from the state level (Issac and Franke, 2002, Veron, 2001). The state saw an opportunity in decentralisation to attempt administrative reforms with a view to escaping the economic and social stalemate. The recommendations of the Administrative Reforms Committee constituted in 1998 were embedded into a reforms programme referred to as the Modernising in Government Programme (MGP) (MGP, 2002). The state also formulated a service delivery policy²⁶ as part of this initiative. The service delivery policy prescribed a set of eighteen principles²⁷ to be followed by departments for delivering their services.

Meanwhile, in line with the national mood discussed earlier, the state saw in ICT a major saviour of the crisis. It was expected that ICT would act as an enabler of the state's economic scenario and thereby provide solutions to issues of unemployment and lack of income generation within the state. The state wanted to utilise ICT and its skilled human resources for setting up and proliferating knowledge-based and service industries (Subrahmanian, 2003). The state conceived an ICT policy to address issues pertaining to ICT industry development, physical and digital infrastructure, human resources development and use of ICT in various walks of life (GoK, 1998).

One key area of attention was the use of ICT in government. The task force on IT implementation in government²⁸ (Task force, 1999) recommended a two pronged strategy of e-governance – (a) administrative reforms based department computerisation and (b) high visibility people-oriented projects aimed at providing integrated services. The second category of projects was based on the assumption that all major e-governance services can be categorised as: “(a) making payments, (b) getting

²⁵ District level, block level and village level local self-governing institutions.

²⁶ Government Order: GO(P) No. 260/2004/GAD dated 26-11-2003

²⁷ Was an overdose of NPM philosophies: “people-centeredness, laying down clear standards, equity, transparency, accountability, integrity, fairness, good behaviour, rationality, efficiency, convergence, right to service delivery, grievance redressal, continuous improvement, attitudinal change, sustainability, inclusiveness and holistic approach.” (contained in the GO mentioned in the earlier footnote)

²⁸ Constituted to operationalise the IT policy

entitlements (like certificates, land records, etc.) and (c) getting/providing information” (Madon and Kiran, 2002; Kumar, 2003).

The convergence approach (citizen centeredness) of the service delivery policy of the state and the taken for granted assumptions regarding integration forced the state to adopt a strategy of integrated services over ICT front-end delivery centres. By having integrated services delivery, the government felt that it could save substantially in holding back investments that would otherwise have been required to implement service front-ends in every department/agency. The notion of integration was also used by the IT Department of the state to have control over the ICT infrastructure and projects in the state.

FRIENDS²⁹ (Fast Reliable Instant Efficient Network for Disbursement of Services) was conceived as an integrated services project offering all government services (Kumar, 2003). The project was started with payment services and continued to offer them alone. We will consider this project in more detail in chapter 4. Though it was confined to payment services alone, FRIENDS was, nevertheless considered a successful and popular project with demands for rolling it out across the state (from the initial 14 centres based at 14 district headquarters) (Madon and Kiran, 2002). Telecentres were considered as an opportunity, not only in achieving this rollout but also in channelling other government services through them. Akshaya telecentre project was pilot implemented as part of this overall strategy, in Malappuram district in northern Kerala. Launched in November 2002, the project was aimed at creating ICT delivery centres through which multiple services including e-governance services could be delivered in an integrated manner. The project tried to address issues of access, skill, content and connectivity, and was launched with 630 telecentres, owned and run by entrepreneurs. We would examine the project in greater detail in chapter 4.

²⁹ Official website, available from, <www.friendscentre.net>. [20 June 2-11]

1.5 Research Objectives

The primary research question that this study tries to address is the following:

To what extent do telecentres enable multipurpose service delivery?

Related sub-questions are:

- Do telecentres and their ascribed multipurpose phenomenon have implications for e-governance services delivery? If so, what and why?
- How do ICT implementation and the need for intermediation affect multiple service delivery over telecentres?
- How is the sustainability of telecentres implicated by the attributed multipurpose nature of telecentres?

An understanding of telecentres cannot be complete unless the journey begins with a review of literature on telecentres, e-governance and governance with a view to trace the linkages between them. The emergence of integration as a social construct, in the light of reforms agenda and strong criticism for bureaucratic form of government, provides an important base for the study. The approach adopted provided the larger governance context in which the analysis was attempted.

The theoretical framework of the study is built on key concepts drawn from institutionalism, bureaucracy and functional simplification and closure. The analytical capabilities and methodological apparatus of Actor-network theory (ANT) are also employed for the study. Detailed discussions on these concepts are undertaken later in the thesis, starting with chapter 3. Using ANT-institutionalism, this study has developed an alternate theorising of the otherwise managerial notion of integration. The research discusses the role of institutions, particularly bureaucracy revealing its social foundations, organisational configurations and diversity of task. Using the concept of functional simplification and closure, the research establishes the need for human intermediation in providing services and thereby questions the simplistic notion of the multipurpose nature of telecentres. The study draws on Giddens's (1990; 1991) concept

of ‘abstract systems’ to further shed light on the implications of trust and intermediation on e-governance service delivery. The research questions the fundamental notion of the multipurpose nature of telecentres and discusses how this notion has affected e-governance service delivery over telecentres. The research is based on an empirical study of three ICT projects in the south Indian state of Kerala.

1.6 Structure of the thesis

This thesis is divided into six chapters. A summary of the contents of each chapter is given below:

Chapter 1 provides an introduction to the thesis and gives the reader an understanding of the motivation as well as the scope of the study. The broad background against which the study needs to be seen is uncovered in the initial part of the chapter. The research questions and specific objectives of the study are discussed in the subsequent sections. The chapter concludes by outlining the thesis structure.

Chapter 2 provides the literature review on topics raised by the research questions and the objectives of the study. The chapter is crafted with a view to draw on the literature on telecentre, e-governance, governance and bureaucracy to have a deeper understanding of the broad context of the phenomenon under study. The study has focused on e-governance service delivery as a means to understand the phenomenon of integration that was researched.

Chapter 3 discusses the theoretical framework employed in the study and describes the methodology followed. The study draws heavily on the themes identified in the previous chapter and develops the concept of integration as a social construct. Using institutionalism as a theoretical framework and actor-network theory as an analytical-methodological lens, this study developed an alternate theorising of the otherwise managerial notion of integration. Using the concept of functional simplification and closure, the framework establishes the need for human intermediation in providing services. The framework also draws on the concept of abstract systems to further shed light on the implications of trust and intermediation on e-governance service delivery.

Chapter 4 describes the details of the various aspects associated with the specific case studies. The telecentre case study was developed based on an empirical study of the Akshaya telecentre project undertaken in the district of Malappuram in the south Indian state of Kerala. For a deeper understanding of some of the key questions addressed in this research, significant aspects of two other e-governance projects are also covered in this chapter. They include FRIENDS (Fast Reliable Instant Effective Network for Disbursement of Services) a government payment project and KISSAN (Karshaka Information Systems Services and Networking), an agro-advisory services project, both based in the same state.

Chapter 5 presents the analysis of the data using the theoretical framework of the study. The analysis follows one of translations and the attempt was to understand the process, the outcome and the meanings. Following the framework of the research, the analysis is then based on the concepts of functional simplification and closure, intermediation and trust. The chapter throws light on some of the fundamental issues associated with the multipurpose nature of telecentres.

Chapter 6 concludes the thesis and provides a summary of its contents, reflecting upon the research journey and more specifically addressing the research questions that guided the journey. The chapter also discusses the broader implications of the study on e-governance strategies and projects attempted across the world. The chapter also presents the contribution of the research towards theory, methodology and practice of IS especially in the context of developing countries. The chapter also examines the limitations of the research design and discusses the scope for future research in this area of study.

2.0 Introduction

The chapter begins with an attempt to *unpack* the concept of telecentre and to understand the background against which they have become a phenomenon in development discourse. The review outlines the complex linkages between telecentres and e-governance, and more fundamentally to governance itself. We explore the diversity of composite issues involved, including the historical circumstances and institutional forces that played a role in constructing the concept of telecentres.

The e-governance literature highlights the relationship between telecentres and governance. We trace the discussions on the role of ICT in governance reforms as well as on the philosophical base of the reforms programme. The literature on governance provides the larger canvas for the study. The on-going reforms, its theoretical underpinnings and its implications are also discussed. The review also sheds light on the foundations of the institution of bureaucracy and its implications on the concept of integrated service delivery model.

The chapter concludes with a discussion on the working conceptual framework conceived to guide this research. The framework is derived by drawing on the literature on telecentres, e-governance and governance, and by specifically considering the construct of integration.

2.1 Multipurpose Telecentres

The telecentre movement had its origins in the mid-1980s in Scandinavia, primarily as a mechanism to bridge the digital divide³⁰ between the urban and rural areas. As it spread

³⁰ Digital divide generally refers to the difference in terms of access to ICT facilities that exist between various groups of people. Access need not always mean physical access but could also refer to other factors that facilitate access like education, affordability, content, gender, socio-economic-political situations, etc. For example, DiMaggio and Hargittai (2001) suggests five dimensions along which divides could exist: (1) technical means (software, hardware, connectivity quality); (2) autonomy of use (location of access, freedom to use the medium for one's preferred activities); (3) use patterns (types of

to other parts of the world, they started being bestowed with a role beyond that of increasing access to ICT (Navas-Sabater *et al.*, 2002). There was growing enthusiasm among international development agencies³¹ as well as the development community in general that multipurpose telecentres (henceforth telecentres) could play a key role in the development of a region in diverse ways including the delivery of multiple governance services³². As pointed out by Gopakumar (2007) the European parliament's document on developing countries and the ICT revolution (STOA Panel, 2001) highlights this eagerness:

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

While this movement could be observed across the developed and developing regions, telecentres have made inroads into literature as a development phenomenon in the

uses of the Internet); (4) social support networks (availability of others one can turn to for assistance with use, size of networks to encourage use); and, (5) skill (one's ability to use the medium effectively).

³¹ Vigorous actors in championing and supporting these enterprises include United Nations agencies such as WHO, ITU, FAO, and UNESCO, bi-lateral donors such as USAID and IDRC, and national governments from Hungary and Malaysia to South Africa (Roman and Colle, 2003).

³² Services expected through telecentres vary, but include applications that provide information on health, agriculture, education, issuance of government certificates, etc. (Avgerou, 2010)

context of its assumed capabilities to intervene in a range of development issues in rural settings. Telecentres are considered as multipurpose ICT delivery centres with the capability of providing a range of services including e-governance services, development information services, e-commerce and other ICT services (Proenza *et al.*, 2001). There is a diversity of telecentre models based on ownership structures, strategies adopted, revenue models, financial structure, services offered, purpose of operation, etc. (Colle, 2000; Roman and Blattman, 2001; Mukerji, 2008; Hosman, 2011).

The concept of telecentres brings together the aspirations of the many dominant perspectives that were prevalent from the 1990s. The New Public Management (NPM) based governance reforms agenda had important implications given its dominant managerial philosophies (Homburg, 2004). Governance reforms aimed at improving efficiency were pointed out as essential for the development of countries (Grindle, 2007). The fundamental market-based and managerial philosophical base of NPM encouraged the use of ICT in government based on a perception of its capabilities to integrate functions across departments, improve efficiency and provide services in an integrated and decentralised manner (Gruening, 2001; Neef, 2001). There was a strong belief that new organisational forms for public institutions required in the era of reforms could be attempted through planned programmes of e-governance (Cordella, 2007). Embedded in these programmes and strategies were the underlying NPM philosophy that favoured integration and the use of non-state providers for citizen services delivery (Batley, 2006). Integrated service delivery gained importance due to the citizen centricity and decentralisation concepts that are important ingredients of NPM.

Though the mid-1990s saw a shift in world politics with centralist or social democratic governments assuming power in France, Germany, UK and in USA, the intellectual *installed base* of reforms were not altered substantially (McCourt, 2008). The growing significance of the human development paradigm towards the end of the 1990s; UN's annual Human Development reports and the Millennium Development Goals (MDGs³³) drew the attention of policy makers and practitioners across the world towards the need for developing human capabilities as a means to achieving development (Hulme, 2007).

³³ More details available from, <www.un.org/millenniumgoals/bkgd.shtml> [20 June 2011]

Policy makers promoted the idea that ICT could both be the way as well as the means of achieving these capabilities. ICT was explicitly introduced as an essential part of the MDGs (Goal 8) and was considered as a powerful mechanism contributing to the achievements of other MDGs (Byrne *et al.*, 2011). It was felt that ICT could be used both for MDG progress monitoring as well as for providing basic services to citizens in an efficient and integrated manner (UNDP, 2008). There was an increasing realisation that development was constrained mainly due to knowledge gaps as much as bad governance, as pointed out in the World Development Report 1998-99 - *Knowledge for Development* (WDR, 1998). Decentralised delivery of public services and “knowledge transfer” to the poor thus became the main implications of MDG for public administration (WDR, 2004; McCourt, 2008). This also clearly complemented the “information symmetry” argument that underlies the thinking of NPM.

The emergence of the multipurpose telecentre as a *magical box* for development issues could very well be seen as an attempt to bring together the ideologies and aspirations of NPM, E-governance and the MDGs (see Fig 2.1).

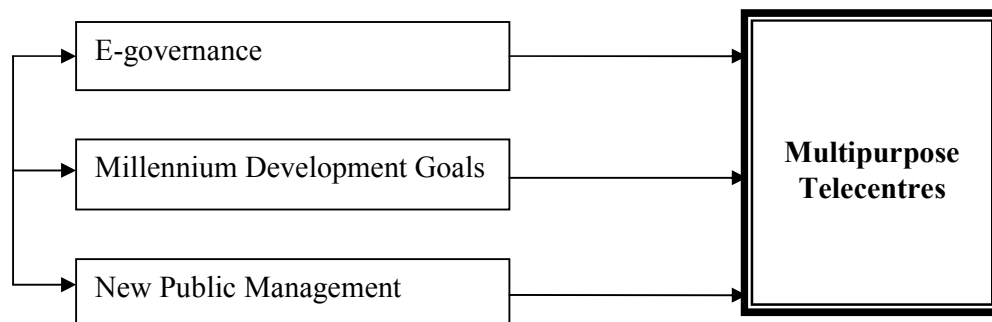


Fig 2.1. Multipurpose telecentres – the *magical* development solution.

It is impossible to trace the roots of telecentre conceptualisation without drawing on e-governance and governance literature. This is attempted later in the chapter. As we discussed in the last chapter, if it was only the enthusiasm for ICT that drove the services delivery phenomenon, it was more likely that the established government counters would have been converted using ICT to provide services. It is well documented in literature that policy makers and practitioners saw in ICT the

opportunity for a technology that could be harnessed for the governance reforms aimed at achieving among other things, efficiency, accountability, transparency, citizen centricity and decentralisation (Seneviratne, 1999; Scavo and Yuhang, 1999; Watson and Mundy, 2001; Al-Kibisi *et al.*, 2001; Ho, 2002; Avgerou, 2002; Madon, 2005; Ciborra and Navarra, 2005; Saxena, 2005; Allen *et al.*, 2005; Paul, 2007). It is this governance angle that brought in the idea of integration. Whereas NPM based reforms programme has led to attempts for widespread adoption of frameworks and mechanisms from the business world, acceptance of the concept of integration was considered to fundamentally change the way governments work³⁴ and interact with citizens and other societal actors (Scott *et al.*, 2004).

Integration was considered in two particular ways - integrated citizen centred services and joined-up government (Al-Kibisi *et al.*, 2001; Ho, 2002; Chan *et al.*, 2003; Basanya and Ojo, 2011). Whereas the former refers to services delivered in an integrated manner over points of delivery (front-end), the latter refers to cross-functional integration across government departments and agencies (horizontal/vertical integration). Policy confusions existed, particularly in the context of developing countries regarding whether to prioritise and allocate resources to undertake back-end computerisation/integration or front-end first (Heeks, 2001; Madon and Kiran, 2002; Kiran, 2002a). Attempting cross-functional integration was nothing short of entering a “political minefield” (Hirschheim and Klein, 2003). It required departments and agencies to share their power as well as what is considered as *their* data. We do not have enough studies that have tried to trace these aspects, except for a few healthcare sector studies undertaken by researchers like Sahay *et al.* (2007; 2009).

Over the years, the focus has completely shifted to integrated services at the point of delivery (front-end) without any major attempt for integration at the back-end. This notion of integration was made more respectable through ideas such as citizen centricity and replacement of the terminology of citizens with customer, all fallouts of the philosophies of NPM. Though integration has generally been discussed as a technical

³⁴ The difference between the terminologies e-government and e-governance has generally stems from this argument. This study does not attempt to differentiate between these terminologies and adopts e-governance as a term to understand all of forms of introduction of ICT in government.

construct with the ability to solve issues arising out of silo based organisational form, we increasingly understand that the construct has political, institutional and power dimensions (Webster, 1995; Spinardi *et al.*, 1997; Cox and Ghoneim, 1998; Chilundo and Aanestad, 2005; Sahay *et al.*, 2009). Integration assumes the role of a social construct pressurising and constraining governments, departments and other actors to follow a strategy of integrated service delivery. Integration gained the status of an institution, as an organising vision blending the interests of e-governance, Millennium Development Goals and New Public Management in the context of telecentres.

In other words, in the schema of e-governance it became important to have a front-end ICT delivery mechanism (an outreach post of governance services) that could integrate governance services at the point of delivery to offer multiple e-governance services. Integration gave governments the hope of saving resources and opportunity to refrain from direct and immediate confrontation with existing administrative systems - thereby avoiding the “political minefield” (Adelakun and Jennex, 2002; Chan *et al.*, 2003; Hirschheim and Klein, 2003; OECD, 2007; Sahay *et al.*, 2007; 2009).

Most of the research on telecentres is based on two broad assumptions. There is a predominantly techno-deterministic assumption that these centres could deliver a diversity of citizen and development services in an integrated manner. This is believed to overcome a range of issues including poverty, bureaucratic obstacles and inefficiencies, and corruption (Bailur, 2007). It is important to note that this assumption is primarily based on the perceived potential of ICT to piggyback the reforms and MDG agendas. The second assumption drives an “economic rationality of profitable business” accruing from the many income streams arising from the multiple services anticipated (Avgerou, 2010).

It is hence not very surprising that, except for a few writers, notably Madon (2005; 2006; 2009), bulk of the literature on telecentres do not consider the fundamental governance issues or the underlying complexities associated with the processes and institutions involved with the many services that are planned to be delivered in an integrated manner. The assumption regarding multipurpose nature seems to go unquestioned, as are the issues that arise out of it. It seems that these assumptions have

constrained systematic research about the initiation, diffusion and adoption of telecentres (Roman and Colle, 2002). Hence even in the case of telecentre initiatives that are self-proclaimed as R & D projects, not many of them carryout any rigorous research programme (Hudson, 2001).

We find that most of the evaluation approaches are aimed at capturing the activities at the field level with a view to recommend strategies/activities to be undertaken to bridge those identified gaps. These evaluative frameworks do not seem to have critically looked at the fundamental assumptions that make up the concept of telecentres. They presume that the technology and the concept are capable of offering the promised set of services. The evaluation framework developed by Whyte (1999) attempts to, on the one hand gauge the different experiences of stakeholders at the local level and on the other hand use common research frameworks for comparative study purposes. The other major evaluation frameworks include the ones by Gomez *et al.* (1999), Holmes *et al.* (1999), Joseph (1999), IDRC (2002), Roman and Colle (2002) and UNESCO (2003). Given the nature of these frameworks, studies employing them have come up with a set of pre-requisites or process requirements that would make telecentres successful. An interesting example is the often quoted study by Roman and Colle (2002) wherein it was identified that aspects such as community relevance and participation, skill sets, policy frameworks, research, and community partnerships were essential for the successful operation and sustainability of telecentres. Most of the evaluation frameworks focus on economic cost-benefit, financial sustainability, usage patterns, community involvement and social development impact, and recommended in one way or the other how the *social* needs to be worked on.

Most studies seem to follow what Mitev (2009) in the general context of IS studies describes as the creation of a specifically constructed division between the social (bad, to be overcome or tamed) and the technical (intrinsically good). This seems to drive even recent research (Heeks and Molla, 2009; Gollakota *et al.*, 2012) where it is pointed out that increased awareness and changing perception about difficulties and usefulness of technology and information would automatically encourage higher rate of usage of telecentres.

Most researchers seem to take for granted the assumptions behind telecentres, reforms programme and MDG, and hence focus on how to enable the social process so that telecentres can deliver the promised services. What is hence not researched adequately are the characteristics of the processes that make up every existing service; complexities associated with providing such a service over an ICT front-end; additional complexities associated with offering multiple services over the same ICT front-end; dimensions associated with non-state actors providing governance services, etc. Though not within the purview of this research, it is pertinent to point out that research on other important questions regarding the implications of governance reforms and MDG based development agendas from telecentre perspective has also not been adequately undertaken. Researchers tend to focus on the more apparent relationship between the telecentre/telecentre intermediary and the citizens/community without giving attention to the implications associated with governance, service level processes, institutional frameworks and interactions, etc. that constitute the promised set of services.

2.1.1 Telecentre usage characteristics

Many studies, including the ones referred in the earlier chapter, reveal that except in a few cases, telecentres have neither been financially sustainable nor have they been used by those targeted by the initiative (Suzuki and Chamala, 1998; Robinson, 2000a; 2000b; Pigato, 2001; IDRC, 2003; Parkinson, 2005; Dossani *et al.*, 2005; Rangaswamy, 2006; Kiri and Menon, 2006; Kuriyan and Toyama, 2007; Sey and Fellows, 2009; Toyama, 2010; Gollakota *et al.*, 2012). These studies have covered a spectrum of telecentre projects of diverse forms situated in countries across the world. Studies continue to provide information on how the encountered problems can be addressed through a variety of strategies aimed at specifically addressing the issues and factors that they have identified.

A group of writers point out that the failure of telecentre projects occurs primarily on account of the low level of community participation in the functioning of the telecentres. Most of these writers argue that the welfare functions of telecentres are possible only if they are well-integrated into the local socio-political fabric of the region primarily through the acceptance and participation of the community in the telecentre

activities as well as in the management of these centres (Kyabwe and Kibombo, 1999; Baron, 1999; Benjamin and Dahms, 1999; IDRC, 2003; MSSRF, 2003). Some of the telecentre evaluation studies highlight the importance of linkages that telecentres need to establish with the local governments (Kyabwe and Kibombo, 1999; Baron, 1999; MSSRF, 2003; IDRC, 2003). Experience of telecentres in India also points to the importance of ownership by local communities and involvement of local village-level governments in making telecentres relevant (MSSRF, 2003). The underlying argument put forward through such studies is that managing stakeholder relationships is the key to the success and sustainability of telecentres operations (Suzuki and Chamala, 1998; Bailur, 2007; Rao, 2008).

Such prescriptive recommendations do not, however, seem to be based on comprehensive understanding of the concept of telecentre, particularly its implications related to governance or service characteristics. Community participation helps in creating awareness about telecentres and in promoting the development discourse about the cause-effect between ICTs and socio-economic growth (Rhodes, 2009). Considering only the apparent stakeholders, however, is highly restrictive since such an approach does not include the large group of actors involved in governance that the telecentres are trying to be a part of. Moreover experience from projects (like Akshaya telecentre project in Kerala) that have witnessed large scale closures in spite of large scale community and local government participation also questions the argument that it is the lack of stakeholder interactions alone that lead to the failure of telecentres (Parthasarathy *et al.*, 2005; Madon, 2006; Bussell, 2012).

Other studies point out factors such as ease of access, and lack of user skills and financial resources as major impediments resulting in low usage of telecentres (Pigato, 2001; Kenny, 2002). Usage also seems to be constrained by the existence of urban/rural, gender and other inequities and lack of awareness (Kyabwe and Kibombo, 1999; Pigato, 2001; Cecchini and Raina, 2002). In one of the most extensive evaluation studies undertaken by IDRC (2003) in countries such as Mali, Mozambique, South Africa Senegal and Uganda, it was revealed that factors such as age, gender, education, literacy levels, and socioeconomic status had implications on low usage rate. Lack of

inter-generational interactions has also been pointed out as an important factor inhibiting telecentre usage.

Addressing institutional and informational sustainability issues and creating the necessary technical and organisational capacity has been pointed out as prerequisites for the successful operation and high usage rate of telecentres (Kyabwe and Kibombo, 1999; Batchelor *et al.*, 2003; Best and Kumar, 2008). An important factor that seems to have helped conceive telecentre projects and launch them successfully has been the role played by specific individuals or group of individuals who could be referred to as “champion(s)” who have tried to ensure the initial success of the projects (Batchelor *et al.*, 2003; Parthasarathy *et al.*, 2005). The impact of such champions on the long term operations and sustainability of telecentres seems to have been very limited.

What is clear from available studies across the world is that there is very little usage of telecentres. The dominant discussion seems to be on the identification and prescription of pre-requisites for their successful operation. This emphasis on the supply side, combined with a techno-deterministic perspective seems to have led most studies to refrain from any serious and in-depth analysis of the challenges and complexities associated with the conception of telecentres as well as their ascribed multipurpose nature.

2.1.2 Content

Lack of appropriate, understandable and relevant content in the local language has been pointed out by many studies as a major reason for non-use of services by the targeted local population (UNDP, 2001). The World Bank led development gateway initiative, follows the *knowledge for development* concept and was intended to provide content on a range of domains. The development gateway, however, neither gives importance to grass root level research nor does it address the local requirements adequately (Roman and Colle, 2003). Many studies stress the need not only for locally relevant content but also on the need for content generation itself at the local level as an effort to sustain interest in telecentres (Harris, 1999; Hudson, 1999). This they believe is important for integrating the new flow of information through telecentres with the existing channels

available locally. Government and its departments are an important set of channels that need to be considered for understanding the various applications relevant to the different sectors such as education, health and agriculture (Bhatnagar, 2004). Availability of relevant content in local language, in itself, does not seem to spur usage on account of a range of factors including the role played by the telecentre intermediary (Gopakumar, 2007).

2.1.3 Sustainability

Given the low levels of usage reported from across the world, it is not surprising that financial sustainability of telecentre projects has been a point of discussion and analysis in many international conferences and multilateral agency documents. The purely financial angle is often projected as the most important challenge faced by telecentre projects (Harris *et al.*, 2007; Mukerji, 2008). Some studies also focus on social sustainability considering the social agenda and the assumed development perspective of telecentres (Best *et al.*, 2010). Discussions on social sustainability are centred on the idea that such sustainability would be achieved, based on the ability of the centre to link with the local community, an aspect that we have considered earlier. The set of pre-requisites that were discussed earlier are also considered essential for social sustainability.

A common expectation among international bodies, NGOs and governments is that whereas the centres would need some initial seed money to start their operations, the income from the multiple streams of activities would ensure the financial sustainability and profitability of the centres (Harris *et al.*, 2003). Ernberg (1997) had proposed in his report to the ITU that after initial investments are made, telecentres could provide annual pre-tax profits of US\$71,300, or about 60 per cent of total annual revenues. This has, however, not been the case with most telecentre projects. Telecentres in sub-Saharan Africa and South Asia remain viable only because of some form of external funding (Pigato, 2001). Different mechanisms of subsidisation have been tried out in different parts of the world to both encourage target groups to use Internet as well as to make telecentres viable. For example, subsidy coupon scheme was tried out in USAID funded eCenter telecentre network in Kyrgyzstan. Though the scheme was successful

for some time in improving the financial sustainability of centres to some degree by bringing new users to the centre, it did not improve social sustainability since the process favoured more regular Internet users (Best *et al.*, 2010). In the case of Akshaya project in Kerala, the initial e-literacy phase was subsidised by the state as a mechanism to seed the initiative as well as create awareness among the public. This effort, however, did not help most of the centres to be financially sustainable beyond the e-literacy phase (Gopakumar, 2007). While there are many attempts to subsidise telecentres during its initial phase, subsequent phases do not enjoy such privileges (Gopakumar, 2007).

The dominant managerial perspective on telecentre sustainability is based on the multiple income stream based “business model” for the centre. Though there are usually no specified “general business plans” (Oestmann and Dymond, 2001:25), a scheme is created by taking into account the numerous possibilities (income earning activities) of the technology in the local context. As discussed, the enthusiasm for telecentre projects as development projects grew out of the belief that these centres could act as outreach posts of government services and development information. Many project websites, however, point out that the primary service (e-governance services) may not make the centres financially sustainable. It is hence expected that the revenue from communication and a set of other private services need to be offered through these centres. This, for example, is a fundamental assumption that underlies the CSC project in India.

Majority of the literature considers only the financial sustainability perspective that is primarily based on the assumption of multiple income streams. A multitude of frameworks incorporating different perspectives have been conceived with a view to help our understanding of sustainability. These include stakeholder analysis (Bailur, 2007) and a number of models from business management like critical success factor (CSF) and critical failure factor (CFF) models, the design-actuality or design-reality gaps models, scenario analysis for long-term sustainability problems and economic and financial sustainability models (Best, 2009).

The disillusionment with financial success seems to have only drawn further focus on the financial sustainability aspects of centres, to the extent of forgetting the social and

development agendas envisioned in such projects (Madden *et al.*, 1997). This kind of self-steering on account of commercial considerations questions the very set of parameters which have been highlighted as possible outcomes of telecentre in a region - democratic accountability, decentralised service delivery, socio-economic development, accountability, etc. In fact there are writers who caution that the failures of telecentre from their original mission would lead them to act as agents of exploitative global information capitalism (Benjamin and Dahms, 1999).

What we observe in literature is that the overemphasis on financial feasibility has led to a situation where discussions are either too narrowly focussed on how to ensure financial feasibility or on the *duality* of financial and social feasibility (Masiero, 2011). Writers like Whyte (2000) and Madon (2005) point out that many telecentre projects have failed to sustain in the long run despite good financial viability, and highlight the significance of socio-political dimensions including the governance of the region upon sustainability. However, since most centres are owned by non-state actors, sometimes funded by multilateral or bilateral agencies, the focus has mostly remained on financial sustainability.

No major scholarly work seems to have considered sustainability from the point of view of governance and service processes. While the multiple income streams notion is a compelling business proposition, no serious research has critically looked into the fundamental assumption regarding multipurpose nature of telecentres. This is in spite of the situation where the concept of telecentres and the notion of sustainability rest upon this fundamental assumption.

2.1.4 Intermediation

Telecentre operators/intermediaries³⁵ are considered as social connectors (Diaz Andrade and Urquhart, 2009; Gollakota *et al.*, 2012) and are usually either the entrepreneur or a staff employed by telecentre project, depending on the ownership structure of the telecentre. A capable young person drawn from and trusted by the local community,

³⁵ We have considered entrepreneurs as intermediary for this study. We do not consider that a role change would have made any significant difference to the findings of the study.

who is computer and web literate is considered the ideal telecentre intermediary (Harris, 2001; Heeks, 2002b; Hughes, 2004; Puri and Sahay, 2007; Gopakumar, 2007). Telecentre intermediaries may be part of multiple networks that make them eligible for initial selection (Bailur and Masiero, 2012). Intermediation and the role of intermediary in the case of multipurpose telecentres are complex, but insufficiently researched.

The concept of intermediation or disintermediation in IS research is discussed mostly in the context of e-commerce. A review of literature in this area is interesting for the research from two points of view - the way the concept of intermediation has evolved in that literature and the possibility of tracing the ideas of integrated service delivery as a business construct that arises from the ideas of efficiency and cost control based supply chain management. Initial studies indicated that electronic markets would reduce transaction costs on many fronts including the elimination of intermediaries in the new value chain (Giaglis *et al.*, 2002). It was believed that e-commerce will automatically lead to disintermediation (Malone *et al.*, 1987; Benjamin and Wigand, 1995; Chircu and Kauffman, 1999). The fundamental idea was that with the reduction in information asymmetry between the buyers and the sellers, possible through ICT, the traditional intermediaries who value added by their information input would no longer be needed. ICT are also supposed to facilitate, in some cases, the “creation of an alternative development paradigm, which would replace the co-operatives, and self-help groups” in the context of developing countries (UNPAN, 2004:33).

However, it became increasingly clear that electronic transactions do not necessarily lead to disintermediation and that new forms of re-intermediation (old intermediaries undertaking new value adding functions) and cybermediation (new set of intermediaries) for aggregation and trust provision emerge in the electronic value chain (Bakos, 1991; 1998; Sarkar *et al.*, 1995; Negroponte, 1997; Chircu and Kauffman, 1999; Giaglis *et al.*, 2002). Moreover, it is argued that human intermediaries are essential in developing countries to overcome the diversity of constraints ranging from socio-economic to lack of skills so that people can derive some benefits out of ICT (Heeks, 1999a; Harris, 2001; Cecchini and Raina, 2002; Batchelor *et al.*, 2003; Cecchini, 2003). Instead of disintermediation, there are indications that the opposite seems to be happening in the developing country contexts (Alampay, *et al.*, 2003).

Given the complex value adding functions expected from intermediaries, their profile is considered key for interventions (including ICT interventions) that are undertaken in developing countries (Heeks, 1999a; Janssen and Klievink, 2008).

While Heeks (1999a; 2001) refers to these human intermediaries as ‘intelligent intermediaries’, Harris (2001) refers to them as ‘infomediary’³⁶ or ‘knowledge broker’ and Cecchini (2003) as ‘grassroots intermediaries’. Intermediaries were found to be important for effective information exchange pertaining to specific domains (Heeks, 1999a). Identifying and nurturing intermediaries are considered an important prerequisite for successful ICT interventions in developing countries (Heeks, 2001). Most studies point out the significance of the human intermediary in operating the telecentres (Kyabwe and Kibombo, 1999; Baron, 1999; Benjamin and Dahms, 1999; Roman and Colle, 2002; IDRC, 2003; MSSRF, 2003). The best intermediaries for telecentres are supposed to be drawn from within the targeted communities considering aspects such as proximity, trust and knowledge (about ICT and context) (Heeks, 1999a; Harris, 2001; Batchelor *et al.*, 2003). *Local* intermediaries are expected to be more proactive, less likely to abuse power, keen to make information available and willing to provide necessary training to others (Harris, 2001; Cecchini and Raina, 2002; Cecchini, 2003; Batchelor *et al.*, 2003). It has been observed that the relatively successfully centres are run by energetic, enterprising groups or individuals who exhibit an entrepreneurial mind-set as well as an interest in social causes (Rangaswamy, 2006; Kuriyan and Toyoma, 2007).

While there are some interesting insights on the role of intermediaries for ICT mediated services, the literature does not provide enough understanding about the fundamental aspects associated with intermediation of multiple services through telecentres. Whereas it could be argued that an operator/entrepreneur with better business acumen would be able to run the centre more profitably, it is not clear as to how the need for domain intermediation would affect the centre in offering multiple domain services. The important dimension of domain intermediation needs to be probed further for a richer understanding in this regard.

³⁶ The term is drawn from the phrase ‘information mediator’.

The emphasis on financial feasibility and the general understanding about the need for local operators/entrepreneurs have pushed most second generation telecentre projects to identify them based on specific traits, many of which are linked to a business-savvy orientation in the candidate (Kuriyan and Toyoma, 2007). The quest for local intermediary raises from the logic that he/she would then be trusted (Heeks, 1999a). No scholarly study has looked into whether the intermediary would be trusted for the whole range of services offered over the telecentre, including those where he/she has no domain expertise. It is also not clear from literature as to whether a single intermediary would be able to offer such a range of services. It is pertinent to explore how a set of services that were provided by the state directly could suddenly be provided by such non-state intermediaries.

2.1.5 Governance implications

Among the primary goals mentioned for the creation of telecentres is the positive impact that they would have on governance and the development of a region. Many writers, however, point out that unless telecentres are envisaged under a comprehensive development plan for the region, they are likely to fail (Ernberg, 1998; Kyabwe and Kibombo, 1999; IDRC, 2003; Batchelor *et al.*, 2003; Rao, 2008). Focus on financial sustainability makes it difficult for centres to simultaneously focus on social development aspects as well (Kuriyan *et al.*, 2006). There is emerging evidence that in the absence of state moderation, economic entrepreneurship motivation would overtake that of social commitments (Madon, 2009).

This is an interesting aspect because telecentres subsumes the idea of “contract state³⁷”, popular in new public management (NPM). The notion of contract state questions the distinction between the public and private sectors in the governance space (Cordella and Willcocks, 2010; Cordella and Bonina, 2012). The former is aimed at generating public value and the latter private value (Moore, 1995; Kelly *et al.*, 2002). This inner contradiction of outsourcing state activities resulting from governance reforms has

³⁷ Outsourcing/contracting out of IT services/activities of the state (Cordella and Wilcocks, 2010); also see the concept of *hollow state* discussed later (Fountain, 2001).

implications on the way telecentres function as much as it has on governance itself. Moreover, telecentres in many places do not seem to have had any major impact on fundamental development and governance issues (Parkinson and Lauzon, 2008). On a different note, studies have also questioned the effectiveness of ICT over earlier technology to intervene in development issues (Pigato, 2001; Rao, 2008).

It is important that telecentre studies go beyond the current perspectives mostly informed by reform philosophies (Madon, 2005). The survival of telecentres in the “long-term would depend on the interactions and relations between a host of players including private entrepreneurs, the government, international donors, local banks, telecommunications suppliers, local companies, civil society organisations and individual community members” (Madon, 2005). Drawing on the idea of interactions, as developed by Kooiman (2003), she argues that the interactions between these governance actors witness various kinds of tensions and conflicts on account of their power, interest and ambitions. Such interactions could be in the form of alliances and conflicts between institutions and institutional logics that constitute the underlying processes behind services. Conceptualising interactions as the interactions between complex sets of networks is unlike the simplistic way of considering stakeholder interactions with telecentres mentioned in literature (see fig 2.2).

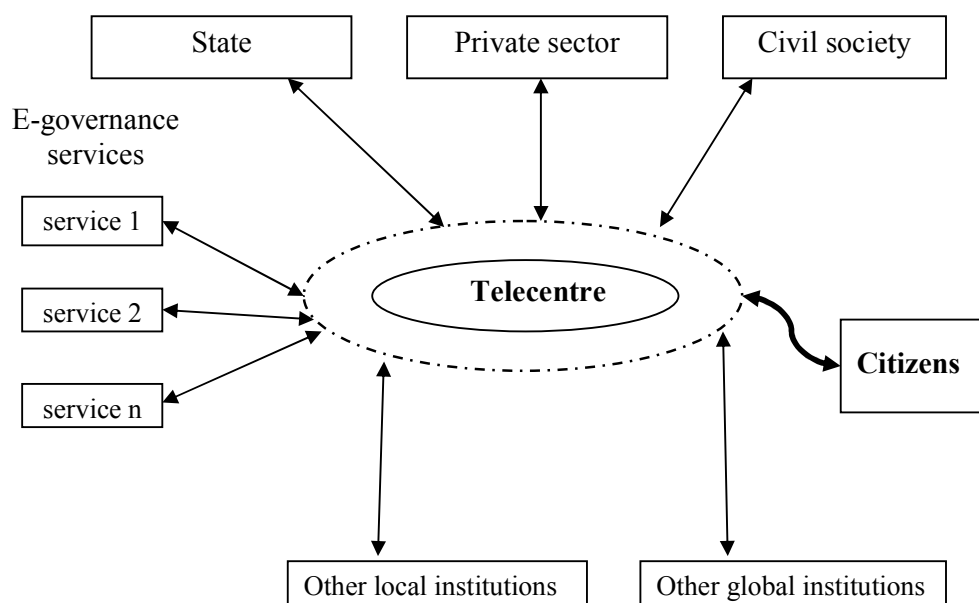


Fig 2.2 Complexity of telecentre interactions.

Review of telecentre literature highlights issues pertaining to the dimensions of usage, content, sustainability, need for local entrepreneur/ownership and certain governance implications. Yet the literature seems to be silent about the stronger historic background in which the telecentre became a ‘development phenomenon’. The review also shows that a predominantly managerial lens has been employed both in terms of conception, implementation and evaluation of telecentres. There seems to be very little understanding of telecentres beyond anecdotal stories, propaganda materials and its immediate settings. The connections with e-governance literature is peripheral and as pointed out earlier, except for a few writers like Madon, most of the literature does not take into consideration the dynamic aspects associated with e-governance, reforms in government and service delivery. Most importantly the political dimensions associated with integration and its implications on multipurpose nature of telecentres are not adequately researched. The literature on e-governance and governance are being reviewed considering the strong links that associate them with telecentres and its fundamental framework.

2.2 E-governance³⁸

E-governance has been a much debated topic in the academic and policy circles since the past two decades. The attempt here is not to come up with an exhaustive review of the multiple e-governance definitions, projects or implementation strategies. Instead the effort is to understand some of its underlying philosophies with a view to shed light on its contribution to the conceptualisation of telecentres and more particularly its ascribed integrated services delivery nature.

2.2.1 E-governance as development intervention

While ICT has been used in government for a long period of time, the way e-governance is generally understood across the world originated from the initially formulated *digital government* concept in 1997 by the United States’ National Science Foundation (Jackson and Curthoys, 2001). What made this conceptualisation different from earlier periods was its philosophical and conceptual links with the principles of

³⁸ This research does not differentiate between e-governance and e-government.

New Public Management (NPM)³⁹ and its *good governance*⁴⁰ agenda. In other words, ICT was no longer seen as a technology that would be introduced into an existing governance mechanism for reforms, but as an embedded ally of the reform programme of NPM (Ciborra and Navarra, 2005). The strategies⁴¹ of *digital government* to this date reflect these aspects through principles such as “information centric”, “shared platform” and “customer centric” approaches.

Most of the policy initiatives assume a rather technologically deterministic position assuming that ICT can contribute to the achievement of good governance goals and thereby to the development of a region in general (DOTForce, 2001; Heeks, 2001; Avgerou, 2002; Eggleston *et al.*, 2002; Okot-Uma, 2003; UNDP, 2003; Prattipati, 2003; UN, 2008; 2010; 2012b). E-governance is considered as the ICT enabled path to achieving good governance, considering its perceived potential to improve efficiency and effectiveness on account of automation, informatisation⁴² and transformation⁴³ (Heeks, 2001). Similar arguments can be seen in the publications and websites of most multi-lateral agencies including the World Bank and UN agencies. ICT enabled reforms programmes also became a prerequisite for many countries to gain access to multiple development and aid programmes as well as to participate in the new economy (Ciborra and Navarra, 2005).

Given the loud rhetoric about the positive outcomes of ICT and hence e-governance, many developed and developing countries have also committed significant expenditure on e-governance. In Europe, government spending on ICT is growing faster than in most other sectors (World Bank, 2009). The total e-governance spending by China is expected to have increased to more than US\$10 billion in 2008, from US\$7 billion in 2006. Similarly, India has also made large investments; its National e-governance programme alone has received US\$5.5 billion in funding between 2007 and 2012

³⁹ Discussions on NPM would be found later in the chapter.

⁴⁰ According to Okot-Uma (2003), good governance can be defined as comprising the processes and structures that guide political and socio-economic relationships, with particular reference to ‘commitment to democratic values, norms and practices; trusted services; and to just and honest business’

⁴¹ Available from, <<http://www.whitehouse.gov/sites/default/files/omb/egov/digital-government/digital-government.html>> [01 November 2012]

⁴² “Supporting current human executed information processes”.

⁴³ “Creating new ICT-executed information processes or supporting new human executed information processes”.

(World Bank, 2009). Many countries have tried to make their presence felt on the web. The UN study (2012b) reports that unlike eighteen countries in 2003, only three countries did not have any web presence in 2012.

It is now well-known from e-governance experiences across the world that such programmes have failed to deliver the initial promises (Polidano, 1999; Avgerou and Walsham, 2000; UN, 2003⁴⁴; 2008; 2010; 2012b). There are writers who consider the current e-governance programme as continuation of the trends in development thinking since the 1950s (Castells, 1998; Wade, 2002). Others point out that such approaches, laden with the principle of the market, in the guise of good governance could ultimately end up in developing countries serving the need of the richer states (Wade, 2002; Ciborra, 2003). Ciborra (2003) considers development and ICT as technologies of control and cautions that through e-governance the relationship between the two technologies lead to controls across geographic borders. E-governance needs to be viewed as processes and issues beyond mere ICT implementation within governments considering its governance as well as global implications (Fountain, 2001; Avgerou, 2002; Wade, 2002; Ciborra, 2003; Prattipati, 2003).

The deterministic stand underlying e-governance has also been contested by many scholars (Avgerou, 1990; 2002; Madon 1992; 2003; Walsham, 1993; 1995; 2002; Walsham and Sahay, 1999). Avgerou and Madon in the early 90s had pointed out the importance of contextual factors that shape the way information systems are adopted and used in developing countries. Socio-economic, cultural, organisational, political, beliefs, norms and practices of individual and institutional actors and process changes play a major role in the development of information systems in developing countries (Markus and Robey, 1988; Avgerou, 1990; Madon, 1992; 2003; Walsham, 1993; Grillo and Stirrat, 1997; Galliers *et al.*, 1998; Walsham and Sahay, 1999; Schech, 2002; Gardner and Lewis, 2002). Many studies show that overall progress in e-governance follows the country's social, economic and political status rather than the other way round (UNDPEPA, 2002).

⁴⁴ UN (2003) World Public Sector Report 2003 - E-government at the Crossroads, Department of Economic and Social Affairs, United Nations, New York.

2.2.2 NPM and Bureaucracy

Governance reforms were undertaken on account of the apparent failures in the bureaucratic form of government and its silo type of functioning. As discussed earlier, in the history of human organising, it was considered as a major innovation that organisations and more particularly governments could be organised under specific functions that are mapped to services (Haldane, 1918; Self, 1977). However, this very fundamental characteristic is currently held responsible for most of the apparent issues identified with bureaucracy (Bellamy, 1999). One of the major arguments against bureaucracy is that it doesn't allow governments to be "horizontally (departmentalism) or vertically (multiple service delivery points) integrated (Bellamy, 1999). ICT is supposed to overcome departmental silos and achieve integrated services delivery: "it will create public services that work better and cost less" (Gore, 1993).

ICT was considered as a natural ally of NPM efforts considering the approaches to ICT-led business strategies of business process reengineering and value adding supply chains (Bellamy, 1999). E-governance programmes across the world are heavily embedded with models and practices from modern business management (Fountain, 2001; Avgerou, 2002). These practices were attempted based on the perceived efficiency potentials offered by these models and frameworks and not necessarily by critically relooking at the foundations of these institutions (Avgerou, 2002). It is hence interesting that crucial constructs such as *citizens* have easily given way to the concept of *customer*, without any real understanding of the underlying aspects such as segmentation involved in such adoption (Ciborra, 2003; Fountain, 2001). Not only does this "global ICT programs" (Navarra and Cornford, 2009) redefine the very nature of citizenship, statehood and citizen-state relationships, but also carries a strong universalisation agenda.

It is today seen as a major achievement of governments if the citizen services in the country/region have a high degree of *customer* orientation. Lee *et al.* (2005) show that e-governance categories have direct *counterparts* in the business world, as shown in table 2.1. According to the principles of NPM, e-governance service delivery through the web would lead to more transparent, interactive, open and hence, accountable

governance (Lapsley, 2008). Since ICT tries to maintain, consolidate or reinforce existing practices, accountability, measured both in absolute sense as well as in terms of the gaps between national bureaucracies, do not seem to have been substantially altered (Wong and Welch, 2004). Various studies of e-governance projects in developing countries have found that lack of accountability resulted in citizens and businesses not trusting political decision-makers and civil servants (Panzardi *et al.*, 2002; Bhatnagar, 2003; 2004; 2009; Vasudevan, 2006; Avgerou *et al.*, 2008). Researchers like Chadwick and May (2003), based on their studies in the United States, Britain and the European Union found the marginalisation of the democratic potential of the Internet and the dominance of the executive driven managerial model of interaction over 'consultative' and 'participatory' ones.

We understand from literature that most e-governance programmes with the NPM approach have not fulfilled their initial expectations to improve service delivery and trust in government (Warkentin *et al.*, 2002; West, 2004; UN, 2012b). Yet it is felt that factors such as perceived ease of use, compatibility and trustworthiness and trust would substantially motivate citizens to start using e-governance services (Lee and Turban, 2001; Warkentin *et al.*, 2002; Carter and Belanger, 2005). Velsen *et al.* (2009) point out the need for user involvement even at the stage of e-governance services design for successful service delivery.

Tracing the history of the emphasis on integration, customer orientation and decentralised service delivery leads us to a better understanding about the relation between NPM, ICT and telecentres. We have already discussed the aspects related to integration and how the concept seems to have played a role beyond the purely technical in the formulation of e-governance projects. Though the combined philosophies of NPM and e-governance have not been successful even in the context of developed countries, e-governance continues to excite governments all over the world with the ideas and models adopted from management and the assumed potential of ICT (Bellamy, 2002; Fountain, 2001; Scott *et al.*, 2004).

E-governance category	Business metaphor	Description	Sub-category	Example practice
Government to citizens (G2C)	Customer Relationship Management (CRM)	Providing opportunities for greater citizen access to and interaction with the government	Managerial interaction	Government's informational Web sites
			Consultative interaction	E-voting, instant opinion polling
Government to businesses (G2B)		Seeking to more effectively work with businesses	Businesses as suppliers of goods or services	Government's e-procurement
			Businesses as regulated economic sectors	Electronic filing with various government agencies
Government to government (G2G)	Supply Chain Management (SCM)	Enabling government agencies at different levels to work more easily together	Vertical integration	Sharing a database among agencies within the similar functional walls but across different levels of government
			Horizontal integration	Sharing a database among agencies at the similar levels of government but across different functions
Government internal efficiency and effectiveness (IEE)	Enterprise Resource Planning (ERP)	Focusing on internal efficiency and effectiveness	Government to employee	Web-based payroll/health benefits system
			Integrating internal systems	Implementing ERP-like systems to integrate different functions within a single agency
Overarching infrastructure (Cross-cutting)	Enterprise Application Integration (E AI)	Facilitating the interoperability across different practices	Hardware and software interoperability	Public-key Infrastructure interoperability
			Authentication	e-Authentication across different E-governance initiatives

Source: Lee *et al.* (2005)

Table 2.1. E-governance practice categories.

2.2.3 Maturity – stages models

Some writers have analysed e-governance from the point of view of the interactions that governments have with entities both internally and externally and suggest a staged approach to finally achieving integration. Writers like Ranerup (1999) and Heeks (2001) have suggested that ICT would initially be used for e-administration subsequently for e-services and finally for e-democracy/e-society. The same philosophy goes behind the effort to analytically differentiate stages of implementation between e-governance⁴⁵, e-government⁴⁶ and e-administration⁴⁷ (UNDPEPA, 2002). Another approach is to identify the major actors in the society and their interactions with government and to adopt a phased approach to ICT implementation in each of these interactions. For example Zhou (2001) points out the following five areas of interactions, considering three major actors in society: (a) Government to Government (G2G)⁴⁸ (b) Government to Business (G2B)⁴⁹ (c) Government to Citizen (G2C)⁵⁰ (d) Business to Government (B2G)⁵¹ and (e) Citizen to Government (C2G)⁵². It is believed that once the *targeted segments* have been identified, the processes could then be modified to give services to these *clients* in an integrated manner. These models propose routes to achieving the *most desirable* integrated back-end and/or front-end systems in a phased manner.

A four stage evolutionary model, with focus on integration was developed by Layne and Lee (2001), consisting of cataloguing, transaction, vertical integration, and horizontal integration (Figure 2.3). Figure 2.4 indicates an evolutionary approach, adapted by UN (2008), to public sector service delivery - from the traditional model to connected model through the e-government and e-services approach. The UN Global E-governance Survey 2003 (UN, 2003) and the recent survey (UN, 2012b) adopts the following model of e-governance (fig 2.5) “to reflect the bilateral information flow

⁴⁵ Interaction between citizens, government organisations, public and elected officials.

⁴⁶ Inter-organisational relationships

⁴⁷ Intra-organisational relationships

⁴⁸ G2G contains the interactions between central and local governments, between departments (public sector agencies) and between government and its employees.

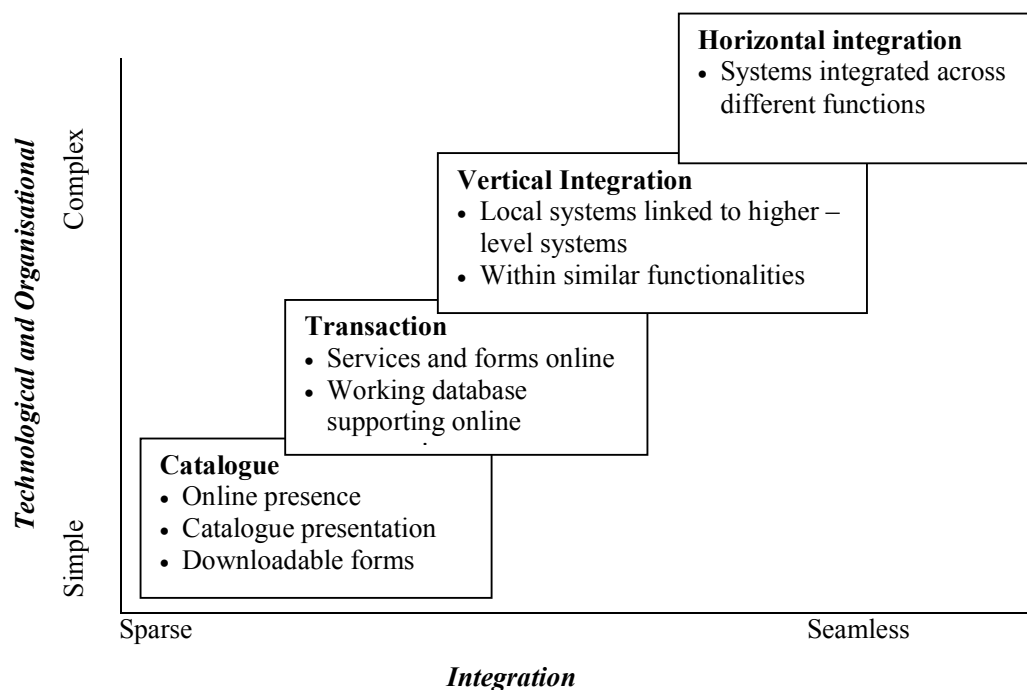
⁴⁹ G2B include the provisions of information services (such as policies, orders and rules), business services (such as licenses, certificates) and assistance in business development.

⁵⁰ G2C includes the information services and entitlements (like certificates and registration)

⁵¹ B2G includes the provision for various taxes, tenders, procurement, etc.

⁵² C2G contains the interactions for payment, information, redressals and democratic participation

between the various societal actors”. The survey is based on a composite readiness index of web measure index, the telecommunication index and the human capital index. Underpinning the web measure index is a five stage model consisting of “emerging presence, interactive presence, transactional presence and networked presence”.



Source: Layne and Lee (2001).

Figure 2.3. Dimensions and stages of E-governance development

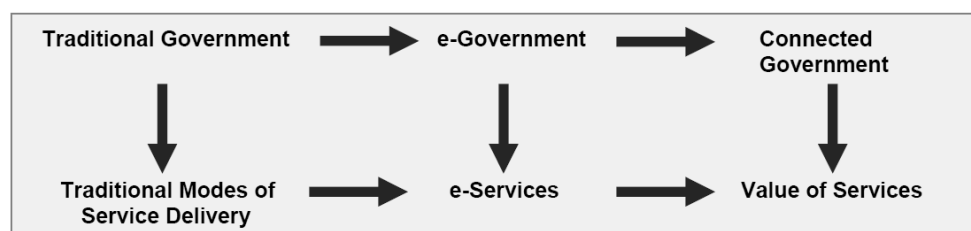


Fig 2.4 Evolving approach to public service delivery (adapted from UN, 2008)

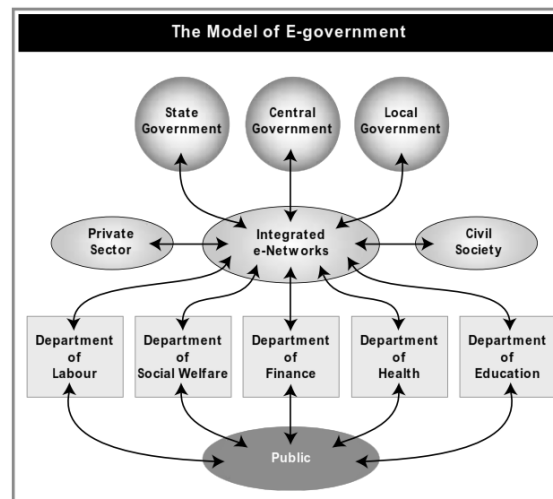


Fig 2.5 Model of E-governance used for UN Global E-governance Survey, 2003

Apart from the above models, there have been many e-governance stage models that are proposed by international organisations, consulting firms, and individual researchers (Lee, 2010). Though based on different perspectives, what is interesting about them is their strong belief in a phased approach leading ultimately to integration. Table 2.2 below shows a comparison of stages of e-governance models.

Studies, however, show that e-governance in a region does not necessarily follow such linear paths or stages. (Lee *et al.*, 2005). In the case of many developing countries, efforts were taken to provide services over ICT front-ends in an integrated manner without even attempting ICT interventions at the back-end (Heeks, 2001; Madon and Kiran, 2002; Kiran, 2002a). Though strengthening back-end systems and processes are also found necessary for consolidation and continuing public value⁵³, governments do not want to confront the existing powerful administrative mechanisms (UN, 2008; 2010; Walsham, 2010).

⁵³ Public value refers to the value created by government through provision of services, the passing of laws and regulations and other actions. The key things that people value tend to fall into three categories: outcomes, services and trust. (Kelly *et al.* (2002) Creating public value. An analytical framework for public sector reform, available from: http://www.cabinetoffice.gov.uk/media/cabinetoffice/strategy/assets/public_value2.pdf [20 June 2005]

Authors	Gartner Group (model 1)	Deloitte Research (model 2)	Layne and Lee (model 3)	Hiller and Belanger (model 4)	Scott (model 5)	United Nations (model 6)	World Bank (model 7)	Netchaeva (model 8)	Accenture (model 9)	West (model 10)	Siau and Long (model 11)	Anderson and Henriksen (model 12)
Year	2000	2000	2001	2001	2001	2001-2008	2002	2002	2003	2004	2005	2006
# of stages	4	6	4	5	6	4	3	5	5	4	5	4
1					Email system and internal network							Cultivation /Extension
2	Web presence	Info publishing and dissemination	Catalogue	Info dissemination and Catalogue	Inter- organizational and public access to information	Emerging presence and enhanced presence	Publish	Scattered information	Online presence	Billboard stage	Web presence	
3	Interaction	"Official" two-way transaction		Two-way communication	Two-way communication	Interactive presence	Interact	Ask questions and take part in forms and opinion polls			Interaction	
4	Transaction	Multipurpose portals/Portal personalization	Transaction	Service and financial transaction	Allowing exchange of value	Transactional presence	Transact	Some services online	Basic capability	Partial-service delivery stage	Transaction	
5									Service availability			
6									E-Government Portals			
7		Clustering of common services	Vertical integration	Vertical and horizontal integration	Joined-up government	Seamless presence (2001) Networked presence (2003,2005) Connected (2008)			Mature delivery	Portal stage		
8		Full integration and enterprise transaction	Horizontal integration									
9	Transformation								Service transformation		Transformation	
10				Political participation	Digital democracy	e-participation index (2003,2005,2008)		Possible democracy		Interactive democracy	e-democracy	

Table 2.2 Stages in e-governance developmental models - comparison (Source: Lee, 2010)

2.2.4 Significance of Integration

As pointed out earlier, departmentalisation and silo based functioning were considered as causes of inefficiency in governments (Kallinikos, 2004a). Integration of services was seen as a possible route to achieving NPM goals of efficiency improvement and customer centricity in governments (UN, 2012b). Integration and interoperability are considered as prerequisites for adopting European eGovernment services in the eEurope Action Plan (COM, 2002). It has also been identified as one of the main challenges in the i2010 EU strategy (COM, 2005). The concept of integration of service could be traced back to the literature on business process reengineering and the growing focus on client service interface in businesses.

The literature on business process re-engineering highlights how “informational flexibilities” could be utilised for ensuring tighter integration horizontally as well as vertically (Bellamy, 1999). The premise is that formal organisational boundaries are increasingly becoming permeable between actors in any value chain (Davidow and Malone, 1992; Lipnack and Stamps, 1993; 1997). Formal boundaries would no longer be able to confine organisational work and roles (Venkatramen, 1991). Adopting these concepts, the key global policy priority underlying e-governance programmes is the administrative simplification of core processes by integrating government departments and agencies through the provision of decentralisation, one-stop shops and web portals (Hu *et al.*, 2005).

The present techno-deterministic thinking is based on the assumption of integrated service delivery using standardised and shared business processes, data, and infrastructure (OECD, 2005). The “*whole-of-government*” concept (MAC, 2004) and “connected governance” concept (UN, 2008; 2010; 2012b) tries to bring in the angle of networked governance and integration at the back-end. Countries like Switzerland, Netherlands, Australia and Austria have tried to put in place common bodies within public sector that will coordinate the issues pertaining to institutional arrangements for coordination (UN, 2010).

OECD report (2007) points out that “while initially the political and managerial focus was on developing e-services within each public institution, with limited consideration being given to cross-organizational coherence, the focus today has clearly shifted towards coordinated services offering one-stop shops to citizens and businesses”. Developing countries such as India, Ghana, Mauritius, Bangladesh and Pakistan have also been attempting integrated services at the point of delivery (UN, 2012b). Many countries (e.g. US government⁵⁴, UK government⁵⁵, Singapore government⁵⁶, etc.) have prioritised the creation of integrated service portals as front-ends for providing e-governance services in an integrated manner.

Though the rationale for integration of services seems very convincing, the possibilities of the same are usually discussed only from the point of view of the characteristics of the technology – ability to make time and distance irrelevant, increasing affordability, sharing of resources, standardisation, interoperability, continuous innovations, knowledge management, etc. There is very little in literature that discusses integration from the point of view of governance, its actors, deep rooted contextual factors and characteristics of the services, the power and politics of such attempts, etc. The discussions do not consider the nature and complexity associated with the institutions or institutional logics embedded in services or the foundations of bureaucratic organisational form.

It may be noted that most studies show that service availability and citizen adoption of online government services has not yet completely materialised even in developed countries (Warkentin *et al.*, 2002; West, 2004; UN, 2012b). Progress in achieving the objective of integration and service availability across the world continues to be low (UN, 2012b). Though ICT and integration were promoted by multilateral agencies including the UN as enablers of the development of a country even with ability to *leapfrog* stages of development, the 2012 UN report states that “*Trends in E-governance development around the world in 2012 indicate that e-services in a country are a function of the level of development, resource availability, and human and*

⁵⁴ Please see <http://www.fedworld.gov/>

⁵⁵ Please see <http://www.direct.gov.uk/>

⁵⁶ Please see <http://www.ecitizen.gov.sg/>

technological infrastructure. The complex pattern of developments across a myriad of these factors has a bearing on how many E-governance services are available – and how much they are utilized.”

There are five important aspects that emerges from the review (a) the taken for granted assumption about ICT (b) the philosophical underpinning of NPM that makes ICT an ally of reforms (c) reforms centred ICT use and emphasis on integration – and particularly on integrated services at the point of delivery (d) the reforms centred parameters make evaluation and studies concentrate more on the dimensions of apparent interaction rather than on underlying processes and (e) despite years of effort very little seems to have been achieved in terms of integrated service delivery across the world.

The dominant managerial perspective does not take into account governance issues like democratic accountability, institutional and organisational interactions, the politics of actors and the complexities associated with e-governance services and integrated services delivery. Telecentres need to be studied in this broader context. The review gives an understanding of the rationale for the enthusiasm of integrated front-ends and telecentres. Telecentres have not generally been discussed and studied against this more fundamental background. The researcher attempts to address this gap in literature. Towards this end, the next section attempts a review of literature on governance.

2.3 Governance

Governance is possibly one of the most widely discussed and researched concept across a range of disciplines. The attempt in the preceding sections is to understand the aspects of governance and reforms that are widely discussed and debated in the area of public administration. The review would provide interesting insights on how reforms have profoundly influenced the way e-governance programmes are attempted and projects like telecentres are conceived.

2.3.1 The Bureaucratic state

Discussions on governance of a region or a country in the past two centuries were always associated with the concepts of nation state and the government. Considering its social foundations, the bureaucratic form was always considered the most appropriate form of organising the state (Kallinikos, 2004a). Bureaucracy was characterised by its emphasis on specialised division of labour and efficiency, rationalisation, impersonal relations and merit based promotion as well as mechanisms of control enacted through hierarchy of authority, written rules of conduct, and information and role structuring (Weber, 1968).

Mintzberg (1993) classified bureaucratic organisations based on the parts of an organisation, mechanism of coordination, design parameters and contingency factors. The taxonomy consists of simple structure, machine bureaucracy, professional bureaucracy, divisionalised form and adhocracy. Of particular significance in the context of bureaucratic state are the configurations of machine bureaucracy and professional bureaucracy. Machine bureaucracies are structures that are effective in executing highly standardised, rationalised tasks in pre-determined and predicted settings. Professional bureaucracies deal with complex tasks that require the particular application of generalised principles in uncertain contexts. Whereas the former involves tasks that can be automated, the tasks of the latter cannot be automated since these tasks are aimed at problem solving using analytical skills. Considering the range of activities and services expected from governments, the bureaucratic state consists of a complex diversity as well as coexistence of these structural configurations.

Bureaucracy was considered by Weber as a strategic outcome of the requirements of the industrial revolution for operating larger scale public and private enterprises (Aron, 1970; Coser, 1977). A deeper analysis, going beyond the more apparent structures and strategies reveals that the bureaucratic form of organisation not only reflects the larger social and cultural ethos of modernity but also institutionally embeds these values (Luhmann, 1982; 1995; Gellner, 1983; 1996; Seyer, 1991; Kallinikos, 2004a). Intrinsic values of democratic institutions like equality, fairness and rationality and the very idea of 'citizen' stems from this basic underlying principle of the bureaucratic form of

government (Cordella and Wilcocks, 2010). Through the process of depersonalisation and bringing in the distinction between the role and the person, bureaucratic form institutionalises the role expectations and rule-bound behaviour essential for the effective and egalitarian performance of public organisations (Fountain, 2001; Kallinikos, 2004a; Luhmann, 1995). Bureaucracy was seen as a major organisational innovation in view of its ability to organise the functioning of government into structured ways (horizontally and vertically) according to the nature of services and activities (Haldane, 1918; Self, 1977). This fundamental principle, however, is currently seen as a major constraint to the achievement of *good governance* (Bellamy, 1999). Cordella (2007), however, proposes that rather than adoption of frameworks from the business world, ICT could be used to automate existing administrative procedures leading to the improvement of administrative efficiency and effectiveness. He argues that this e-bureaucratic approach while taking advantages of ICT as a means of coordination also reinforces the social foundations of the bureaucratic nature of state.

A diversity of characteristics attributed to the bureaucratic form has, however, been criticised as reasons for governance failures. As discussed earlier, the strongest argument by opponents of the bureaucratic form is that it doesn't allow governments to be integrated either horizontally or vertically (Bellamy, 1999). The other reasons include its apparent static nature, inefficiency, possibilities for corruption, concentration and misuse of power, poor decision-making, political interference, job dissatisfaction, organisational conflicts, and the difficulty in measuring performance and holding public officials accountable (Thompson, 1965; Rossel, 1971; Sorensen and Sorensen, 1974; Perry and Kraemer, 1983; Boisot and Child, 1988; Hood, 1991; Mitchell and Simmons, 1994; Gregory, 1999). On account of the growing discontentment in the functioning of governments, the 1980s heralded debates on new ways of organising governments.

2.3.2 New Public Management

Administrative reforms attempted during the decades of the 1980s and 1990s in western governments weakened the bureaucratic form of government. These reforms presented under New Public Management (NPM) and good governance initiatives drew neo-liberalist ideology into the sphere of the state through concepts such as marketisation,

efficiency, accountability and decentralisation (Weiss and Barton, 1976; Flynn and Strehl, 1996; Hodge, 1996). These reform agendas were subsequently promoted in most developing countries as well, as has been the case with earlier reform processes (Avgerou, 1990). The principles and theories that underlie traditional public administration, institutional economics and managerialism played a major role in providing acceptance and legitimacy to NPM (Perry and Kraemer, 1983; Hood, 1991).

Proponents of NPM believe that governance can be improved by ensuring appropriate environments for the free market to regulate the governance (Ciborra, 2003). Non-state actors were hence given prominent roles in the governance of a region (Armstrong *et al.*, 2011). The modern state is envisaged to govern through the interactions within networks of state and non-state actors, institutional arrangements, bargaining systems⁵⁷, organisations and global mechanisms (Rose and Miller, 1992; Pierre and Peters, 2000; UNCHS, 2001; Robinson and Keating, 2005; Kjaer, 2004). The significance of non-state actors has been incorporated into the concept of 'governance network' (Pierre and Peters, 2000; UNCHS, 2001). The governance network is conceptualised to consist of the public sector (state) for coordination, private sector for competition and the civil society for cooperation.

2.3.3 Government to Governance

Many practitioners and political scientists now consider governance as a complex phenomenon, distinct from government - as an analytical way of considering state capabilities and state-society relationships (Pierre and Peters, 2000; Kjaer, 2004). Governance is used as an umbrella concept for a variety of phenomena such as public management (Hood 1991), policy networks (Rhodes, 2003), coordination of economic sectors (Campbell *et al.*, 1991), corporate governance (Williamson, 1996), public-private partnerships (Pierre, 1998), and good governance as a reforms objective (Leftwich, 1994). Governance is also considered as the process by which institutions, organisations, and citizens 'guide' themselves (UNDPEPA⁵⁸, 2002). From an

⁵⁷ Example: public-private partnerships, regional confederations, etc.

⁵⁸ United Nations Division for Public Economics and Public Administration.

institutional perspective, governance provides the framework that enables and constrains the actions of societal actors (March and Olsen, 1995).

The forces of globalisation and ICT have further blurred the traditional assignment of roles to various entities of a society on account of the formation of alliances and networks at the local and global levels (UNCHS, 2001). We increasingly see the private sector as well as the civil society playing some key roles that the public sector used to play in the past. There is not only a redefinition of the roles but also realignment of relationships between these actors in the governance network (UNCHS, 2001; Robinson and Keating, 2005).

It is important to note that these changes, leading to changes in inter-organisational relations, are fuelled by the underlying philosophy of minimalist state and concepts like public-private partnerships, community ownership, etc. (Robinson *et al.*, 2000). Public administration literature uses terms like “hollow state” to highlight how far government is undertaken in the private and non-profit sectors (Fountain, 2001; Milward, 1996; Milward and Provan, 2000). Networked arrangements are supposed to increase in the coming decades (DiIulio and Kettl, 1995; Milward, 1996; O’Toole, 1997; Milward and Provan, 2000; Fountain, 2001). Almost all the major US federal policies require this network to be actively involved for policy implementation (DiIulio and Kettl, 1995). Public governance of today, even in the context of developing countries, is expected to involve multiple societal actors with high degree of formal and informal interactions (UNCHS, 2001).

Considering aspects of power, relationships and accountability, the framework developed by Graham *et al.* (2003) shows the significance of these players in a given region. For example, in a region with four players in the governance platform: government, business, civil society and the media, the framework would have the mapping as shown in Figure 2.6. The size of each sector is indicative of their relative powers and the overlap is indicative of the permeability of the borders of these organisations. A similar mapping for other countries could show a different distribution of power.

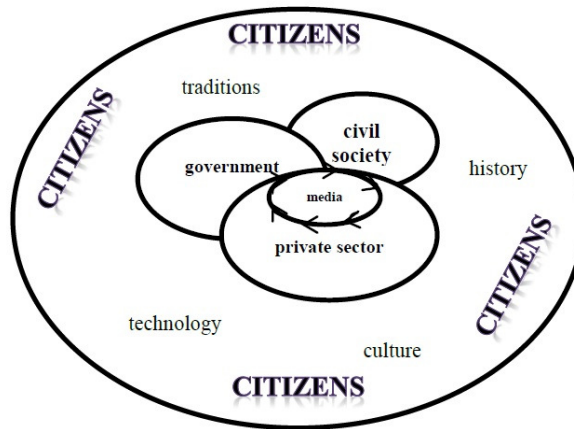


Fig. 2.6 Governance network (Graham *et al.*, 2003)

2.3.4 Governance as interactions

Governance is conceptualised through the notion of interaction by sociology of governance writers (Rhodes, 1997; 2007; Rose, 1999; Pierre and Peters, 2000; Kooiman, 2003; Kjaer, 2004). Governance is seen as the sum total of the permutations and combinations of all interactions between different actors that are undertaken with a view to solving society's problems or creating societal opportunities.

One such form of interaction, the public-private partnership, which has been popularised in the last two to three decades, is a key aspect to be considered in the discussion on governance (Pierre, 1998). The World Bank has devoted two of its reports to the significance of state-market relations (World Bank, 1997; 2002). Needless to say, the growing emphasis on public-private partnership gets its philosophical support from the neo-liberal reforms programmes. This significance given to non-state actors is a vital factor driving the telecentre movement across the world (Gopakumar, 2007).

Civil society has been gaining theoretical and practical importance on account of the assumptions regarding its relevance to strengthening development and democracy (Lewis, 2001). The concept of civil society gained significance in the background of the 'good governance' agenda as a strategy for improving competitive market mechanisms

and democratic institutions (Archer, 1994). Appropriate forms of civil society are believed to improve government performance through higher levels of accountability especially at the local level⁵⁹ (Putnam, 1993). In the background of the *governance network* concept as well as the increasing importance of the private and civil society organisations, there have been changes in the roles played by these actors. Horizontal network negotiations are supposed to benefit from being embedded in hierarchical structures since the state can coordinate these activities (Kjaer, 2004). Many writers have pointed out that networks require coordination and that governments need to play the central coordinator in meta-governance (Mayntz, 1993; Rhodes, 1997; Kjaer, 2004).

Bureaucracy plays a significant role in ensuring that effective mechanisms exist for achieving democratic accountability (Evans and Rauch, 1999; Hyden *et al.*, 2004; Henderson *et al.*, 2007). Networks are self-organising i.e. autonomous and self-governing (Rhodes, 2003). On the one hand, there is the risk of governance failure because the actors may continue to disagree and the network may fail to have a momentum (Jessop, 2004). On the other hand, inter-organisational networks may be efficient when delivering services, but they typically have a high degree of closure and the closeness of the system increases the difficulty of achieving democratic accountability (Rhodes, 2003; Kjaer, 2004). These are important aspects that need to be considered in discussions on telecentres since most telecentre projects create mechanisms for centres to work together as a network. There are no scholarly works on the implications of the creation of such networks on telecentres or on governance.

The traditional representative democratic models assume that people are sovereign and that political authorities are accountable to them - democratic accountability. However, since one of the characteristics of networks is that policy and outcomes are the responsibility of no one institution but emerges from the interaction of several, accountability is difficult to ensure (Rhodes, 2003). For example, contracting out to private sector could have major implications on accountability in a number of ways (Mulgan, 2008). This has serious implications on ICT projects like telecentres as well. Democratic accountability needs to be viewed from both the aggregate as well as

⁵⁹ This argument is reflected in the World Development Report of 1997, which dealt with governance.

integrative levels⁶⁰. The discussion on accountability is often deliberated in NPM under the concept of transparency, with the argument that in order to hold anyone accountable, there should be free flow of information (Kaufmann and Bellver, 2005; Geotz and Jenkins, 2005; Moore, 2006; UN, 2012b). It is generally believed that ICT can play a major role in this effort.

2.3.5 Decentralisation

Another important aspect related to governance reforms is decentralisation. Decentralisation has become a global phenomenon, with majority of the developing nations and the countries of Eastern and Central Europe experimenting with one or more forms of decentralisation (Ayres, 1999). While all forms of decentralisation represent transfer of power from central government administration, Rondinelli (1990) distinguishes types of decentralisation on the basis of the organisation to which power is transferred⁶¹. Decentralisation has been portrayed as a mechanism to strengthen democracy by trying to ensure citizen participation in public decision-making (Heller, 2000). There is considerable difference in the way decentralisation has been attempted in various developing countries and regions within developing countries (Issac and Franke, 2002). Serious issues of implementation have been highlighted in the context of developing countries including deficiencies in local administrative capacity that have contributed to the poor performance of decentralisation policies (Crook and Manor, 1998; Helmsing, 2000; Crook and Sverisson, 2001; Issac and Franke, 2002). Despite these experiences, there is a strong agenda of decentralisation that circulates widely in international development discourse particularly given its NPM base. Decentralisation along with citizen centricity fuelled the drive for integrated services delivery through decentralised ICT delivery centres.

⁶⁰ While in the aggregate (representative) notion of democracy, political actors convert individual ways and resources to collective action through bargaining, pay-offs and coalition formation, the integrative notion of democracy involves supporting and creating civic institutions and participatory processes that facilitate the construction, maintenance and development of democratic identities (March and Olsen, 1995).

⁶¹ *Deconcentration* is defined as a transfer of power to local administrative offices of the central government, *delegation* as the transfer of power to para-statal, *devolution* as the transfer of power to sub-national political entities and *privatisation* as the transfer of power (and responsibility) to private entities (Rondinelli, 1990).

There are six important aspects that emerges from the review (a) the social foundations of the bureaucratic order embeds the philosophies of modernity and that of egalitarian society (b) there is a strong attempt to replace the bureaucratic form (without a good understanding of its social foundations) with alternate organising forms under NPM and good governance based governance reforms (c) ICT and integration are significant actors that contribute to the reforms agenda (d) emphasis on integrated services at the point of delivery (e) importance of providing services in a decentralised manner (f) significance of non-state actors and (g) democratic accountability is highly contested in new governance arrangements.

Drawing on the governance literature and more particularly the different dimensions of reforms, it is clear that telecentres are not only the logical outcome of the reforms programme but are also embedded with its underlying philosophy. On account of the taken for granted assumptions regarding ICT and integration, the integration of services at the level of telecentres is attempted without analysing the foundations of institutions that constitute the various services. Given the way telecentres have been conceptualised, we would need to analytically consider telecentres as an actor in multifaceted services networks that comprise e-governance services. Given its perceived governance implications, telecentre sustainability has also got important implications beyond the purely financial dimension. These are matters that we will consider in the next chapter.

2.4 Summary of the ideas from literature

It was seen from the discussion in the previous chapter that many developing countries prioritised the use of ICT on account of perceived development potential of the technology. We also examined some of the counter arguments in this regard. Discussions at various levels on the need for increased use of ICT and decentralised integrated service delivery to rural areas were traced. It was observed that telecentres were promoted as a promising ICT innovation that could deliver a range of services in alignment with policies on governance reforms, e-governance and achieving MDGs.

A careful examination of academic and policy literature shows that governments, aid agencies and other development actors seem to be fascinated by the range of outcomes

possible through a single intervention. The neo-liberal reform programmes and the policy discussions that link governance and knowledge to development have played their role as the base for this enthusiasm. As pointed out earlier, writers like Madon (2005) have tried to evaluate and understand telecentres from a governance perspective. This study has tried to further this approach.

It was seen from literature that in the current context, governance transcends the conventional boundaries of the state and that non-state actors have gained significance in the governance of a region. There is an underlying assumption on a positive link between governance and development and hence the need for *good governance* (World Bank, 1992). Governance reforms are postulated as the way forward for achieving good governance. With a view to fulfilling the objectives of the reforms programme, e-governance projects are attempted based on the taken for granted assumptions regarding ICT and integration.

The reforms agendas of decentralisation and customer centricity propelled the notion of integration as a construct beyond technical. What is evident, however, is that most of the literature on integration is technical and prescriptive in nature. No scholarly work seems to have been done on issues such as the complexity of interactions, actors involved and the foundations of institutions that form the services that are supposed to be integrated. The nature of bureaucracy and its multiplicity of configurations like machine bureaucracy and professional bureaucracy do not seem to be adequately considered in the scholarly literature on integration or telecentres. The compelling idea of integration of services at the point of delivery has driven countries to identify and establish front-end delivery mechanisms without careful consideration of these fundamental aspects.

While Internet portal based services model was the preferred strategy in the developed countries, telecentres were considered the ideal model for developing countries. Telecentres were seen to offer the international development agencies an ideal solution for achieving development through a diversity of mechanisms including decentralised integrated service delivery, private sector development, bridging the digital divide,

promoting democracy, achievement of millennium development goals and creation of an information society.

Telecentre projects from across the world, however, paint a very bleak picture about the uptake of services through the centres. While studies have shown many issues that are fundamental to the weaknesses of telecentres, the arguments can broadly be classified into five categories: (a) lack of integration with the local socio-political fabric and lack of understanding of local needs, (b) access issues related to ease of physical access, connectivity and necessary associated infrastructure, (c) lack of technical and other skills of local population, (d) lack of relevant information for local usage and (e) lack of continued support from the dominant implementing partner. Consequently, the literature generally indicates that it is the social side that need to be addressed and recommends among other things the need for aligning telecentre operations with the local community by having a local person (intermediary) to manage the centre, creating a business model by setting out a set of services that can be delivered through these centres locally, providing more accessibility and better infrastructure, providing technical literacy and creating locally relevant content in the local language.

Considering the literature on governance and the link between governance reforms and telecentres at a policy as well as implementation level, it is argued that telecentres need to be studied in the broad context of the issues of governance by unpacking some of the assumptions based on which the telecentre model itself was conceived. The following diagram (Fig 2.7) captures the constructs that are embedded in the concept of multipurpose telecentres.

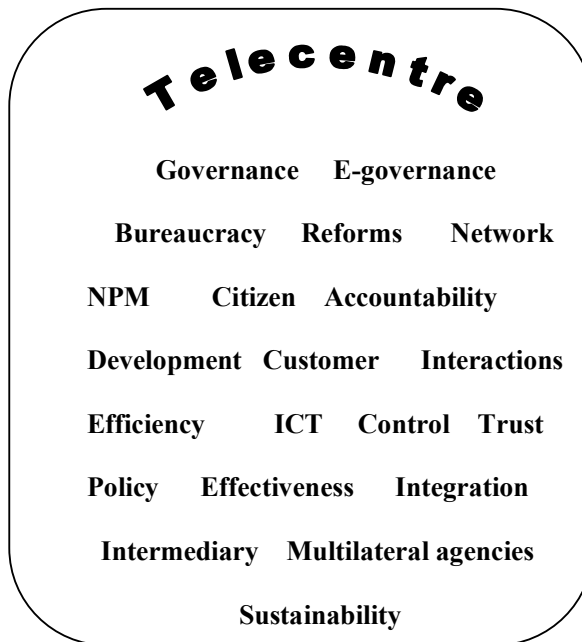


Fig 2.7 Concepts within a concept – unpacking *telecentres*.

2.5 Conceptual framework of the study

We have already discussed the underlying philosophies that guide the integration of services at the point of delivery. From the review of literature we understand that the techno-managerial conceptualisation of integration is simplistic and does not capture the complexity of the services that are supposed to be integrated. The following figure (fig 2.8) attempts to provide a schematic representation of this conceptualisation. S_1, S_2 up to S_n indicate the n (large) number of e-governance services anticipated through telecentres.

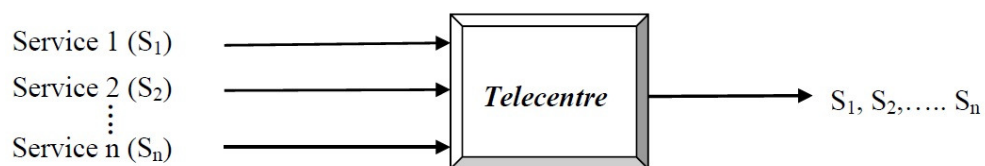


Fig 2.8 Techno-managerial conceptualisation of integration

It is expected that telecentres would act as an integrator and provide all the services. On the one hand, the technical literature on integration highlights the many ways in which

integration could be attempted by adhering to standards and other technical norms at the level of the telecentre. On the other hand, bulk of the telecentre literature talks primarily about how the *social* needs to be appropriated so that services could be availed by the community/citizens. In both cases, there is complete disregard for services and their characteristics.

The following figure (fig 2.9) provides the conceptual framework of the study. It depicts how services are social assemblage of actors that interact at various levels. The framework represents the complexity of issues behind attempting integration at the level of the telecentre. It also captures the implications of this complex assemblage on service level sustainability. This complexity could be captured analytically by considering services as heterogeneous actor-networks that are considered black-boxed but dynamic. It may be noted that the colours given, different lines used, etc. have been done from the point of view of giving clarity through the schematic diagram and does not otherwise imply any special meaning.

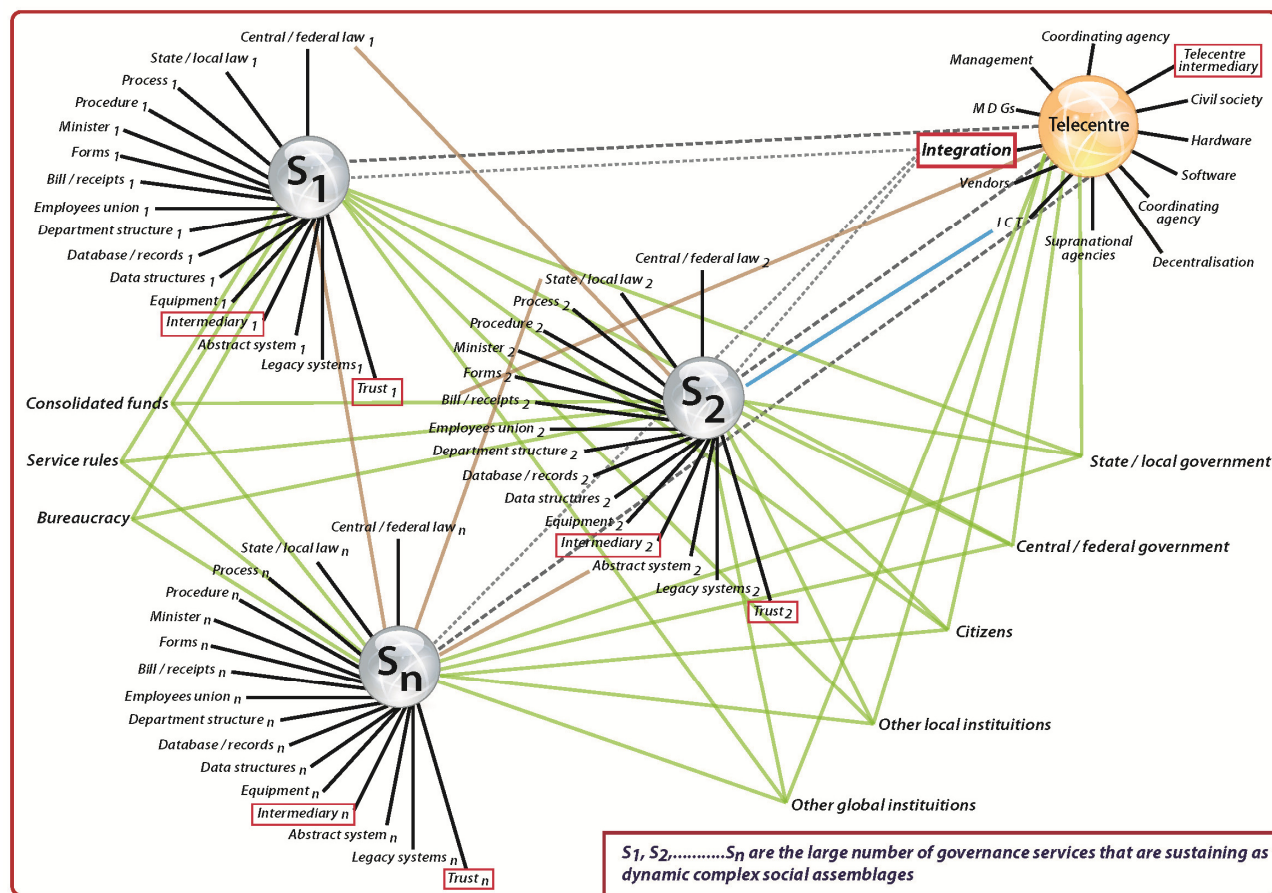


Fig 2.9 Conceptual framework - complexity associated with integrated services delivery over telecentres

2.6 Key Construct – Integration

Integration across information systems has long been assumed as universally desirable and attainable (Kumar and van Hillegersberg, 2000; Sahay *et al.*, 2007). Integration is generally conceived as a technical issue that could be sorted out through adoption of technical standards (Hasselbring, 2000; Chari and Seshadri, 2004). Yet, the attempts to attain integration have not delivered the appropriate results (Hirschheim and Klein, 2003; Kallinikos, 2004b). The on-going efforts including attempts to adopt ERP could be seen as part of this relentless quest for achieving integration, largely fuelled by the notion of customer approach as against an organisation approach to transactions and services (Lenk, 2002; Sahay *et al.*, 2009).

We saw that similar to the notion of customer approach in the private sector, NPM wanted a shift from the traditional functional structure of governments to one that is efficient, responsive and citizen-centred (Bellamy and Taylor, 1998; Heeks, 1999b). Integration was seen as a major requirement and condition for achieving these parameters and ICT was seen as the key ally in this effort. Integration of information systems and organisational cross functional integration seems so tied up together that achieving one seems impossible without the other. What, if any, is the fundamental cause for the lack of integration across functions in an organisation? How/why has this been institutionalised over a period of time?

We have seen that bureaucracy is the dominant form of organising, irrespective of whether it is the state or business organisations. We have also had a look at the social foundations of the institution of bureaucracy and have seen how the notion of role and limiting responsibilities are fundamental to the principles of modernity embedded in the institution (Kallinikos, 2004a). Departmentalisation as part of organising was based on adhering to such principles including that of egalitarian values. We also found from literature that this fundamental aspect of bureaucracy was long hailed as one of the biggest human innovations. In a world obsessed with the notion of citizen centeredness, this fundamental principle is currently considered as one of the most important reasons for governance failures.

When the reforms programmes under NPM framework were attempted across the world, it brought with it a range of ideas and mechanisms, imported from the private sector without any due understanding about the social foundations of the existing organisational form of the state (Kallinikos, 2004a). As discussed, integration in the context of the reforms programme was attempted through integration of services at the point of delivery (front-end) as well as ‘joined-up’ government (back-end) through functional and cross-departmental integration (Al-Kibisi *et al.*, 2001; Chan *et al.*, 2003; Basanya and Ojo, 2011).

The assumption about integrating services at the point of delivery fundamentally gave rise to the ascribed multipurpose nature of telecentres. We find from literature that integrating services at the point of delivery has been favoured by governments and multi-lateral agencies over even the integration at the cross-departmental level through programmes that prioritise the former. The former seems to have helped in delinking the progress of back-end e-governance efforts from services delivery at the front-end. The emphasis on the front-end also aligns with the interests of the large majority of government employees who are not interested (as is the case with other organisations) in sharing their power or data with others on account of back-end integration, exposing the “political minefield” associated with such moves (Hirschheim and Klein, 2003; Walsham, 2010). Attempts at integration, even at this level require an understanding of the actors involved, the politics that they play, the institutional logics and the contextual dimensions. Approaches to integration have, however, remained mostly technical, optimistic, prescriptive and programmatic (Sahay *et al.*, 2009).

In the context of this study, we would be interested in exploring the phenomenon of integrating services at the point of delivery; telecentres. We have seen that mainstream literature on e-governance conceptualises government interactions with citizen as G2C, with business as G2B and with government as G2G. The e-governance services provided to citizens through telecentres are usually treated under G2C and discussed accordingly. While this kind of distinction may be relevant from a functional point of view, it fails to consider the complex interactions between multiple actors and institutions that comprise each of the services that are clubbed under G2C.

This study tries to capture the complexities associated with services (as depicted in fig. 2.9) by conceptualising them as dynamic heterogeneous actor-networks that are black-boxed over time. This is based on and extending the arguments of Madon (2005) regarding the plethora of actors involved in telecentres and its implications on sustainability. This conceptualisation helps in analysing the problems confronting telecentres by considering the different interests and ambitions of various actors involved and the tensions and conflicts formed out of the interactions between them.

Whereas the interactions within these networks constituting every service in itself are complex, integration necessitates complex interactions across multiple networks entailing further alliances and conflicts. In other words, efforts to integrate multiple services would call for analysis that cuts across multiple actors, politics, complex interactions, etc. which are far beyond the scope of a purely technical analysis. We have already got enough indications as to how integration could be constrained by institutional aspects such as trust, intermediation, etc. in the case of telecentres. The techno-managerial construct of integration does not allow such aspects to be considered for analysis. Moreover, *“day to day governing occurrences appear to be complex, layered interaction processes enacted between a variety of unpredictable actors with discrepant interests and ambitions. In these interaction processes, all kinds of tensions and conflicts are articulated, manifest or latent”* (Kooiman, 2003: 11).

Writers such as Webster (1995), Spinardi *et al.* (1997), Cox and Ghoneim (1998), Chilundo and Aanestad (2005) and Sahay *et al.* (2007; 2009) have pointed out the significance of considering integration as a social construct. Based on their studies in the healthcare sector, Sahay *et al.* (2007; 2009) point out that integration is a contested notion among the various actors involved in the sector. They highlight that integration is not a technical problem solving exercise, but politically charged negotiation. Extending the analysis of Madon (2005), the conceptualisation of integrated services in the case of telecentres as well, cannot be considered as a purely technical matter but only as complex interactions and negotiations with a wide range of actors. Review of literature also gives enough evidence that the notion of integration in the context of

telecentres needs to go beyond its conceptualisation as a techno-managerial construct⁶². Instead, the concept of integration, viewed as a social construct could provide an alternate and enhanced conceptualisation of integration adequate to answer the research questions raised in this study.

The attempt for alternate conceptualisation is not aimed at negating the significance of the technical. It was conceived to uncover the underlying principles behind the assumed possibilities of integration as a phenomenon beyond technical. It helped in tracing the different dimensions associated with the multipurpose nature of telecentres. The conceptualisation was employed to understand the implications of integration on existing services as well as the attempts by telecentres to be a part of the network of actors that constitute governance services

Conceptualising integration as a social construct helps us in addressing the research questions as to how this phenomenon enables or constraints multiple service delivery. Conceptualised as a social institution, the construct provides the analytical strength in exploring the way decisions and actions are enabled and constrained in particular ways. Such conceptualisation also helped analysis by its introduction as an actor in the many transactions attempted for providing multiple services through telecentres. The next chapter gives more details of this conceptualisation.

⁶² It may also be noted that telecentre studies have generally not indicated technology issues as constraints for integrated service delivery or affecting sustainability.

3.0 Introduction

In this chapter, we discuss the conceptual framework employed as well as the methodology adopted for the study. The theoretical lens of the study is built on key concepts drawn from institutionalism, bureaucracy and functional simplification and closure. The analytical capabilities and methodological apparatus of ANT are also employed for the study. Using ANT-institutionalism, the framework conceptualises services as black-boxed but dynamic heterogeneous networks of actors (including institutional actors) and thus captures the complexities associated with the services depicted in fig 2.9. The framework is also used to theorise the construct of integration as an institutional actor.

In the previous chapter, we discussed how the majority of telecentre studies tend to divide issues between the technical and the social and argue that the failures of telecentres are primarily on account of the social – particularly at a localised level of context. The ANT-institutionalism framework overcomes the analytical distinction between technical and social and uses translation to understand issues beyond the local. Concepts of translation and OPP are used to trace the process of introduction of telecentres into existing heterogeneous networks that constitute services. Whereas translations help in tracing the apparent issues, actors and their interests, the framework enables us to track the institutional nature of the actors and thereby the origins of the scripts and actor behaviours. Thus the conceptual use of institutional actors in the translation process helps in understanding the implications of the disembedded institutions for service delivery taking the analysis beyond the local settings. The use of integration, ICT and modern management as institutional actors provide important understanding of how new networks of the services were created (or not). Institutionalism helps in the understanding of why such new networks were created (or not).

An important institution that needs to be analysed and understood in the context of e-governance and telecentres is bureaucracy. This is particularly important considering the institutional conflict of integration with that of bureaucracy. The social foundations of bureaucracy (Kallinikos, 2004a) are critically analysed to understand the rationale of its characteristics including impersonal and role-based behaviour that underlie its silo based functioning. The framework also considers how the characteristics of services (that stems primarily from institutions associated with the services) have implications on nature of tasks, routines and processes. We further discuss the implications of the same on organisational configurations drawing on Mintzberg's (1993) organisational typology (machine bureaucracy and professional bureaucracy), the concept of e-bureaucracy (Cordella, 2007) and the work of Cordella and Tempini (2011). Having highlighted this diversity associated with bureaucratic organisations, we analyse the use of ICT as functional simplification and closure. To this extent, we have utilised the conceptualisation of technology by Luhmann (1993, 1995) and extended by Kallinikos (2005) to ICT.

The theoretical capabilities of functional simplification and closure are used to understand the implications of the nature of tasks on the possible degree of automation. Functional simplification and closure would necessitate that some of the processes that underlie tasks could be automated while processes that are of unanticipated nature or that require analytical problem solving would be offloaded back into the traditional bureaucracy. Such offloading necessitates human intermediation at various stages of a task. The framework highlights that such intermediation in the context of modern institutions are institutionally based. Functional simplification and closure that necessitate the need for front-end intermediation challenges both the notion of ICT based front-end delivery as well as the notion of integrated services delivery. The framework of the study is further informed by Giddens's (1990) notion of trust in abstract systems and the significance of institutional membership of front-end intermediaries.

The research adopted an interpretive case study approach and data collection was undertaken using multiple methods. The research involved comparing and contrasting across three different e-governance services delivery projects in Kerala.

3.1 Research Question

As discussed in the first chapter, the primary research question that this study tried to address is the following:

To what extent do telecentres enable multipurpose service delivery?

Related sub-questions include:

- a. Do telecentres and their ascribed multipurpose phenomenon have implications for e-governance services delivery? If so, what and why?
- b. How do ICT implementation and the need for intermediation affect multiple service delivery over telecentres?
- c. How is the sustainability of telecentres implicated by the attributed multipurpose nature of telecentres?

An analysis of e-governance services over telecentres was undertaken with the purpose of addressing these research questions. We would now discuss the underlying philosophical underpinnings of the study.

3.2 The Philosophical underpinning

Drawing on the discussions provided by Chua (1986), as well as Orlikowski and Baroudi (1991), one could categorise the basic paradigms⁶³ followed in IS research into positivism, interpretivism and critical theory. There have been continuing debates over the last many decades about the appropriateness and suitability of these paradigms (Galliers and Land, 1987; Orlikowski and Baroudi, 1991; Walsham, 1995; 2006; Mingers, 2001; 2003; Chen and Hirschheim, 2004). On the one hand we currently observe a dominance of the positivist paradigm, and on the other hand an increasing enthusiasm to engage in diversity of non-positivist approaches in general and

⁶³ A detailed examination of the philosophical assumptions underlying information systems research studies is available in Orlikowski and Baroudi (1991).

interpretivism in particular (Mingers, 2001). As the debate about these paradigms continue, researchers in IS continue to shed more light on these approaches (Orlikowski and Baroudi, 1991; Walsham, 1995; 2006; Chen and Hirschheim, 2004; Becker and Niehaves, 2007; Bagozzi, 2011).

Critical studies are aimed at analysing and identifying inherent structural weaknesses and contradictions of social systems with a view to changing those constraining social conditions (Orlikowski and Baroudi, 1991). Research is undertaken with the belief that a good understanding of the restraining social conditions would propel human action to overcome oppressive social relations (Bernstein, 1978). This is based on the assumption that people have the potential to act and change their social conditions constrained by resources and socio-cultural and political factors (Klein and Myer, 1999). One could consider critical research as emancipatory given this belief in the human agency's capability to remove their social constraints (Wilmott and Alvesson, 1992; Hirschheim and Klein, 1994). This also provides a unique evaluative dimension to critical research (Orlikowski and Baroudi, 1991).

Positivist perspective is embedded with the philosophies that underlie *Enlightenment*. It provides assurance of precise knowledge about the world based on a paramount belief in the capabilities of science (Crotty, 2005). The perspective also considers science and technology as enablers of human development. From an ontological perspective, positivists consider reality as having an objective existence independent of human experience (Burrell and Morgan, 1994). Positivist researchers believe in a-priori fixed relationships within a phenomenon and in the efficacy of using structured instruments for researching these relationships (Orlikowski and Baroudi, 1991). Since they are epistemologically concerned with hypothetic deductive testability of theories, the approach follows one of presenting a causal relationship and following a strict regime of control, predictions and explanations (Orlikowski and Baroudi, 1991; Chen and Hirschheim, 2004). Positivism has taken natural sciences as the model for the social sciences as well and has hence tried adopting the schema of the former for the latter (Lee and Hubona, 2009). Positivistic IS research studies have hence followed an approach of drawing inferences and generalisations from a representative sample to a

population through a process of postulating formal propositions, identifying quantifiable variables and hypothesis testing, (Orlikowski and Baroudi, 1991).

Interpretivists consider reality as socially constructed and not as objectively determined (Husserl, 1965). They assume that meanings are created and attributed to phenomenon by people, as they interact with the world around them (Orlikowski and Baroudi, 1991). It is believed that by positioning people within their own social settings, their perceptions about the phenomenon under study can be appropriately captured (Hussey and Hussey, 1997). The attempt is to understand the phenomena being researched through a comprehension of the meanings that people assign to them (Boland, 1985; 1991; Klein and Myer, 1999). It is by careful analysis of the various social constructions such as language, and other artefacts that interpretivists make sense of, as well as construct their understanding about the phenomenon being researched (Klein and Myer, 1999). The densities of underlying structures and process of a phenomenon are studied to its contextual depth in particular settings, with a view to use the learning to inform other contexts as well (Orlikowski and Baroudi, 1991; Myers, 1997). Interpretive research does not follow the positivistic tradition of pre-defining dependent and independent variables or attempt the hypothetic-deductive reasoning approach (Kaplan and Maxwell, 1994). Instead, the paradigm focusses on understanding the various dimensions that contribute to the construction of a subjective meaning of reality (Walsham, 1995; 2006). A rich understanding of the context of an information system is a key consideration of interpretive studies in IS. This along with detailed descriptions and analysis of the process of interactions between the technology and the context gives the analytical power to interpretive IS studies (Walsham, 1995; 2006). Given this underlying philosophy, the approach provides a good opportunity for IS researchers to study the various perspectives associated with the introduction and use of ICT in social and organisational contexts (Klein and Myer, 1999).

The research neither favours a positivist philosophy of formulating hypothesis testing through controlled experiments and finding unidirectional causal relationships, nor the critical philosophy of questioning the current social condition and transforming it (Chua, 1986; Orlikowski and Baroudi, 1991). The study adopts an interpretive approach with a view to explore the phenomenon of multipurpose nature of telecentres by

attempting to understand the complexities associated with delivery of multiple e-governance services through such centres. The phenomenon was studied in its social setting based on the perspectives of the participants. The views of many of the major interpretive researchers were considered for a deeper understanding of the approach (Berger and Luckmann, 1967; Palmer, 1969; Gadamer, 1975; 1976; Bernstein, 1978; Walsham, 1995; 2006; Markus and Lee, 1999; Klein and Myer, 1999). This study was guided by the principles put forward by Klein and Myer (1999) for undertaking interpretive field studies in information systems. Interpretivism, given its philosophical underpinning, favours the use of qualitative data for understanding a phenomenon (Kaplan and Maxwell, 1994) and this study accordingly employs methods for collecting qualitative data, which have been detailed later in the chapter.

3.3 Conceptual framework

Given the nature of research questions and the paradigm adopted for this study, it was important that its framework was capable of tracing the complexities associated with the context. Many writers in the field of Information Systems in developing countries have pointed out the need for broadening the focus of study beyond the immediate events and actions that comprise the development, implementation, or use of ICT artefacts. They highlight the need for understanding the roots of the encountered behaviours in the social contexts (Avgerou, 1990; 2002; Madon, 1992; Avgerou and Walsham, 2000; Sahay, 2000; Walsham, 2001; Heeks, 2002a).

Situated studies have generally been successful in capturing the “local dynamics of change” (Avgerou, 2002). The framework of practice lens was employed by Orlikowski (2000) to extend the arguments of structuration with a view to “examine how people, as they interact with a technology in their on-going practices, enact structures which shape their emergent and situated use of that technology”. The focus of the research framework is on identifying and learning the structures that emerge out of the continuous interaction between people and specific properties of technology. Even though such a framework is helpful in revealing the dynamics involved in these interactions, it is not capable of analysing why the interactions as well as the resultant scenario happened the way they did. The strength of the framework in focusing on the

specific nuances of a given situation makes it rather unsuitable to explore influences that are beyond organisations.

Pettigrew's contextualist approach (Pettigrew, 1985; 1997; Pettigrew *et al.*, 1992) provides a powerful framework for understanding the layers of contexts associated with an ICT innovation. While this research is guided by the layered analysis approach, the quest has been to identify a powerful framework that does away with the distinction between content and context. Actor-network theory (ANT), through its basic premises and elaborate set of concepts provides such an opportunity. The concept of heterogeneous network is capable of capturing the complexities associated with services, multiple services and integration as pointed out in chapter 2 (fig 2.9).. Moreover, as would be discussed later, other key concepts of the theory including the notion of translation captures the process and politics involved in ICT innovation and change. While the framework has the ability to extend analysis beyond the local, there have been very few attempts in this direction. Writers such as Reed (1995), Walsham (1997), Avgerou (2002) and Kallinikos (2004c) have pointed out that ANT does not have the analytical ability to trace the underlying processes or role of social structures associated with local dynamics in the network. The formation of networks and the attempted translations (that succeeded or failed) needs to be understood for this study by considering the broader social context – from local to global.

Avgerou (2002) points out that the institutional perspective is capable of providing the missing contextual background. The introduction of institutions as actors (institutional actors) in actor-network translations provide a conceptual mechanism to analytically trace the “origins and meanings of the scripts that circulated in a particular instance of information systems innovation” (Avgerou, 2002). Many writers have pointed out that the researchers can combine methodological approaches and conceptual ideas of ANT with insights and analyses drawn from other theories (Walsham, 1997; Ciborra *et al.*, 2000; Avgerou, 2002). The framework has used a combination of concepts drawn from actor-network theory (ANT) and institutionalism. The framework analytically considers existing governance services as heterogeneous networks of actors (including institutional actors) that are often black-boxed but dynamic. The analytical power of ANT was used to trace *how* individual actors behaved in a network and *how* new

heterogeneous networks were created (or not). The institutional perspective helped in tracing *why* actors conducted the way they did. In merging the two approaches, as described by Avgerou⁶⁴ (2002), “translation process will be seen as a process of alliances and conflicts which are subject to institutional dynamics”.

The research analyses the institutional characteristics of services and the way the institutional logics and interactions constrain or support the delivery of services. The introduction of institutions as actors (institutional actors) in actor-network translations provide a conceptual mechanism to analytically trace the “origins and meanings of the scripts that circulated in a particular instance of information systems innovation” (Avgerou, 2002). Avgerou’s (2002) analysis shows how modern management has become institutionalised as the rational way of working in business organisations and how they are now being seen as the solution for all troubles associated with the bureaucratic form of organisations. Analysis undertaken by writers like Shenhav (1999) also show the institutional nature of modern management and point out that this approach to governing organisations does not seem to be more rational than other approaches. Avgerou (2002) also identified ICT innovation as an institution and highlighted how the rationalisation assumption of modern management is often partnered with the efficiency assumption of ICT. The implications arising out of ICT innovations need to hence be analysed beyond the scope of the technical supremacies/features associated with the given technology.

Whereas the introduction of institutional actors like ICT and management in this framework provides strong analytical possibilities for understanding these interactions, they fall short of how the phenomenon of telecentres is different from e-governance. It is here that the construct of integration gains significance. The framework provides the analytical possibility of conceptualising the construct of integration as an institution. Integration gains institutional status as it remains unquestioned and the perceived technical capabilities of ICT are assumed as the way to achieving it. International bodies, governments, government agencies or NGOs act as focal actors and try to establish telecentres as an OPP. They use the concept of *integration* to gain interest of other actors and lock them by negotiating the terms of their involvement. In other

⁶⁴ Contextual situated socio-technical analysis.

words, the effort during the initial phase of a telecentre project is to create a body of allies through a process of translating their interests to be aligned with the focal actor.

Initially the idea of integration is welcomed by governments as it provides them an opportunity to extend services to micro-levels without major recurring resource implications and organisational restructuring. Individual departments/agencies may, however, not be inclined to offering their service over a mechanism that is not owned or controlled by them. It is exciting for both the local governments as well as international agencies since it helps in achieving their multiple objectives of citizen service, MDGs, and adherence to principles of NPM. It is equally appealing for citizens since it offers them an opportunity to get multiple services from one physical location. It is also an exciting proposition for the non-state actors (e.g. entrepreneur) since it offers multiple streams of income and ability to provide a range of services. Technology providers, vendors and consultants also find this scenario useful since it offers possibilities of sales and use of universalistic solutions.

However, given the interests and managerial perspectives that guide the notion of ICT and integration, the principal actors find it difficult to negotiate the terms of involvement of all the actors involved during intersement. Institutions such as bureaucracy and institutional practices and logics that constitute every individual service are often overlooked because of the simplistic technical stand taken (See fig 2.8). It is often assumed that once the technical integration is made possible, by establishing the telecentre and a few technical standards, all the services can be channelled through these front-end centres without any constraints or any major changes to the backend systems, structures and institutional logic.

The efforts to introduce telecentre into any heterogeneous actor-network (of governance service) could be considered as an effort to undertake translation of adding another actor (and its network) into the existing network. It is here that the institutional analysis drawing on bureaucracy sheds light on the difficulties in achieving this. The social foundations of bureaucracy as an institution need to be considered critically. The characteristics of services and their implications on nature of tasks and organisational configurations are considered. Considering technology and drawing on the concept of

functional simplification and closure, the framework highlights the varying degrees of automation of tasks associated with services. Upon implementation of ICT, some aspects of the tasks may have to be offloaded into the traditional bureaucracy requiring human intermediation at various stages of undertaking tasks associated with a service.

The requirement for intermediation at the point of delivery is particularly considered in the research, given that such a requirement fundamentally challenges the notion of integrated services delivery over ICT front-ends. The framework is enriched with the strength of the concept of intermediation and the institutional implications of intermediation. The framework further draws on Giddens's (1990) notion of abstract systems and analyses how institutional trust affect intermediation and services delivery.

The framework shows how the situation would become more complex when the telecentres (on account of its ascribed phenomenon) attempt to become a member of multiple networks, each offering a unique service. It follows that the multipurpose nature of telecentre is possible only if the attempted translation of all the networks into which the telecentre is introduced becomes successful. This would mean that the nature of tasks associated with all services is such that no offloading would be required for any type of tasks associated with range of services. This is an extremely difficult and complex proposition. This raises serious questions regarding the theoretical and practical possibility of the ascribed multipurpose nature of telecentres as well as about the sustainability of such networks. The theoretical framework and analytical lens provides the necessary analytical strength to analyse emergent socio-technical networks.

3.3.1 Concepts from Actor-Network theory (ANT)

ANT was pioneered by Michel Callon (1986) and Bruno Latour (1987). The fundamental argument postulated is that knowledge is not an objective outcome of scientific processes but a social product or a consequence of heterogeneous network of actors⁶⁵ (Law, 2008). An underlying notion in ANT is that human and non-human actors continuously interact and that these interactions may lead to the formation of

⁶⁵ Actant is a better terminology, to denote "whatever acts or shifts action" (Avgerou, 2002)

networks of heterogeneous social entities. The theory treats all human actions to be generated in these heterogeneous networks that are mostly beyond the body (Law, 1992). It may be noted that ANT scholars have been focussing on technology and more specifically on ICT for quite some time (Latour, 1996).

The theory provides a basis for analysing the social and the technical, taken together. The analysis then becomes one of understanding the actors as well as the constitution and maintenance of the networks created (or failed) through the interactions between these actors. In the case of ICT, the actors would include hardware, software, people, organisations, and technical standards (Walsham, 1997). ANT looks at how the interactions between actors happen, how they are able to mobilise and more particularly how and what holds these actors together. In the process, ANT provides interesting insights on how actors are sometimes able to portray their heterogeneous network as single whole or as a “punctualised⁶⁶ actor”, by concealing that the constituents are a diversity of bits and pieces each having their own orientation and interests (Law, 1992). According to ANT perspective, an actor is always a network as well.

ANT takes a position of symmetry between people and objects (Law, 1992). It does not give actors an ascribed role of agency and network the role of society (Latour, 1999). Instead, it considers the social and the technical to be inseparable and hence people and artefacts are considered and investigated with the same conceptual lens (Walsham, 1997). ANT deals with the “mechanics of power” and is referred to as the sociology of translation (Law, 1992). Translation is a mechanism or process by which actors interact to build or change networks in such a way that certain actors are able to control others (Stanforth, 2006). The notion of translation subsumes both the process as well as the result of the process. Translation is attempted through “four moments - *problematization, interessement, enrolment and mobilisation of allies*” (Callon, 1986). Problematization refers to the first moment of translation when a focal actor, having identified identities and interests of actors that are aligned with its own interests tries to establish an obligatory passage point (OPP) between the actors and the network with a view to making it indispensable (Callon, 1986).

⁶⁶ The appearance of unity (the whole) and the disappearance of the network with individual actants.

During *interessement*, the focal actor attempts to lock the others in by trying to get them convinced about its definition and then negotiating their details of involvement (Callon, 1986). Actors accept the roles and their interests ascribed by the focal actor during enrolment (Callon, 1986). The results of the action involved in the translation process are inscribed in intermediaries. These intermediaries embody ‘scripts’ or ‘scenarios’ of an intended change and could subsequently participate in further translations as one “whole” (*black-boxed*) entity. Table 3.1⁶⁷ provides a brief summary of the key concepts in ANT⁶⁸.

Concept	Description
Actor (or actant)	Any element which bends space around itself makes other elements dependent upon it and translates their will into the language of its own. Common examples of actors include humans, collectivities of humans, texts, graphical representations, and technical artefacts. Actors, all of which have interests, try to convince other actors so as to create an alignment of the other actors' interests with their own interests. When this persuasive process becomes effective, it results in the creation of an actor-network (Callon and Latour, 1981).
Actor-network	Heterogeneous network of aligned interests, including people, organizations and standards (Walsham and Sahay, 1999).
Punctualization	Treating a heterogeneous network as an individual actor to reduce network complexity (Law, 2008).
Translation	The process of the alignment of the interests of a diverse set of actors with the interests of the focal actor. The creation of an actor-network. This process consists of three major stages: problematisation, <i>interessement</i> , and enrolment. Numerous actors within an organization may be involved in a different process of translation, each with its own unique characteristics and outcomes. For purposes of clarity, it is useful to focus on a single actor, from whose vantage point we wish to see the process of translation (Callon, 1986; Walsham, 1997).

⁶⁷ Adapted from Sarker *et al.*, (2006) and Walsham (1997). Detailed discussions of the concepts are given by Monteiro (2000) and Latour (1999)

⁶⁸ It may be noted that ANT is both a theory as well as a methodology (Walsham, 1997)

Problematisation	The first moment of translation during which a focal actor defines identities and interests of other actors that are consistent with its own interests, and establishes itself as an obligatory passage point (OPP), thus ‘rendering itself indispensable’ (Callon, 1986).
Obligatory Passage Point	The obligatory passage point, broadly referring to a situation that has to occur in order for all the actors to satisfy the interests that have been attributed to them by the focal actor. The focal actor defines the OPP through which the other actors must pass through and by which the focal actor becomes indispensable (Callon, 1986).
Interessement	The second moment of translation which involves a process of convincing other actors to accept definition of the focal actor (Callon, 1986).
Enrolment	The third moment of translation, wherein other actors in the network accept (or get aligned to) interests defined for them by the focal actor (Callon, 1986).
Inscription	A process of creation of artefacts that would ensure the protection of certain interests (Latour, 1991).
Speaker/delegate/representative	An actor that speaks on behalf of (or stands in for) other actors (Callon, 1986; Walsham and Sahay, 1999).
Betrayal	A situation where actors do not abide by the agreements arising from the enrolment of their representatives (Callon, 1986).
Irreversibility	Degree to which it is subsequently impossible to go back to a point where alternative possibilities exist (Walsham and Sahay, 1999).
Black-box	A frozen network element, often with properties of irreversibility (Walsham, 1997).
Immutable mobile	Network element with strong properties of irreversibility, and effects which transcend time and place, e.g., software standards (Walsham, 1997).

Table 3.1 A brief summary of the key concepts of ANT

ANT thus provides us key concepts to understand the politics of the socio-technical processes. This study specifically uses the concept of translation. Along with institutionalism, it helps us to analytically consider existing governance services as heterogeneous network of actors including citizens, bureaucrats, organisations,

hardware, unions, databases, process, conventions, precedence, laws, standards, other local institutions like culture, corruption, etc. and other global institutions like abstract systems associated with the service. Introduction of telecentres could be considered as attempted processes of translation, with varying degrees of success. We will revisit this aspect and take up the analysis in the subsequent sections. At this point, it is important to note that ANT provided an analytical possibility to consider the gamut of complexities associated with every service. Institutionalism helped in tracing the institutional characteristics and behaviour of the actors.

3.3.2 Concepts from Institutionalism

Institutions could be considered as social structures that enable and constrain the actions of individual as well as organisations (Scott, 2008). Hence from an institutional perspective, organisational actions tend to be guided and constrained by a diverse range of values, norms, and taken for granted assumptions regarding many aspects of day to day work and life (Barley and Tolbert, 1997). In other words, we could consider that institutions provide a frame of reference for organisational and individual actions (Powell and Di Maggio, 1991). They could be considered as exerting their pressure in defining the appropriateness of actions in a given scenario as well as in maintaining role relations (March and Olsen, 1989). Hence, from an institutional perspective, action cannot be interpreted as arising from rational decision making but as resultant of institutional pressures arising from rules, values, norms, and expectations (Avgerou, 2002).

Institutional effects and institutionalisation are two important concepts that need to be considered for this study. Institutional effects denote the implications or the effects of one institution on another (Jepperson, 1991). Institutionalisation refers to how institutions are formed in the first place (Jennings and Greenwood, 2003). The former concept underlies the discussions that follow regarding institutional interactions, leading to alliances and conflicts. The latter is used as a base to theorise the construct of integration. Organisational actors are subject to three kinds of forces exerted by institutions: coercive, normative and mimetic (DiMaggio and Powell, 1983). Whereas standards of various kinds give rise to the coercive forces of an institution, professional

norms and inter-organisational networks exerts normative pressures (DiMaggio and Powell, 1983). Firm behaviour is often led by the mimetic pressures of institutions rather than rational factors as they try to imitate the actions and decisions of organisations that are perceived to be more successful or legitimate⁶⁹ (Avgerou, 2002). Institutions force organisational actors to adopt strategies that help them gain legitimacy thereby ensuring more acceptability as well as long term survival in a given environment (Meyer and Rowan, 1977; 1991; Suchman, 1995).

We understand from institutional theory that much of the formal structures and processes that are maintained by organisations stem not necessarily from any rational efficient way of undertaking activities but because “they are sustained by powerful ‘myths’, that is, by shared assumptions about their functionality and necessity” (Meyer and Rowan, 1991). Such myths in modern societies have resulted in the taken for granted consideration of many practices as efficient without any evaluation (Avgerou, 2002). This is an important concept that helped in understanding actor behaviour in the context of ICT innovation and the current study. Bureaucracy as an institution was critically analysed to have an understanding of its social foundations, relationship between tasks and organisational configuration and implications of ICT implementation. The institutional nature of intermediation and trust in intermediaries were also analysed in this research.

As would be evident over the next sections, the use of institutions as actors in a heterogeneous network gave the study the analytical strength to address the research questions.

3.3.3 The construct of Integration as an institutional actor

In the last chapter, the different aspects of the concept of integration in the context of e-governance and telecentres were discussed. It was seen that the concept of multipurpose nature ascribed to telecentres arose from the deterministic managerial notion of integrated services delivery, as propounded in e-governance literature. The existing literature on *integration* is technical and prescriptive in nature with discussions on

⁶⁹ Legitimacy is a core concept in institutional theory (Deephhouse and Suchman, 2008).

models, strategies and mechanisms aimed at dealing with challenges for achieving seamless integration (Webster, 1995; Grimson *et al.*, 2000; Hasselbring, 2000; Ellingsen and Monteiro, 2006; Sahay *et al.*, 2009).

The focus on integration in the private sector grew out of the concern (since the early 1970s) of western business organisations regarding fragmented IS (McNurlin and Sprague, 2004). Technical integration of systems was seen as the natural solution to this problem, with little or no attention being paid to the organisational and social factors associated. Hence we find that the efforts to integrate systems have been attempted through defining standards, creating database designs, terminologies and common platforms (Sahay *et al.*, 2009). The enthusiasm shown by many organisations for adopting Enterprise Resources Planning systems is also driven by this never-ending desire to integrate otherwise disparate systems (Hanseth *et al.*, 2001; Kallinikos, 2004b).

Of course, it is a different matter as to whether these efforts have been fruitful or not. Many studies have shown that the over emphasised advantages of integrated systems do not actually happen (Goodhue *et al.*, 1992; Kallinikos, 2004b; Singletary, 2004). There is a group of writers who argue that efforts to attain tighter integration from a techno-managerial perspective have unintended consequences (Markus, 2001; Kallinikos, 2004b; Singletary, 2004; Hanseth *et al.*, 2006; Rolland *et al.*, 2006; Ellingsen and Monteiro, 2006). There are also studies like the one done by Letch and Carroll (2008) that point out how integration of services in an e-governance project in Australia has had negative impacts for citizens at the margins of society.

Critics of the current approach to integration have strongly pointed out the need to understand the phenomenon beyond the *technical* (Goodhue *et al.*, 1992; Singletary, 2004; Kallinikos, 2004b; Sahay *et al.*, 2009). Based on their health information systems studies, Ellingsen and Monteiro (2006) question the rationality implied with the techno-managerial perspective of integration and point out that *integration* is more an

*organising vision*⁷⁰ in most healthcare programmes. They argue that this vision of ‘integrated care’ is used to legitimise the IS efforts taken in the sector given its portrayal as the ideal solution to address the problem of fragmentation and issues of efficiency and quality. It is important to place more emphasis on the political and institutional conditions associated with the construct of integration (Webster, 1995; Spinardi *et al.*, 1997; Cox and Ghoneim, 1998; Chilundo and Aanestad, 2005; Sahay *et al.*, 2009). They highlight the importance of the underlying process involved in ensuring political and institutional legitimacy and support for integration.

Drawing on the discussions in the previous chapter as well as the current one, it can be concluded that the concept of integration has to be seen and understood beyond the narrow techno-managerial perspective and be considered as an institution. For analysis in the study, it would be considered as an institutional actor involved in the process of translation of networks. This understanding forms the basic pillar of the alternate theorising of the construct of integration attempted in this study.

3.3.4 Integration and e-governance

Recalling the discussions on NPM and e-governance, we note that achieving integration through e-governance was at the core of the thinking process when systems and mechanisms from the private sector were introduced into the public sector through the reform processes. As we discussed in the earlier chapters, e-governance programmes were started with two central themes – integrated citizen centred services (front-end – integrated services at the point of delivery) and joined-up government (through functional and cross departmental integration) (Al-Kibisi *et al.*, 2001; Ho, 2002; Chan *et al.*, 2003; Basanya and Ojo, 2011). Increasingly, over years (particularly in the context of developing countries) the focus has shifted mostly to integrated services at the point of delivery in the front-end without any major attempt to integrate at the back-end. This was clearly a political step in an effort to not antagonise existing administrative structures as well as other actors that comprise the service(s). The notion of integration of services at the point of delivery (outreach post of governance services

⁷⁰ Organising visions have the ability to ensure ‘institutional coherence to initiatives’ and they serve to mobilise the necessary resources to support the realisation of the vision as it serves to ‘activate, motivate and structure...the innovation’ (Swanson and Ramiller, 1997).

– telecentres, web portals, etc.) was taken for granted and considered desirable and achievable. This status was bestowed on integration by the underlying philosophies of citizen centricity and efficiency associated with NPM as well as the politics of the different actors associated with governance services. Thus, integrated services delivery mechanisms became a driving notion in the schema of e-governance programmes across the world.

In the case of telecentres, this idea of integration is engrained in the very concept of multipurpose nature ascribed to them. As discussed earlier, what makes the case for telecentres readily acceptable for many is that the concept on the one hand promises an integrated single window for a number of e-governance services, and on the other hand claims the possibility of financial sustainability on account of the multitude of services. This is too powerful a message for development and governance policymakers of an NPM background to ignore. Extending the argument of Ellingsen and Monteiro (2006), one could trace *integration* as an organising vision for telecentre conceptualisation as well.

As seen in the previous chapter, alliance of a set of dominant actors at the time had simplistically constructed the *development* paradigm and the notion of integration without considering the underlying complexities, interactions between actors that comprise such services, actor behaviours, and institutional interactions and logics. For example, the front-end integration attempted does not take into consideration the social foundations of the institution of bureaucracy, upon which the organisational form of governments are built. As noted earlier, what propelled the reforms programme was the feeling that the bureaucratic form of organisation is inefficient and not citizen (customer) centric. The blame for the drawbacks of the bureaucratic system was attributed to its apparent characteristics such as departmentalisation, hierarchy and rule bound behaviour.

However, as Kallinikos (2006) pointed out, “*modern human involvement in organisations epitomises and institutionally embeds the crucial yet often overlooked cultural orientation of modernity whereby humans undertake action along well-specified and delimited paths thanks to their capacity to isolate and suspend other*

personal or social considerations”. Extending the analysis of Kallinikos, we find that the delimited behavioural choices (i.e. roles) dissociated from the characteristic mode of being (as a person) provides the distinction between the individual and his/her role. Bureaucracy earns its legitimacy through the limit that it places on arbitrary power and by the institutionalisation of the expectations and constraints to action based on rule-bound behaviour (Kallinikos, 2004a; Clegg, 2005). It is important to note that the major four attributes of bureaucracy namely, specialisation, expertise, rules, and hierarchy arise from this basic principle (Albrow, 1970; Lane, 1987; Mills and Simmons, 1995). Specialisation and division of labour (leading to departmentalization) were considered as directly leading to increased productivity (Gajduscsek, 2003).

The same institutional logic also led to the acceptance of depersonalised conduct as an essential principle for all modern organising. In other words, people primarily respect the office and not necessarily the office bearer, because of the underlying rational ethos of modernity associated with the institution of bureaucracy. It is this organisational embedding of modernity that gives rise to a clear distinction not only between the individual and his/her role, but also between individuals and institutions. Such delineation of roles provided possibilities for specialisation and emergence of communities of practice (Thompson, 2005). These aspects do not seem to have been considered by NPM analysts. An analysis and understanding of the social foundations of bureaucracy is significant in the context of telecentres where multitudes of specialised services are envisaged to be offered over a single ICT window through a local intermediary. The attempt through front-end integration hides the significance of the egalitarian and other social foundations of bureaucracy. It, however, expects the existing mechanisms to automatically deliver through mechanisms that are conflicting to its institutional logic.

The institutional logic of services has implications on bureaucratic organisational configurations as well (Mintzberg, 1993). We have already discussed that tasks undertaken by machine bureaucracies could be automated but not those by professional bureaucracies. The intricacies that need to be considered in any attempt to integrate services or tasks has to necessarily address the structural and institutional aspects

associated with the diverse and coexisting bureaucratic configurations that reinforce processes, procedures and routines associated with tasks and services.

It would be appropriate at this stage to consider comparable scenarios where conflicting and complex organisational, institutional and technological aspects interact. Some learning for the current study could be drawn from the literature on control rooms, though not necessarily for understanding the specific processes but about integration. Control rooms are similar to telecentres to the extent that multiple routines are attempted through both these centres. In the case of the control room, a group of professionals (specialists) from multiple disciplines act upon information pertaining to their domain about a particular problem they confront as a team. The control room setting is hence different from the telecentre setting when it comes to human intermediation. However, in the case of telecentres an individual centre entrepreneur or intermediary⁷¹ is generally expected to be the only point of information exchange/transaction pertaining to multiple services.

Most of the control room studies focused on power plants, especially nuclear facilities. These studies argued that problematic human-machine interface (HMI) designs were responsible for many accidents. More recent studies by Soeparman *et al.* (2008), however, found that impediments or limits to the integration of professional routines are not purely of a technical or HMI related nature. Routines are core to what organisations do and are often seen as elemental parts of organisational activity (Soeparman *et al.*, 2008). Organisational routines cannot be treated as a single pattern but a range of patterns (that are enabled and constrained by institutions) from which organisational actors enact specific outcomes (Pentland and Reuter, 1994).

Routines are the reflections of the institutional logics of institutions associated with that practice (or service as in the case of governance services). For example, the organisations in the healthcare sector would follow the institutional logics that underpin “how field participants carry out their work” (Currie and Guah, 2007). The routines or *protocols* (as they are referred to in the health sector) are normative pressures of these institutions and are adhered to as professional practices and conduct by members of that

⁷¹ The point is not about the number of people but about the range of expertise or specialisation available.

profession⁷². Limits to the integration of professional routines occur primarily on account of the incompatibility or often conflicting institutional logics of diverse professions/abstract systems.

These institutions are actors in the heterogeneous actor-networks that constitute services. As additional institutional actors try to enter an existing actor-network, their attempts to shape or reshape the network would depend on the nature of such institutional interactions (Currie and Guah, 2007). In the case of telecentres, multiple institutions, often conflicting, would have interactions at various levels (global to local). The implications of a global institution at the local level would depend on the multiple institutional interactions that play a role at the local level (Scott, 2001). Such interactions are based on underlying existing institutional logics that counter the logic of integration (Bellamy, 2002).

The above discussions provide an understanding of the interrelations and the implications of the institutional logic, service level characteristics and organisational configurations on services and integration. The techno-deterministic construct of integration does not seem to have taken these into consideration, given its NPM underpinning. An important question that arises is whether ICT would help in reinforcing the existing mechanisms underlying services including the organisational processes, practices and routines. We find that ICT reframes⁷³ the scenario through technically predefined logical sequences of actions (Luhmann, 2005). Services delivery consists of a series of tasks and processes undertaken within coexisting bureaucratic configurations. It is important that we consider the implication of ICT upon these tasks and how it affects service delivery. Luhmann's conceptualisation of technology as functional simplification and closure gives a good conceptual lens to understand this as well as to evaluate these implications on the notion of integration.

⁷² Professional courses at various levels reinforce this practices and protocols or standardized skills - a feature of professional bureaucracy. Moreover, professional associations and other forms of interactions and forums reinforce these norms of the institutions.

⁷³ Please see Ciborra and Hanseth (1998)

3.3.5 Integration and functional simplification and closure

The closely connected concepts of functional simplification and closure embody the instrumentation of standardised quasi-predictable relations (Luhmann, 1993; 1995; Kallinikos, 2006). Functional simplification “involves the demarcation of an operational domain within which the complexity of the world is reconstructed as a simplified set of causal or instrumental relations” (Kallinikos, 2005). The basic concept is that the diversity intrinsic to natural, social and organisational settings are limited to a set of functions that have causal couplings or clear set of procedural sequences. Whereas these instrumental relations can be extremely complex, the initial reduction or scoping of factors involved reduces complexity allowing the system to be controllable in those defined limited contexts. ICT not only reduces complexity in the causal or instrumental relations, but also standardises and stabilises those scripts. Functional closure “implies the construction of a protective cocoon that is placed around the selected causal sequences or proceeds to safeguard undesired interference and ensure their recurrent unfolding” (Kallinikos, 2005). In other words, closure ensures that the system encounters only those limited set of contexts for which the simplified procedural sequences are available. Through design, ICT ensures the enclosure of the relational causalities described by the scripts and eliminates other causalities through the exclusion of relational interdependencies.

It is important to note that simplification is socially constructed through negotiations by particular actors under institutional frameworks and logics that govern the tasks or services (Galison, 1997). The negotiation ensures that functional simplification is able to reduce complexity into the logic of technology. Any attempts for integration across processes and services would necessitate a complex set or hierarchies of technologies for unification or interconnectedness (Kallinikos, 2005). But any technology would follow the logic of functional simplification and closure at their level. Essentially one would then have to admit that however complex and multi-layered/hierarchical the scaffolding of technology is, it is difficult to achieve integration. On the other hand one could argue that such complexities can only lead to large scale cascading disruptive effects (Borgman, 1999). The techno-managerial notion of integration and its NPM

approach underestimates both the complexities involved as well as the social foundations of bureaucracy.

In the context of telecentres, it is pertinent to critically discuss the arguments that underlie bureaucratic structural configuration as well as functional simplification and closure. ICT plays itself out in different ways when we analytically consider Mintzberg (1993) topology as well as functional simplification and closure together. Drawing on the concept of e-bureaucracy propounded by Cordella (2007), Cordella and Tempini (2011) show how ICT can provide effective support to bureaucracy by automating functions of machine bureaucracy and by reducing the load of professional bureaucracy.

ICTs can inscribe “the relational sequences” that constrain and guide bureaucracies to undertake service provision and these functional simplifications would help reduce complexity of tasks associated with organisational routines (Cordella, 2007; Kallinikos *et al.*, 2010). The argument is that considering the social foundations of bureaucracy, ICT should be used to improve the bureaucratic nature and not to shatter its organising. In this approach integration cannot be considered as a short term managerial solution but one that can be attempted only to the extent to which the fundamental principles of organising are not violated. The NPM route on the other hand is based on a fundamental instrumental perspective about ICT and its potential to improve efficiency and coordination in delivering organisational outputs (Layne and Lee, 2001, West 2004, Kallinikos, 2005).

Functional simplification and closure would necessitate that unforeseen and/or analytical problem solving activities are offloaded from the technology back into the institutional system. As Kallinikos (2009) points out, “online services are predicated on the ever-present option of offloading” to traditional bureaucracies. In other words, the online delivery of a service is constrained by the institutional characteristics of service and its organisational configuration. Some services could be offered online and some would require offloading of some aspects to traditional bureaucracy before the service can be offered. Such offloading is undertaken through human intermediaries who can occur at various stages of tasks associated with a service – at the very initial stage, at various intermediate stages or for purposes of front-end delivery. Among these different

scenarios, functional simplification that necessitates institutional offloads at the front-end pose a major challenge to the very concept of telecentre. Such services would require human intermediation (the domain intermediation) to effectively deliver the service.

What is attempted in integration projects are the ICT implementation across the diversity of services and organisational configurations. For the systems/services to integrate, they must be so designed that they are carried along highly controlled pathways to ensure the proper functioning of the integrated system (Kallinikos, 2009). In the context of public sector many services require street level bureaucracy to provide contextual embedding to the tasks that lead to service delivery. Controlled pathways do not necessarily work even when such services are attempted online as a single service. Adding further levels of control to achieve integration could lead to an increased interdependence among service provisions (Galbraith, 1977). Such increased interdependence could result in increased complexity with an eventual possibility that governments would fail to deliver services (Cordella, 2007).

3.3.6 Integration and intermediaries

The discussion on functional simplification and the need for offloading to traditional bureaucracy provides us a good understanding of the challenges in attempting integration in an ICT enabled mechanism. The nature of service and the bureaucratic organisational configuration has important implications on the way this offloading happens. Significant offloading happens particularly in the case of professional bureaucracy in the form of analytical problem solving through domain intermediation. Literature review in the previous chapter has already highlighted the significance of domain intermediation.

We have also considered the significance of intermediation and the aspect of re-intermediation in the context of IS studies. It is important to note that discussions on integration have, however, not allowed the consideration of such complexities associated with services. The need for offloading and front-end intermediation even for a single service poses challenges to the way ICT could be implemented for offering that

service. The complexity increases as the number of services offered increases and that too through one single interface.

Given this understanding, we need to critically reconsider not only the simplistic conceptualisation of telecentre as front-end integrated services delivery mechanism but also its naïve notion that a single intermediary would be capable of providing or intermediating for multiple services. Given its techno-deterministic approach and its belief in the need to deal with the social, it is not surprising that bulk of the telecentre literature supports the case of local intermediaries. It also points out that the intermediary should have good entrepreneurial abilities, ICT skills and the ability to identify social opportunities offered by the technology (Gopakumar, 2007). Much of the discussions in mainstream literature in this context seem to be extrapolations based on a few activities and anecdotes. However, very little is written from the point of view of the citizens or the complexities associated with the interactions between such intermediaries and citizens. This view is critical because the exploration then becomes one of understanding the various dimensions involved in the multiple service delivery expected from telecentres.

Telecentre literature favours local intermediaries under the assumption that he/she would be trusted (Heeks, 1999a). However, questions arise the moment we have a deeper look at issues of trust. Will the telecentre intermediary be trusted for providing services that were until then provided through other interfaces by a range of intermediaries? Will the telecentre intermediary be trusted for the range of services that it promises to offer? Literature on trust suggests that an entity can trust another entity only for a particular reason (A trust B for X (Gopakumar, 2007)). If the citizens trust the telecentre intermediary for providing a specific service, it does not necessarily mean that the same intermediary would be trusted to provide a range of other services. For example, if people were to have trust in the local doctor for healthcare provisions including health information, it looks unlikely that they would trust the telecentre intermediary to provide critical healthcare information. Similarly, just because people trust the local doctor for healthcare provisions, it does not mean that they would approach him/her to get agriculture related information or guidance. Another important conceptual implication arises from the question of whether the trust on the local doctor

is based on trust on the individual, on being local or because of the trust on the institution of medicine that the doctor represents (Gopakumar, 2007).

What are the conditions under which people trust institutions or individuals or both? Having a local telecentre intermediary may be significant in many ways. What is, however, emerging from the discussion is that being local does not necessarily enable the telecentre intermediary to provide the range of services expected from telecentres. Moreover, it is difficult and complex for any single intermediary to provide multiple services. Key concepts from the literature on trust are considered in the next section with a view to having an understanding of its implications on integrated services delivery through telecentres.

3.3.7 Integration and trust

Trust has always been an important construct in social science and has currently gained more prominence on account of a number of reasons including the increasing complexity of social life in the era of modernity (Misztal, 1996; Beck *et al.*, 2003). Only simple forms of human transactions that are spatially bound would have been possible in the absence of trust (Luhmann, 1979). Literature on trust makes a distinction between “thick and thin trust” (Putnam, 2000) or between “characteristic-based trust, process-based trust and institutionally-based trust” (Zucker, 1986). Whereas thick trust refers to trust generated in personal relations, thin trust refers to trust generated out of professional/institutional relationships (Putnam, 2000). Characteristic-based trust is centred on the characteristics of an individual, process-based trust on transactions, institutionally-based trust on the nature of the institution (Zucker, 1986).

Writers like Lane (1998), Zucker (1986), Giddens (1990) and Beck (1992) point out the significant differences between trust based on personal relations and those that are predominantly institution-based. These writers also highlight that in modern societies there is an increasing trend to rely on institution-based trust for undertaking day-to-day transactions, than on trust created purely out of personal relations. However, these discussions do not mean the ultimate decline of personal trust and the monopoly of

institutional trust, but highlights that societies show an increasing tendency of trusting institutions.

Giddens (1990) highlights the inevitable dependence of modern societies on “socially disembedded systems of decision making” leading to human actions that are ‘lifted out’ from the local spatial context of citizens’ everyday lives. In today’s world, these disembedded institutions invariably consist of a number of areas of technical knowledge and professional expertise, referred to as ‘expert systems’ by Giddens. His notion of trust theorised against the background of modernity helps us in having a deeper understanding of the implications of trust especially in the context of e-governance service delivery. As discussed earlier in the chapter, institutions of modernity like the bureaucracy are such that though citizens’ interact primarily with individuals, the behaviour of these people are shaped by the organisational role, limited by the institution (Luhmann, 1995; Fountain, 2001; Kallinikos, 2004a). Most of the governance services involve institutions that are disembedded in nature, and hence the membership of the intermediary in these institutions (to play the role that the institution demands) seems important.

Before this aspect is taken up, it is important to highlight that the role of trust in ICT mediated communication and transaction is a topic of substantial research within IS research⁷⁴. The current attempt of exploring the trust dimension of the intermediary is a major contribution to this literature. There is a growing interest on the implications of trust on ICT mediated interactions in developing countries (Kuriyan *et al.*, 2010). These studies have predominantly focused on: the role of trust in telecentres or kiosks and the intermediaries who mediate the services (Gopakumar, 2007; Gomez and Gould, 2010); trust in ICT-enabled services or systems such as mobile banking or e-governance (Morawczynski and Miscione, 2008); trust in information (Chepiatis, 2002); and trust in institutions, such as governments as providers of ICT services (Avgerou *et al.*, 2008; Kuriyan and Ray, 2009; Smith, 2010). In the case of implementing e-governance services, the focal actor could negatively (or positively) impact the amount of trust a citizen might hold in a service (Kuriyan and Ray, 2009). Studies by Avgerou *et al.*

⁷⁴ Avgerou *et al.* (2008) provides a review of IS literature on the relationship between trust and perceptions about technology, information/service provided, sources and institutional mechanisms.

(2006) reveal the significance of institutional trust over inter-personal when it comes to interactions between citizens and government. Based on their study of successful e-voting system in Brazil, Avgerou *et al.* (2009) showed that trust and trustworthiness⁷⁵ upon the institutions that oversaw the elections helped in the success of electronic voting, rather than the technical capabilities and functionalities of the electronic system.

Governance services have been considered as a heterogeneous network of actors to provide the analytical capability to capture the complexities involved. The framework gives an idea of the institutional interactions that happen with respect to each of the services. In the light of the above discussions in literature, it can be deduced that governance services are offered by organisational actors by conforming to the multiple institutional logics underlying these services. The telecentre intermediary may or may not be able to undertake the role prescribed by the institutions that makeup these services. More intriguing is the idea that a single intermediary would be able to play a range of roles required by the institutions that underlie the multiple services promised through telecentres (Gopakumar, 2007).

The analysis of Giddens (1990) highlights these aspects. Giddens (1990: 6) suggests that modernity⁷⁶ has been profoundly influenced by three aspects: “the separation of time and space which is the condition of time-space distancing”; “the disembedding⁷⁷ of social systems”; and the “reflexive appropriation of knowledge” (1990: 16-17, 53). This, he points out, has increasingly led to the concept of ‘space’ being distinctly different from ‘place’⁷⁸. Thus modernity has enabled the possibility of relations with ‘absent’ others who are not available onsite for face-to-face interaction.

Giddens (1990: 22, 27, 80) analytically distinguishes disembedding mechanisms into “symbolic tokens” and “expert systems”, which considered together, is referred to as

⁷⁵ The concept of trustworthiness refers to the “properties through which a trusted entity (whether another person or an institution) serves the interests of the truster, whereas trust reflects the truster’s beliefs, or perceptions, of the entity’s trustworthiness” (Levi and Stoker, 2000).

⁷⁶ Modernity, according to Giddens (1990: 1), refers to “modes of social life or organisation which emerged in Europe from about the seventeenth century onwards and which subsequently became more or less worldwide in their influence”.

⁷⁷ “The ‘lifting out’ of social relations from local contexts of interaction and their restructuring across indefinite spans of time-space” (Giddens, 1990: 21).

⁷⁸ Giddens (1990: 18) refers to this as locale, the geographically situated physical settings of social activity.

abstract systems. He considers symbolic tokens as the “media of interchange which can be ‘passed around’ without regard to the specific characteristics of individuals or groups that handle them at any particular juncture”. Expert systems on the other hand refer to “systems of technical accomplishment or professional expertise that organise large areas of the material and social environments in which we live today”. Abstract systems are trust based and this trust is bestowed on the taken for granted assumptions regarding the abstract capacities and ‘knowledgebase’ of the system (Giddens, 1990).

The interactions that happen between the telecentre intermediary and the citizens are of primary concern for this study. Based on the above discussions, it is clear that these interactions as well as the role of intermediary are guided by institutions. Giddens (1990:80) considers trust relations arising out of social connections in “co-presence” as facework commitments and trust in abstract systems as faceless commitments. It may however be noted that the disembedded abstract systems continuously interacts with the local institutions and these interactions may be conflicting or supporting. It is at the *access points* of abstract systems that faceless commitments meet facework (Giddens, 1990).

Though everyone recognises that it is upon the abstract system that the trust is based, access points remind us about the important role played by intermediaries who represent these systems and provide the access to services from the abstract system. Given the complexity as well as the increasing extent of influence, it is difficult for most people to avoid the abstract systems involved in modern institutions or to interact at the access points with members of these institutions (Giddens, 1990:85). According to Giddens, the access points where lay people meet representatives of the scientific and politico-economic expert systems are crucial for maintaining or building trust for the institutionalised abstract systems that comprise modern society. ‘Hidden curriculum’ underlying modern education and more particularly science education plays a major role in creating trust in abstract systems as well as respect for all kinds of scientific and technical knowledge (Giddens, 1990:89).

Trust towards abstract systems gets scripted into day-to-day activities as people confront modern institutions continuously and these are played out based on the

characteristics of the encountering institutions. Some types of abstract systems have become so much a part of people's lives that, "*at any one time, they appear to have a rock-like solidity akin to established tradition; yet they are vulnerable to the collapse of generalised trust*" (Giddens, 1990:90). This description befits the consideration of governance services as heterogeneous networks that are mostly black-boxed, but dynamic.

It is important to note that the type of experiences that a person has had at access points and the knowledge updates that he/she has gained have significant influence on their approaches of trust towards specific abstract systems. In some cases, a person who has unfortunate experiences at a given access point may even decide to opt out of the specific intermediary-person relationship on account of distrust, but may continue to trust the abstract system. There could also be instances where they may completely detach themselves from the system (Giddens, 1990:90).

We have found in the earlier sections that institutions enable as well as constrain human action. People have limited cognitive capabilities to evaluate the risks, uncertainties and outcomes associated with the everyday intricacies of life. Access points are where citizens take help from individuals (who are members of the institution that comprise the abstract system) to bridge these gaps (Giddens, 1990).

Would telecentre intermediaries be trusted the same way as existing intermediaries of the institutions that represent these multiple services? The more intriguing aspect would be about how a single intermediary will be trusted as the access point to multiple institutions/abstract systems.

3.4 Problematising the phenomenon

As discussed earlier, the primary research question that this study tried to address was the following: *To what extent do telecentres enable multipurpose service delivery?* The literature review provided us with an understanding of the intricate ways in which the concept of telecentre has emerged from the different strands of literature including e-governance, development and governance. The institutional nature of ICT, management

and integration and the coercive pressure that they exert on the provision of integrated services delivery were also observed.

The preceding discussions have helped us to theorise the notion of integration that underlies the very concept of the multipurpose nature ascribed to telecentres. The theoretical framework adopted helped in conceptualising governance services as heterogeneous actor-networks that are black-boxed, but dynamic. Inclusion of ICT, management and the theorised concept of integration helped us in exploring and explaining the phenomenon being researched. From an ANT-institutionalist perspective, introduction of a service through telecentres could be considered as attempted translation that involves the interaction of the telecentre with the actors that constitute the service. The service would have institutional logics that are embedded in existing tasks, routines and processes of governance services. Such attempted translations could result in a range of possibilities – from successful durable dynamic networks to complete failures. This is the kind of complexity associated with the introduction of telecentres into a single domain area/service.

The problem is compounded when telecentres attempt to become an actor in the heterogeneous networks⁷⁹ of a range of promised governance services. The complexities of integration are best captured by considering attempted translation of the introduction of telecentres (as an actor and hence a network) into existing heterogeneous actor-networks (with institutional fields and logics of their own) of services that necessitate institutional interactions across multiple networks. As observed earlier, studies undertaken by Soeparman *et al.* (2008) show how both ostensive and performative⁸⁰ aspects of routines are resistant to integration of work in multidisciplinary environments such as co-located control rooms.

We have observed from literature that there is a need to consider the construct of integration beyond the narrow deterministic techno-managerial perspective. We have

⁷⁹ It is important to note that treating different governance services as different networks does not tantamount to analytically considering each service as an independent heterogeneous network without common actors. The discussion is to point out the difficulty for telecentres to become an actor in a diversity of heterogeneous networks.

⁸⁰ Feldman and Pentland (2003) distinguish between ostensive and performative aspects of routines.

also discussed how political and institutional conditions and processes bestow legitimacy for integration rather than through any rational process (Webster, 1995; Spinardi *et al.*, 1997; Cox and Ghoneim, 1998; Chilundo and Aanestad, 2005; Sahay *et al.*, 2009). Such taken for granted assumptions also drive e-governance programmes around the world. We have already discussed how e-governance agenda started with two central themes – integrated citizen centred services and joined-up government (Al-Kibisi *et al.*, 2001; Ho, 2002; Chan *et al.*, 2003; Basanya and Ojo, 2011). We observed that there is an overriding focus on integrated services at the point of delivery (front-end), compared to integration at the back-end. Thus front-end ICT delivery mechanisms (like telecentres) that are assumed to offer multiple e-governance services has become an integral and undisputed theme of e-governance programmes.

Considering integration as an institution provided the possibility of analytically considering attempted translations as a process of institutional alliances and conflicts. The resultant network would need to be one with fields that cover multiple institutions, multiple professional routines and mostly conflicting institutional logics. There are possibilities of failures at various stages. The study framework helped the researcher to understand the role of the telecentre as it tries to become a new actor in these multiple networks. It was important that this study identifies the promised set of services and its current status. The idea was to understand the telecentres in its natural setting and address the research questions. Moreover, to get a richer understanding of the phenomenon, it was felt that the study should look at other projects that offer single sets of services over ICT front-ends. The comparative analyses between the projects also highlighted the significance and implication of the construct of integration.

This study also specifically addressed the implications of the phenomenon on e-governance services: *Do telecentres and their ascribed multipurpose phenomenon have implications for e-governance services delivery? If so, what and why?* The issues of integration were studied by taking the case of e-governance services. On the one hand this helped to understand the significance of the construct of integration and on the other hand it helped us to trace the governance and e-governance linkages as well. The governance angle helped in highlighting issues of *contract state* and the resultant conflicting goals of public value and private value (Moore, 1995; Kelly *et al.*, 2002).

While most studies have looked at interactions at the level of stakeholders, this study focuses at the services level. The study framework also helped in comprehending the implications on services on account of the interactions between the locally embedded and globally disembedded institutional actors. Hence it was important for the study to uncover the characteristics of governance services as well as the complexities associated with the efforts to introduce multiple governance services through telecentres.

The other important question that this study tried to address was the following: *How do ICT implementation and the need for intermediation affect multiple service delivery over telecentres?* Drawing on Luhmann's (1993; 1995) notion of technology and its conceptualisation in ICT by Kallinikos (2005, 2009), we have considered technology as functional simplification and closure. Drawing on Mintzberg's (1993) typology of bureaucratic organisation and the work of Cordella and Tempini (2011) we have seen how implementation of ICT would be different for tasks undertaken by machine bureaucracy and professional bureaucracy. We find that the whole task associated with a service or certain processes that comprise the task associated with a service could undergo functional simplification and closure. In the case of the latter, unanticipated /and or analytical problem solving activities are offloaded from the technology back into the institutional system. Such offloading is undertaken through human intermediaries who may be needed at various stages of the many tasks associated with a service – at initial stage, at various intermediate stages or for purposes of front-end delivery as depicted in the schematic diagram Fig 3.1.

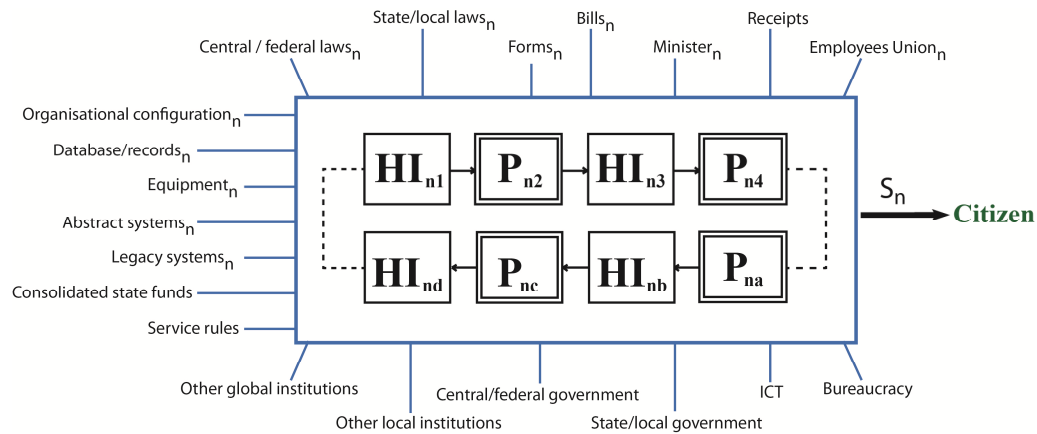


Fig 3.1 Schematic diagram of service S_n

The diagram synthesises the link between functional simplification and closure, and service. Comparisons with fig 2.9 reveal how the complexities of the institutional linkages on services (taking the example of a hypothetical service S_n) are considered by technology through functional simplification and closure. Attempts of functional simplification do not necessarily lead the technology to capture the offline system comprehensively. Instead it provides a lean version of it (Kallinikos, 2009) – the Ps. The Ps are a simplified set of causal or instrumental relations devoid of the contextual setting. The complexities of the task that are not scoped within Ps have to be offloaded from the technology back into the institutional system or traditional bureaucracy. This would necessitate human intermediaries (HIs) to handle these tasks in traditional ways. The number of processes, as well as degree, level and stages of human intermediation in a service is influenced by the institutional logics and characteristic of that service.

The above discussion shows how attempts for ICT implementation for online delivery of any service is characterised by requirements of intermediation even when parts of the tasks could be automated. The requirements for integration are more complex, given the diversity of services and configuration of human intermediation. The case of domain intermediation is of particular significance in the context of an integrated services project like telecentres. The concept of functional simplification and closure provides a good theoretical construct to understand the complexities associated with offering multiple services including the increase in interdependencies associated with integration.

In the preceding sections, detailed discussion on intermediation, domain intermediation and the significance of trust on abstract systems has been presented. Drawing on Giddens (1990), we also discussed specifically the need for “facework” of institutions to enable and provide services. It is important to note that the concept of service as a heterogeneous network helps in extending the analysis of Giddens in two ways. The notion of heterogeneous network captures the alliances, conflicts and politics of actors involved in a service and allows the analysis to include the multiple institutional influences and fields that constitute service delivery. The notion also gives the possibility of considering institutions at various levels (local and global disembedded) that could have implications on the way services are being provided in a particular region.

Our research framework highlights the complexities involved in the case of even a single interface (telecentre intermediary) trying to deliver multiple services. This would require the telecentre intermediary to be the facework of a multitude of institutions at the same time. The institutional logics of multiple services require the telecentre intermediary to act as “access points” of a range of institutions. Given the requirement for telecentre intermediary to be seen as a member of multiple global institutions, it was significant to critically analyse the belief expressed in literature regarding the supremacy of “local” entrepreneur. This research hence explores the various dimensions of intermediation offered through the centres and more particularly whether telecentres can enable multiple services, given the need for intermediations.

This research also considered the research question pertaining to sustainability: *How is the sustainability of telecentres implicated by the attributed multipurpose nature of telecentres?* The study considers sustainability as the successful translation of telecentres on to the heterogeneous actor-network that constitutes an individual service as well as on the collective of heterogeneous actor-networks that constitute governance services. This approach is in contrast to the current literature on telecentre sustainability that takes a predominantly financial perspective. This research has analysed the issues in sustaining the range of services in an integrated setting. It also critically analysed whether the sustainability of a particular service has implications on delivery of another service.

3.5 Research design, data collection and interpretation methods

3.5.1 Research design

The research takes a qualitative approach in line with the nature of research questions and epistemological approach. This study adopted an exploratory multiple-case embedded longitudinal interpretive case study design (Pettigrew, 1990; Walsham, 1993; 1995; Yin, 2003; Madon, 2005). This study had to address many ‘*how*’ and ‘*why*’ research questions. Moreover, the researcher had no control over the processes or outcomes of the research phenomenon. The study focussed on the research phenomenon within its natural context. All these made case study approach most appropriate for this study (Yin, 1981; 2003; Benbasat *et al.*, 1987). Case study is a comprehensive method covering “the logic of design, data collection techniques and specific approaches to data analysis” (Yin, 2003). Case studies try to incorporate the views and experiences of "actors" in a chosen context (Lee, 1989; Tellis, 1997).

Qualitative and quantitative case studies are well established in IS research, for explanatory and theory building as well as descriptive and exploratory ones (Benbasat *et al.*, 1987; Eisenhardt, 1989; Lee, 1989; Orlikowski and Baroudi, 1991; Alavi and Carlson, 1992; Walsham, 1995; Pare and Elam, 1997). The nature of research questions belong to both the exploratory and descriptive types, identified by Yin as suitable for case study research. Whereas exploratory researches are used to gain knowledge and understanding of the problems, descriptive case studies help describe a phenomenon in a given context (Yin, 2003). The research questions require us to explore the phenomenon, the context and the complex web of actors and institutions. Longitudinal case study undertaken over a period of seven years helped in capturing and understanding the various aspects of the phenomenon. During the period it was possible to observe the kind of services that survived and the ones that did not. Following Yin (2003), a multiple-case embedded longitudinal case study design was adopted with a view to contrast the complexity of issues that are associated with the different available mechanisms that offer e-governance service delivery.

Drawing on the theoretical framework and the construct being used for the study, it was important to compare the phenomenon of e-government service delivery over multipurpose telecentres with ICT front-end projects that provide single sets of services. In other words, to study the concept of integration of e-governance services over telecentres, it was essential to contrast telecentres with scenarios where ICT has been used in government service projects that provide services pertaining to one⁸¹ particular domain (e.g. agriculture, healthcare, payment, etc.). Such an analysis helped in revealing the complexities as well as underlying issues associated with services delivery and integration.

It was, however, important to look at one telecentre case in detail. The research was primarily based on an empirical study of Akshaya telecentre project in the south Indian state of Kerala. The other e-governance cases were identified such that they offered services that were also being promised through the telecentres. For understanding the various dimensions involved, it was appropriate to compare a project that was successful and another that was not, in being offered over the telecentre. Utility payments were the only service that was provided successfully by the telecentres. It was hence decided to study an e-governance payment centre – FRIENDS. A promised set of services from the telecentre included the provision of agricultural, healthcare and education information. This was not working in spite of efforts to create content exclusively for the region in the local language. KISSAN (an ICT enabled agro-advisory services project) was studied to understand how they were able to provide such information over an ICT front-end. Hence the study in effect explored three varied cases of e-governance service delivery (a) telecentre project (b) government e-payment project and (c) ICT based agro advisory (information) service project. It may be noted that all the projects were based within the same state and that efforts were taken at various stages by different actors to link both these projects with the aforementioned telecentre project.

⁸¹ It may be noted that the reference to projects that offer *any one particular domain service* only means that we are referring to project that offer services in a particular domain area. It may be possible that the project offers multiple services, but pertaining to the same domain.

When the telecentre project was initiated in 2002-2003, I was working as a Mission Coordinator at KSITM. I have also been involved in coordinating the e-governance activities of the state of Kerala in India for many years. Further, after the first year of my PhD programme, I returned to the state of Kerala and headed the Akshaya project for some time (seven months) with the primary task of establishing wireless Internet connectivity to the telecentres. My association with the project gave me opportunities to have a close look at the various aspects of the phenomenon under study, but I had no control over events relating to the specific research questions that were being explored. Moreover, the study demanded that the researcher contrast multiple scenarios of e-government services delivery.

In the context of my association with the telecentre project, I had explored the possibility of using alternate strategies like Action Research. However, my approach was not one of diagnosis and therapy (Blum, 1955; Baskerville and Myers, 2004). I also understand that action research is undertaken by those whose original intent is to conduct research while effecting change (Susman and Evered, 1978). This was also not true in the case of this study.

I also explored the possibility of undertaking an ethnographic research approach, since it is advocated by some writers as a research strategy that emphasises on spending long periods of time in the field, as what I have done. However, following Yin (2003), I consider ethnography only as a specific method of data collection and have used data collection methods like participant observation, ethnography etc. for building my case studies. Moreover the research questions required the study to adopt a research strategy that looked beyond the immediate contexts and institutions. The overall approach taken is hence unique and the design could be considered a contribution to methodology.

3.5.2 Case study design

The study adopted an exploratory multiple-case embedded design. An embedded case study is attempted when the case contains more than one sub-unit of analysis (Yin, 2003). The design adopted for the study involves multiple cases with multiple sub-units of analysis.

Telecentre literature has specified a number of pre-requisite factors that would enable service delivery to be successful. It is often pointed out that the level of ICT skills available in the user community, aspects of access and the availability of relevant local content would enable telecentres to sustain and offer services (Gopakumar, 2007). Akshaya telecentre project had tried to take care of these aspects at the conceptualisation phase itself. FRIENDS project is a one-stop integrated payment counter facility for utility and other payments available in all 14 district centres of the state. The Karshaka Information Systems Services and Networking (KISSAN) project was conceived by the state agriculture department for providing agro-advisory services to farmers. Adopting a multimode approach, it consists of a data centre, a call centre, web services component, a weekly television program and 10 agro-advisory services kiosks.

The embedded design allowed the researcher to give attention to the specific actors and institutions associated and thereby not conduct the study only at an abstract level. One of the challenges was to draw enough evidence about the phenomenon at the subunit level and reflect the same on to the larger unit of analysis. The basis of the embedded design used in the study is akin to the concept of a hermeneutic circle (Gadamer, 1976).

Case study methodology has frequently been criticised as methodologically incapable of generalising conclusions. Writers like Lee (1989) and Yin (2003) have argued that it is possible to generalise case study findings to theoretical propositions. Many writers have pointed out that generalisability of results based on case studies offer great value for the IS research field (Lee and Baskerville, 2003; Walsham, 1993; 1995; Klein and Myers, 1999). The analytical strength of the methodology is unique given the fact that the study is based on a rich understanding of the phenomenon by comparing and

contrasting multiple cases and that every case study involves its own subunits of analysis. The findings of the study are generalised to the theoretical propositions, which were developed from the framework of the study.

3.5.3 Components of Research Design

Research design links the sequence of research questions to the empirical data and finally to its conclusions (Yin, 2003: 20). In a way, the research design guides the collection of data as well as the analysis. A good design ensures that the researcher collects the right kind of evidence and utilises it in the most appropriate way for achieving the research objectives. The components of a research design include “(a) study’s questions, (b) its propositions, (c) its unit of analysis, (d) the logic linking the data to the propositions and (e) the criteria for interpreting the findings” (Yin, 2003). Since the research questions have already been described, the other four components are discussed below.

Theoretical propositions help the study to specifically focus on aspects within the scope of the study (Yin, 2003). Apart from reflecting on theoretical issues, they also help the researcher to identify where they have to look for relevant evidence. Theoretical propositions draw on the theoretical framework of the study. The framework is based primarily upon the propositions about integration that embed interactions, intermediation and sustainability.

The unit of analysis in a case study could be an individual, group, organisation, events, decisions, programmes, projects, implementation process, organisational change, etc. (Benbasat *et al.*, 1987; Yin, 2003). The empirical part of the case study concerns the way in which telecentres can (or cannot) work as an integrated delivery point for e-governance services. As pointed out in the case study design, the study has a multiple case embedded design. So within the primary unit of analysis there are lower level embedded units, such as the individual centres, the operators, the networks, the users, institutions etc. and at a different level the e-governance service delivery in the three cases. The sub-units are of course inevitable considering the complexities associated with such projects as well as the attempt to understand an intricate phenomenon like the

one under study. The macro level processes had substantial implications on the particular phenomenon under study. The cases were tightly bound, as it is restricted by sphere of activity to e-governance service delivery, by geography to Kerala and by time to data collected primarily over the course of about seven years (June 2004 to June 2011). Subsequent field visit was carried out in October 2012 to confirm the details incorporated.

Analysing case study evidences is difficult and is one of the weakest links in undertaking case study (Yin, 2003). The lack of any prescriptive step by step strategies or techniques makes analysing case study evidence often difficult but challenging. The depth of analysis would hence depend on the way the investigator is able to analyse with evidence and alternative interpretations (Yin, 2003:110). In this study, the analysis of data was undertaken as explanation building by reflecting upon some of the theoretically significant propositions. Following Yin, case study evidence was analysed against the background of the theoretical framework through a process of iterative explanation building relying on the principles of hermeneutics. These explanations were built over time by purposefully considering alternate plausible explanations and meanings.

From the perspective of hermeneutics, interpretation could be seen as an attempt to give more clarity to the phenomenon being explored (Taylor, 1976). The phenomenon under study is considered as text, or a text-analogue and the attempt through interpretation is to explain the underlying meaning and thereby bring clarity to the phenomenon. The analysis then becomes one of making sense of the whole but in relationship with the context and actors.

The set of principles laid down by Klein and Myers (1999) were used in this study. They include the “principle of the hermeneutic circle, the principle of contextualisation, the principle of interaction between the researchers and the subjects, the principle of abstraction and generalization, the principle of dialogical reasoning, the principle of multiple interpretations and the principle of suspicion”. The fundamental principle is that of the hermeneutic circle. The underlying idea is that an intricate whole can best be understood from the preconceptions regarding the means of its parts as well as its

interrelationships. The concept of the circle emphasises the need to move from the parts to the whole and back constantly (Gadamer, 1976: 117). It is important to achieve harmony of all the details with the larger phenomenon to understand the various dimension of the phenomenon.

The other principles of interpretation are guided by this principle of hermeneutic circle. The six principles help the researcher understand the various dimensions of the case and the phenomenon. Whereas none of these dimensions in themselves could be considered as complete, as more clarity emerges over each of these dimensions, it contributes to a better understanding of the meaning of the whole. Klein and Myers (1999) compare the process of analysis to putting the pieces of a puzzle together - with the major difference that not all pieces have been given in the first instance and that the player is expected to make necessary modifications. These principles were taken on board for the purpose of undertaking the analysis.

3.5.4 The role of theory in design work

Theory development is considered as an important aspect (Yin, 2003) of case study design phase and this essentially differentiates it from other methods such as ethnography and grounded theory (Van Maanen *et al.*, 1982; Van Maanen, 2006; 2011; Strauss and Corbin, 1990; Lincoln *et al.*, 2011). Yin points out that a broad theory provides a comprehensive research design covering research questions, propositions, units of analysis, the linkage between data and propositions and criteria for interpretation and analysis, etc. It may however be noted that the broad theory that Yin is pointing out does not refer to any formal conventional grand theory. The idea is to draw on an appropriate theory that guides the research process appropriately. The theoretical framework followed for the study has already been discussed. It guides the type of data to be collected and strategies to be adopted for analysing the data.

3.5.5 Data collection

One of the important strengths of the case study method is that it employs multiple data collection methods (Benbasat *et al.*, 1987; Yin, 2003). This approach helps in obtaining

rich set of data about both the fundamental research questions as well as the context. Yin identifies six sources of evidence that work well with case study research: “documents, archival records, interviews, direct observation, participant-observation and physical artefacts”. These sources were used for this study, as described below. Following hermeneutics, the data from one source was always evaluated and corroborated with the data from another source.

3.5.5.a Interviews

The most important source of data for the study was interviews. Semi-structured interviews allowed the researcher to undertake guided conversations with the identified actors. The researcher’s earlier association with the project and government helped in gaining access to key persons involved in various projects. Interviews were held with political leaders and bureaucrats at the state and district levels, entrepreneurs, people under the ‘foot print’ of telecentres, elected representatives of local bodies and officers of KSITM. Interviews were also held with government officers attached to utility departments, KISSAN team, government officers attached to e-governance services delivery projects and people under the ‘foot print’ of these services. Table 3.2 gives the details of the number of interviews conducted for the study. An interview map, highlighting the topics discussed with different groups and their mapping to the themes of the study are provided as *Annexure 1*.

The interviews varied substantially in length and content primarily depending on the convenience of the actor. The interviews also ranged in its conduct from adhering to relatively formal semi-structured interviews to ad-hoc fashion especially during field visits to many individual telecentres, KISSAN centres and FRIENDS centres. While most of the formal interviews took an average of about 75 minutes, the less formal/ad-hoc interviews were done over a few minutes, mostly between other activities. Interviews with the District Collector, Secretary (Information Technology), Vice-president of district panchayat, Project Coordinator, Secretary (MGP), consultants to the MGP programme and 12 entrepreneurs were held more than once, basically with a view to corroborate the evidence collected. The KISSAN central team in Trivandrum were interviewed more than once. Interviews with AEOs were undertaken during the

visit to agricultural offices. The interviews with the FRIENDS centre staff were carried out during visits to these centres in 6 districts of the state.

No.	Category of people interviewed	Number
1.	Political leaders at state level	5
2.	Political leaders at district level	10
3.	Bureaucrats/consultants at the state level	7
4.	Bureaucrats at the district level	15
5.	Entrepreneurs	193
6.	People under the ‘foot print’ of telecentres	112
7.	Elected representatives of local bodies	26
8.	Officers of the Kerala State IT Mission (KSITM)	
	• Trivandrum Office	10
	• Project Office	15
9.	Government officers attached to utility departments	25
10.	Government officers attached to KISSAN project	21
11.	Government officers attached to FRIENDS	35
12.	People/Farmers using the services of KISSAN	25
13.	People under the ‘foot print’ of FRIENDS	35
Total		534

Table 3.2 Interview details

Yin’s concept of ‘levels of questions’ guided data collection (Yin 2003:74-75). An understanding that “the verbal line of enquiry is different from the mental line of enquiry” helped in conceiving appropriate strategies for conducting the interviews. Efforts were taken to initiate a discussion with the view that actors would then speak their story. Though all the interviews were made in person, some of the follow up interviews were telephonic. None of the interviews were taped recorded considering the feeling that the device itself will alter the content and course of the interviews. Instead case notes were taken at the time and subsequently written down with a view to regroup the ideas that emerged from the interviews. This helped in pursuing the hermeneutic cycle by reflecting the current data to the whole and using them to guide as well as examine the phenomenon and context further.

3.5.5.b Documents

Documents play an important role in case studies by both validating as well as supplementing evidence from other sources (Yin, 2003). A large amount of documentary evidence was collected for the research. These include written material in the form of state and local government notifications, formal reports and evaluations, minutes of meetings, press releases, newsletters, journals, websites, promotional material, documented reactions from users of the centres, newspaper stories, Internet publications, and archival records. This kind of information was used in framing appropriate semi-structured interview questions. The underlying scripts in the documents themselves reveal a lot about the initiatives.

3.5.5.c Direct Observations

Observational evidence is useful in understanding ground level realities as well as in getting additional information about the topic being studied. Direct observations helped in understanding the perceptions and uses of the technology, as well as the different problems in the field. The direct observation followed in the study was close to an ethnographic mode of data collection. Visits to 221 telecentres helped in understanding the phenomenon in a substantial way. Moreover the researcher also attended key meetings held by various actors at different points in the life history of the project.

The most important meetings attended include the initial planning meeting involving the state minister, local body heads and the information technology department officers; meetings between KSITM officers and prospective entrepreneurs; the MOU signing by entrepreneurs; community-neighbourhood meetings to discuss the project; entrepreneur association meetings and the high level meeting at state level that decided on offering e-governance services through the centres.

A total of 6 out of the total 14 FRIENDS centres in the state were visited as part of the study. Five out of the 10 KISSAN centres apart from the base office were visited for purposes of the study. The direct observations added substantial depth to the

understanding of the way these projects worked, the individual centres operated and how services were being offered over ICT front-ends.

3.5.5.d Participant observation

While attempting participant observation, the researcher was not merely a passive observer. It provided the researcher an excellent opportunity to understand the case and the phenomenon with the view point of someone inside the case study rather than external to it (Yin, 2003: 94). This mode of data collection was facilitated by the kind of earlier association that the researcher had with the project. Taking on the role of operator in 15 telecentres, I was able to directly understand the issues involved in providing e-governance services over the telecentres. I sat in three KISSAN centres and three FRIENDS centres as a participant observer. Participant observation as a method of data collection gives the flexibility to researchers to manipulate minor events – such as convening a meeting of persons in the case study (Yin, 2003: 94).

Focus group sessions were also organised to gather data from citizens as well as entrepreneurs. In a focus group, about six to nine users were brought together to discuss issues and concerns raised by the research questions. Following Krueger and Casey (2000), the sessions typically lasted about one to one and a half hours ensuring the group's focus. This approach was critical in the context of the region where more people were willing to sit together and discuss the project. It also helped in drawing on more women and getting their views on the various aspects being studied. A total of 10 focus group sessions were organised, three consisting of entrepreneurs and seven consisting of citizens. Of these seven sessions, one consisted exclusively of women and two consisted of farmers alone.

3.6 Coherence of the framework and summary

Interpretive epistemological assumptions form the basis of this study. The theoretical framework of the study is built on key concepts drawn from institutionalism, bureaucracy and functional simplification and closure. The analytical capabilities and methodological apparatus of ANT are also employed for the study. The key construct of

integration along with other institutional actors are used to enrich this framework and address the research questions. The study adopts an exploratory multiple-case embedded design and a qualitative approach on account of the nature of research questions. The research design as well as the interpretation methods employed are consistent with the overall assumptions as well as the conceptual framework of the study.

4.0 Introduction

This chapter describes the details of the various aspects associated with the case studies undertaken. As has been described in the previous chapter, three ICT e-governance projects were studied in detail with special focus on a telecentre project for addressing the key questions raised in this research. Multiple case studies helped in comparing and contrasting issues and thus shedding light on the construct of integration. The case studies, apart from the telecentre project, included two other e-governance projects that have specific sets of services to offer. This was undertaken in order to compare and contrast the delivery of services between these projects and thereby draw a rich understanding of the phenomenon being researched. The telecentre case study was developed based on a study of Akshaya telecentre project, based in Malappuram district in the south Indian state of Kerala. This chapter describes the genesis of the project as well as the details of the specific context in which the project was rolled out. It also describes the major actors, the various strategies adopted and processes followed in the implementation of the project. In accordance with the objectives of the study, the chapter pays special attention to the phenomenon of e-governance services delivery through these telecentres. The other projects studied are KISSAN (an ICT based agro-advisory services project) and FRIENDS (government payment front-end project).

4.1 E-governance approach of Kerala

In the first chapter, we discussed about the past and present development experiences of the state of Kerala in India. By the 1990s, the state experienced serious financial and growth crises, and governance failure was generally identified as the major reason for the same. It was against this background that the state wanted to utilise the opportunity of decentralisation (as part of national agenda) to initiate governance reforms. An

Administrative Reforms Committee (ARC) was constituted⁸² to recommend strategies to strengthen state administration. The 15 reports of the ARC (consolidated as ARC Report, 2002) came down heavily on the *bureaucratic* form of government in line with the arguments of NPM. ARC recommended that government departments/agencies should network their functions and provide integrated services to citizens. The reports strongly favoured (for the first time in the history of the state) flexible forms of organising, outsourcing and contractual relationships.

On account of the weak fiscal situation in the late 1990s, the state government (incidentally, with the left parties in power) decided to take external financial help from the Asian Development Bank to the tune of US\$775 million. ADB insisted on the conditionality of governance reforms and were agreeable to consider the recommendations of ARC as the reforms agenda (MGP, 2002). Through Modernising in Government Programme (MGP), ADB promoted the agenda of NPM and pressurised the state to consider and confine its role to that of a facilitator in the economy (Raman, 2009). Through the implementation of ARC recommendations and MGP, neo-liberal reforms took roots in Kerala⁸³ (Nair, 2004). The key component of MGP was the deployment of ICT for improving efficiency and promoting the delivery of citizen services in an integrated manner. *Annexure 2* provides more details of the macro-political and reforms background that steered policy directions towards the option of decentralised integrated ICT front-end delivery mechanism for governance service delivery in the state.

In 1998, the state announced its first ICT policy and set up a Department of Information Technology in the same year. The field level office of the department, Kerala state Information Technology Mission (KSITM) was established in the year 1999. As discussed earlier, following the announcement of the IT policy, the state set up a few task forces to identify specific strategies and prepare roadmaps to ensure that the policy could be operationalised. One of the task forces was constituted to propose strategies for the implementation of ICT in government. The task force reviewed the then

⁸² As per a State Government order Go (Ms) 7/97/P&ARD Dated, 26-5-1997

⁸³ Some members of ARC became consultants to MGP.

situation with respect to the use of ICT in government and made two important suggestions (Task force, 1999).

The task force felt that the strategies followed for the introduction of ICT in the state were heavily biased towards improving the efficiency of the administrative processes within departments. This was based on an assumption that with the introduction of ICT, back-end processes would become efficient and thus departments/agencies would be able to automatically offer better services to citizens. The task force, however, found that the effort to introduce ICT in the back-end administrative systems were delayed by many years and that it did not lead to any meaningful gains either for the departments/agencies or the citizens. The task force recommended that the e-governance activities in the state should shift the focus towards attempting projects that gave direct services to citizens. *Citizen centricity* in government services had emerged as a powerful concept across the world and was getting incorporated as an important component of the reforms programme in Kerala. The recommendation also incorporated the notion of efficiency by prioritising e-governance in departments that were primarily involved in collecting government taxes. Thirty four departments/agencies were identified for introduction of e-governance in the first phase based on their degree of citizen interface and their degree of revenue collection. Based on earlier experiences and the then emerging literature on process reengineering, the task force felt that attempts for e-governance in these departments would take time. It was also felt that such attempts would not satisfy the integrated services delivery strategy of the government.

They hence suggested a medium term strategy of implementing high visibility people-oriented projects that could offer services in an integrated manner even before the back-end computerisation in departments/ agencies were completed. The task force felt that on the one hand success of such projects would reinforce the attempts for ICT in the government in general and on the other hand ensure that services are offered only in an integrated manner over ICT front-ends. This conclusion of the task force and its eventual concurrence by the state government was a key defining decision in the e-governance approach of the state. The notion of integrated services delivery over ICT

front-end thus put to rest the efforts of individual departments/agencies conceive ICT front-ends of their own.

As discussed earlier, KSITM developed a few projects in this regard. In partnership with State Library Council, KSITM conceived project *Sevana* as the mechanism for providing e-governance services in a decentralised manner through the strong and existing network of rural libraries in the state (KSITM, 1999). The project was initiated with the provision of Internet access. The first computerised rural information centre was set up at Kallara gram panchayath library in Trivandrum. The project was extended to 14 libraries, one each in every district of the state. It was proposed at the time that based on the learning from the pilot phase, the facility would be extended to 800 libraries in two years' time. Apart from access to Internet, the project also tried to provide some information on various government schemes, programmes, general information on local bodies, links to important sites and other facts relevant to the rural population.

While the initial response to the facility was positive, the project finally was shelved on account of the lack of proper day-to-day management at the library level. The project was constantly confronted with issues such as who could use the Internet, how many print-outs could be taken, who would pay for stationery, consumables and power bill, who would be responsible for getting and preparing local information, etc. Since rules and regulations were not created, unlike in a typical administrative setup, these confusions led to the ultimate demise of the project. It left lasting impressions on KSITM⁸⁴ on the difficulties of managing such delivery mechanism within government. As discussed earlier, the attempts to provide integrated delivery of services through Keltron kiosks also did not work. The other people-oriented project that was conceived by KSITM in year 1999 was FRIENDS.

⁸⁴ This learning profoundly influenced KSITM's decision to adopt an entrepreneurial model when it came to Akshaya project.

4.2 FRIENDS⁸⁵ project

FRIENDS (Fast Reliable Instant Effective Network for Disbursement of Services) was created as a single window mechanism to provide all government services in an integrated manner through newly created centres under KSITM (Kumar, 2003). It was felt that these centres would act as *one stop shops* for citizens, to remit payments to government departments/agencies, to provide a range of information, and to provide citizen entitlements like certificates, records, etc. The basic idea was drawn from the e-Seva project in Andhra Pradesh. The learning from e-Seva experience led KSITM to initially launch the project with facility for making payments to government departments/agencies. Considerable changes were made to the e-Seva model to suit the local needs as well as to ensure that the project could easily be replicable throughout the state. This was primarily done by delinking all kinds of electronic transactions at the front-end with the processing at the back-end. In doing so, the mode of transactions at the front-end became independent of the status of e-governance projects that were being attempted in the participating departments. Even if a department/agency (for example: Water Authority) did not have any form of computerisation in their accounts department, FRIENDS could still have a module on water utility bill payment.

At the time when FRIENDS was being launched, payments to different government departments /agencies were made at the various offices of these departments /agencies. This had two major implications for ordinary citizens. On the one hand they had to stand in long queues waiting for their turn to make payments. On the other hand, they had to visit multiple offices located in different parts of a city or village to make payments regularly. Government had initially tried to solve this problem by enabling payments through the banking network. In the late 1990s, many banks and government departments/agencies were, however, not computerised and hence citizen payments at banks invariably led to delayed collections and reconciliation issues. According to KSITM only 2 to 5 per cent of the population used this facility (KSITM, 2000).

⁸⁵ A detailed study on the project as well as responses of the various stakeholders involved was undertaken earlier by Madon and Kiran (2002).

In the light of the enthusiasm for ICT in the late 1990s, many departments/agencies had come up with projects with a view to introduce ICT into their existing front-end delivery mechanisms. This would have meant adopting a strategy of massive deployment of resources to all decentralised offices of departments/agencies throughout the state. In line with its reforms agenda and based on the recommendations of the task force, government took the stand that it would encourage government services to be channelled through a single window. The launch of the project was also supposed to be a major advantage for fighting state elections for the party in power (Bussell, 2012). It was against these backgrounds that the one stop FRIENDS project was conceived and launched. While departments, particularly in the coalition led politics of Kerala were not supportive of such a mechanism, the popularity of FRIENDS made the demand of departments weak and their alternate strategies inconceivable.

4.2.1 The project

FRIENDS centres till date remain as “single window mechanisms” for citizens to make various kinds of payments to government departments/agencies. The project was launched in June 2000 in the capital city of Trivandrum in partnership with the city Corporation. The entire capital expenditure for the project was borne by KSITM. The expenses in terms of consumables and other recurring costs are also met by KSITM through arrangements with the technology provider⁸⁶ of the project. The persons manning the centre are deputed from participating departments/agencies and their salaries are paid by their parent participating departments/agencies. Government also took a decision to allow all participating departments to maintain existing payment counters in their office premises as well. This was done to ensure that employees in the participating departments did not resist the setting up of FRIENDS. Resistance from departments and organised unions, however, was very high. The left government of the time was able to manage the situation because the resistance to the project had come primarily from their service organisations.

⁸⁶ The project was got implemented through the Centre for Development of Imaging Technology (<http://www.cdit.org>), an agency under the Government of Kerala.

Once FRIENDS was launched and it started gaining public support, the then government wanted to take full political advantage of the project. The government quickly decided to implement the project in all the districts of the state before the state elections in May of 2001. The state wide roll out of FRIENDS was a major agenda item in the district collectors review meeting held by the then Chief Minister of the state. Eventually, the roll out to other district headquarters happened after the elections, under a new government.

Many employees in departments/agencies realised that the popularity of FRIENDS was undermining their power and authority. They tried different ways of causing problems to citizens who were remitting payments at FRIENDS instead of the department counters. One action that many employees took was to inform the citizen that they would not accept receipts from FRIENDS as valid receipts for payments to their department/agency. Many would act as if they were ignorant about FRIENDS or inform citizens that there was no formal communication that FRIENDS was authorised to collect money on behalf of departments/agencies. Government finally came out with a formal order mentioning that receipts from FRIENDS centres would be considered equivalent to receipts from department counters. Government also directed department/agency heads to take serious action against officers who do not accept FRIENDS receipt as acknowledgement for payment. These actions coupled with disciplinary proceeding against a few officers based on this government direction practically saw the demise of any serious protest by employees against FRIENDS.

4.2.2 Transactions

Citizens can approach any counter in FRIENDS for remitting any kind of payment. The software used by the officers enable them to collect payments pertaining to any department, irrespective of whichever government department/agency the particular service officer belonged to. The centres work from 9 am to 7 pm on all days including Sundays (except national holidays). The transaction details in terms of number of transactions and amount collected since inception of the project till financial year 2008-09 are given below in table 4.1.

Financial year	Number of transactions	Amount collected in INR (million)
2000-01	1,23,709	56.8
2001-02	10,26,919	130.5
2002-03	20,23,811	1061.9
2003-04	26,32,137	1600.0
2004-05	34,00,182	2021.0
2005-06	38,66,948	2217.0
2006-07	40,28,287	2274.7
2007-08	34,75,795	2228.9
2008-09	35,16,571	2260.1

Table 4.1. Transaction details of FRIENDS (Source: KSITM – FRIENDS website⁸⁷)

The counters are equipped to handle around 1200 types of bills (in various combinations) originating out of various departments/agencies, as listed below.

Utilities

1. KSEB (Power) Bill
2. KWA (Water) Bill
3. BSNL (Telephones) Bill

Local Body

4. Property Tax
5. Professional tax
6. Traders License Fee

Revenue Department

7. Building Tax
8. Basic Tax
9. Revenue Recovery

⁸⁷ Please see: <http://www.itmission.kerala.gov.in/ksitm-e-governance-projects/82-friends.html>

Civil Supplies

- 10. Fee for new ration card and various certificates
- 11. Fee for trade licenses

Motor Vehicles

- 12. One time vehicle tax
- 13. Motor Vehicle tax
- 14. Fee for Licenses from Motor Vehicles department
- 15. Fee for permits from Motor Vehicles department
- 16. Registration fee for Motor Vehicles department
- 17. Fee for Fitness Certificate of Motor Vehicles department

University

- 18. University exam fee
- 19. Fees (general)

Electrical Inspectorate

- 20. Kerala State Electricity Licensing Board fees
- 21. Inspection fees for electrical Installations
- 22. Inspection fees for cinema installations
- 23. Board of examiners for cinema operators fees
- 24. Testing fees for electrical instruments

Railway ticket reservations have also been introduced in three district centres where the district headquarters are far away from railways stations (Wayanad, Pathanamthitta and Malappuram).

4.2.3 Service Officers

As mentioned earlier, FRIENDS project has not made any new recruitments. The personnel required for operating the counters are deployed from as well as paid by their parent departments/agencies. Irrespective of their position/designation in the parent organisation, they have the title of *Service Officers* at FRIENDS. This was attempted to

ensure that the idea of seniority did not affect the functioning of the project. For employees used to the bureaucratic organisation form, this also meant moving out from one role and assuming another. The officers were given training, primarily on how to interact with citizens and make them feel comfortable at FRIENDS. They were also given preliminary computer training.

4.2.3.a Significance of Service Officers (Intermediary)

The services at FRIENDS can broadly be classified as services that are based on a demand note/bill and ones that do not have them. In the case of demand note based payments (e.g. utility payments), the citizens are in receipt of some form of a bill that clearly indicates the charge that needs to be paid for the service availed. In the case of non-demand based payments (e.g. motor vehicle tax), the citizen would need the help of a department staff member to compute the charges to be paid. In this case the domain expertise of the service officer is important.

In the case of demand-note based services, citizens approach the centre/counter with bills specifying how much should be paid (e.g. utility bills). In such cases the service officer inputs this detail and associated data on the software at the appropriate place and issues a receipt at the end of the transaction. Non-demand note based services are those where citizens need to find out from a service officer as to how much needs to be paid for a particular category of payment (e.g. Motor vehicle tax, University fees, etc.). In such cases an officer based at FRIENDS from the respective department/agency provides necessary information and helps the citizen to compute the amount to be paid. Officers from departments/agencies that belong to the second category of services are positioned to provide the initial intermediation so that citizens can make the right payments. FRIENDS centres across the state are very dependent on these officers for undertaking the second category of payments. This requirement constrained FRIENDS from rolling-out large number of centres across the state.

4.2.4 Information exchange with participating departments and agencies

The project envisaged the collection of payments from citizens within a geographic boundary. As pointed out earlier, every centre has multiple counters and the payees can remit any payment at any counter. The custom-built software of FRIENDS has features to accept payments to different departments/agencies by incorporating the specific rules and regulations regarding remittances pertaining to each agency. Citizens are given an acknowledgement note/receipt for the amount remitted at the FRIENDS centres. In the initial years, physical printouts of the payment details were provided to participating departments. However by the year 2006, most of the payment details were either given over a CD or given online to the participating departments/agencies. This was possible not because of any comprehensive backend computerisation, in the departments/agencies, but because of the availability of Internet connectivity at the district headquarters levels.

The FRIENDS centres continue to be popular and the transactions details provided above clearly indicate this. Studies by Madon and Kiran (2002) showed that majority (97.5 per cent) of people preferred FRIENDS to department counters. Yet, what is usually forgotten is that FRIENDS was launched not just as an integrated payments centre, but as an integrated service centre to provide all governments services from one stop shops. This never happened at FRIENDS. Let us now consider an important aspect of the project that would provide some details on the phenomenon being researched.

4.2.5 FRIENDS – seeds of integration

FRIENDS became popular among citizens on account of a number of reasons including the way they are treated in these centres. The underlying operations and success of the project is based on the integration of payment services offered over single ICT interface. What is apparent is that ICT was able to provide payment services in an integrated manner. The project thus became not only popular but also provided the base support for e-governance in general and integrated services delivery model in particular.

Let us carefully consider the integration of services attempted and the role of ICT. FRIENDS cannot be considered as a technically advanced project. Bulk of the transaction data were given as hardcopies to participating departments for the first five years of the project. The success of the centres was on account of the facility for citizens to go to one single place and remit payments, many of which had to be done regularly (like utility bills). Was it not possible for the government to have such a centre without ICT? It would have been possible years ago if the government took the very same steps as getting service officers from participating departments and operating these centres manually. Citizens would have been able to go to such manually operated centralised facility and remit payments. Government, however, could never conceive the creation of such centralised mechanisms, until the institutional pressure of ICT and integration forced them. This is a strong case to support the argument by Cordella and Tempini (2011) on the possibility of automation and increase in efficiency and effectiveness associated with tasks that are handled by machine bureaucracy. The important aspect for our consideration at this point is that integration of payment services was possible even in the absence of ICT.

In other words the role played by ICT is instrumental and institutional. Though integration was attempted through innovative administrative reforms, government was able to seize the opportunity of the enthusiasm behind ICT to undertake the creation of the centres, which would otherwise have been difficult. Though integration was achieved through the innovative moves of taking service officers from the participating department, delinking front-end and back-end processes and taking steps not to affect the existing mechanisms that constituted the current service, success of integration was credited to ICT. The immediate roll out throughout the state added credibility. The popularity of FRIENDS and the attributed possibility and advantages of integrated approach ensured that the alternate way of having computerised citizen service delivery counters in departments/agencies was no longer a powerful argument. It was through FRIENDS that the institution of integration entered the e-governance process in the state and made profound implications in the way e-governance projects were attempted in the state.

4.2.6 FRIENDS roll out – constraints and implications

FRIENDS project was launched (and continues) as an integrated centre for making payments. For the first time, people directly felt the advantages of ICT, reinforcing their confidence in ICT (Madon and Kiran, 2002). In those moments of glory, it was however *forgotten* that the project was conceived to offer all government services and not just payments! The project was initially conceived to be the front-end for all government services (Kumar, 2003) – the services being classified as payments, information and entitlements.

As discussed, the notion of integrated services delivery had restrained individual departments from using ICT at their front-end counters. However, since FRIENDS centres were restricted both horizontally (only operational at district headquarters) and vertically (only payments services), many departments once again argued for allowing them to use ICT for providing front-end services from their own offices. Given this background, it was very important for KSITM to roll out FRIENDS from the district level to different parts of the state and increase the number and type of services.

As the then Director of KSITM pointed out:

“We were happy about the success of FRIENDS in providing an integrated front-end for government payments. We are not yet successful in channelling other government services as well, through these centres. This was turning critical because we were continuously forcing departments not to provide their services through their counters but through integrated delivery points. Moreover, FRIENDS were available only at the district headquarters level and not to sub-district or panchayath level for more people to use the services of the project.”

As noted in the study by Madon and Kiran (2002), KSITM was contemplating the rollout of these centres to all the 140 assembly constituencies in the state during early 2002. This, KSITM, believed would create a situation where any citizen in the state would have access to a FRIENDS centre, located within a maximum distance of five kilometres from their residence. The FRIENDS model had made KSITM dependent on participating departments/agencies for deputing service officers. KSITM always found it difficult to convince participating departments/agencies to depute their staff. The

centres were critically dependent on officers, particularly from those departments where the domain expertise was essential for intermediation. KSITM was aware of the resistance from government departments for rolling out FRIENDS to sub-district level and was contemplating the extension of these centres in association with the private sector/citizen groups (Madon and Kiran, 2002).

Meanwhile in one of the districts, the district level local government was contemplating a project aimed at 100 per cent e-literacy in the district. They approached KSITM seeking its support for undertaking the project. KSITM realised that the scope of the project could be extended to the creation of permanent ICT delivery centres right down to village level and offer whatever was successful in FRIENDS centres as well as those services that could not be attempted through the FRIENDS centres. In other words, for KSITM it was an opportunity – the possibility of reconceptualising (or *re-problematizing*⁸⁸) the idea of integrated services delivery in a decentralised manner through non-state actor operated centres. We will now explore the details of the project starting from its genesis.

4.3 Genesis of the Akshaya project

In the first chapter we discussed some of the unique development patterns associated with the state of Kerala. The constitution of democratic decentralised institutions in the state, in line with the 73rd and 74th constitutional amendments^{89 90} undertaken by Indian Parliament has a significant role in the specific context of this project. The state has democratically elected local self-governing institutions (LSGIs) at the district, block and village levels. Apart from them, the state also has 6 Corporations (urban local bodies) and 54 Municipalities (semi urban local bodies). There are 14 district level local bodies, 152 block level local bodies and 999 village level local bodies⁹¹ (SPB Report,

⁸⁸ For discussion on Akshaya as re-problematization, please see *Annexure 3*.

⁸⁹ April 24, 1993; statutory provisions for Panchayath Raj as third level of administration in villages. amendment document available at: <http://indiacode.nic.in/coiweb/amend/amend73.htm> (last visited on November 19, 2011)

⁹⁰ June 1, 1993; statutory provisions for local administrative bodies as third level of administration in urban areas such as towns and cities. amendment document available at: <http://indiacode.nic.in/coiweb/amend/amend74.htm> (last visited on November 19, 2011)

⁹¹ The district level local bodies are referred to as district *panchayaths*, block level local bodies as block *panchayaths* and village level local bodies as *Grama panchayaths*.

2004). LSGIs have some freedom to design and implement projects according to their local requirements using one third of the consolidated funds of the state (Veron, 2001; Issac and Franke, 2002). The local bodies devise their annual plans ahead of a financial year in accordance with the framework created at the state level. To make the exercise more participatory in nature, the legal framework governing LSGIs mandates the elected representatives to convene a meeting of all the people in his/her constituency⁹² once every six months to discuss the issues pertaining to the ward and to identify key development projects that need to be undertaken. These meetings, referred to as *Grama sabhas* provide a forum where the local community can participate in decision making. This was also part of the then government's idea that popular participation would make the local governments continuously accountable to the citizens (Issac and Franke, 2002).

The decentralised local governments played a major role in the Akshaya telecentre project. We will now explore some details of Malappuram district and its background.

4.3.1 Malappuram district

Malappuram⁹³ is located in the northern side of Kerala. It has a majority Muslim population (67 per cent⁹⁴), unlike most of the districts in the country. From an administrative perspective, the district consists of 14 blocks, 5 municipalities and 100 village panchayaths, each under independent local self-governing democratic governments. Some of the details of the district, compared to India and Kerala, as was the case during the initiation of the project, are provided in table 4.2. Malappuram is generally regarded as a region that lags behind Kerala's other districts in terms of social and economic⁹⁵ development, although over the last few years there has been some improvements in health and education achievements. This is reflected in some aspects like the pass percentage of secondary school leaving examination results improving from about 30 per cent in the mid-90s to over 58 per cent in 2004, the achievements in the professional entrance tests, etc. (SPB Report, 2004).

⁹² Referred to as a *ward* and hence every elected representative is known as a *ward* member.

⁹³ Means terraced place atop hills in Malayalam

⁹⁴ As per census of India 2001(Please see <http://censusindia.gov.in/>)

⁹⁵ Recorded the lowest per capita income among districts even in 2010-11(SPB Report, 2011)

According to Census 2001, the district recorded one of the biggest declines in the growth rate of population among districts in India. The decadal rate in the district during 1991-2001 was 17.22, down by 11.65 per cent points from 28.87 per cent during 1981-91⁹⁶. However, Malappuram was the most populous district and contributed to 11.39 per cent⁹⁷ of Kerala's population.

Characteristic	India	Kerala	Malappuram
Area (sq. km)	30,65,027	38,863	3,550
Population (2001) million	102.70	31.83	3.63
Density of population*	324	819	1022
Sex ratio	933	1058	1063
Literacy rate	65.38	90.92	87.94
Male literacy	75.99	94.20	90.04
Female literacy	54.02	87.86	85.96

Table 4.2 Malappuram in comparison

(Sources: Census of India 2001; SPB Report, 2004)

* per square kilometre

According to Census 2001, 75.9 per cent of the population were unemployed – the highest among all districts in the state. Female work participation rate was also found to be low (6.6 per cent). The district has recorded large-scale migration particularly to the Middle East gulf countries. It also accounts for the largest number of emigrants (more than a fifth of the nearly 1.5 million from the state) from the state and receives about 17 per cent of the total external remittances to the state (Zachariah *et al.*, 2001). These remittances haven't resulted in any major productive investments in the district. Instead the high purchasing power is visible in the form of massive houses and landed property and mushrooming shopping malls and gold shops. The district registered the second largest number of four-wheelers in the year 2002-2003 next only to Ernakulam, the business centre of the state. Malappuram registered the highest growth rate of motor vehicles during the period 1990-2003 among all districts in the state.

⁹⁶ Growth rate further reduced to 13.39 per cent (Census of India, 2011 - (Please see <http://censusindia.gov.in/>)

⁹⁷ Increased to 12.31 per cent (Census of India, 2011 - (Please see <http://censusindia.gov.in/>)

However, domestic commodity production is low. The per-capita income of the district is also one of the lowest. In 2002-2003, Malappuram recorded the lowest per capita income of INR⁹⁸ 16,766 among all districts in the state. Primary sector contributed 17.86 per cent of the district income, secondary sector 19.90 per cent and tertiary sector 62.24 per cent in the same year. 236 thousand educated unemployed had registered with various employment exchanges in the district in 2002-2003 (SPB Report, 2004). There was growing scepticism among the local community regarding the deteriorating income generation and increasing unemployment problems.

Multiple reform movements in the last three decades in the district have emphasised on changes within the community, with a special focus on education and women empowerment. Education was projected as the key means to the goal of overall development. For most of the people in the district, education was intrinsically linked to jobs, particularly in the Gulf countries. The district has over the last two decades witnessed more school enrollment and school leaving status. This process was further facilitated by the local bodies since the mid-1990s (SPB Report, 2004).

4.3.2 Project conceptualisation stage

The Indian National Congress led United Democratic Front (UDF⁹⁹) won the Kerala state legislative assembly elections in May 2001. The key constituent, Muslim League had the largest number of elected representatives (members of the legislative assembly – (MLAs), after the Indian National Congress and was hence a powerful constituent of the UDF. Mr P. K. Kunhalikutty, the General Secretary of the party from Malappuram was earlier the Minister for Industries in the UDF government during the period 1991-1996. He was generally considered as a person who tried to align the policies of the state with that of the then emerging ‘privatisation and globalisation’ policies of

⁹⁸ Indian Rupees (the study has considered 1\$ to be equal to 50 INR)

⁹⁹ Kerala has been ruled by two major fronts in the last 35 years. The Indian National Congress led United Democratic Front (UDF) and the Communist Party of India (Marxist) led Left Democratic Front (LDF). State elections followed a pattern of government alternation in every Assembly election held since 1980 between UDF and LDF.

Government of India. In the 2001 UDF ministry, he became the minister in charge of Information Technology and Industries.

Towards the end of the year 2001, the district panchayath¹⁰⁰ of Malappuram was in the process of devising their annual plans for the year 2002-2003. The district panchayath had earlier successfully attempted a few unique ventures such as the creation of a district hospital with financial support from people of the district, resident abroad. The success of these ventures made the elected members, especially those belonging to the ruling party to think about new kinds of projects that would help the district move out of its social backwardness. The idea was to conceive projects that would aid social as well as economic development of the district. With a view to identifying projects that are both required as well as feasible in the district, many rounds of consultations were made with experts from various fields. The district panchayath identified a list of projects from various sectors that seemed to be possible in the district. However, the district panchayath found difficulty in prioritising projects and allocating resources accordingly.

Minister of IT advised the panchayath to focus on knowledge based sectors: Information Technology (IT) and Bio-technology (BT). The district panchayath debated the idea of focussing on the chosen sectors and decided to conduct specialised series of seminars involving experts to discuss the possibilities of the sector in the district. With respect to ICT, a set of broad activities were identified. This included the creation of (a) software park (b) hardware park and (c) augmenting IT training centres. It was expected that the software and hardware parks with adequate facilities will be able to attract investments into the district. On the other hand, it was also felt that appropriate skill upgradation of the people would help them to avail better employment opportunities in the Gulf countries.

Discussions with representatives of the then existing 110 training centres revealed that their business was doing very badly and that they were looking for support from the panchayath. The panchayath committee felt that it will be useful to conceive an IT literacy project that would be helpful for the people and existing centres. As a district

¹⁰⁰ Dominated by the Indian Union Muslim League (<http://iuml.com/>)

that had attained universal literacy a few years back, the initial idea of training a section of the population changed over a period of time to the idea of ‘universal computer literacy’. Though the idea was to provide ICT skills to all the people in the district, it was soon found that the project of such a scale would be difficult to implement. In view of this logistical issue the concept of total computer literacy was redefined by the district panchayath. The new target became: ICT literacy to at least one person in every family¹⁰¹ in the district. The district panchayath earmarked an amount of INR 6 million for this purpose for the year 2002-2003. The panchayath felt that the existing centres along with a few additionally created centres equipped with computers taken on lease would serve the purpose.

The district panchayath then undertook a population survey to identify the ICT literacy levels of the people in the district. It was found that there were only 68,565 people who had undertaken some kind of formal ICT training. It suddenly became clear for the people involved that the task was beyond the initial estimation. It was found that all the existing centres were concentrated in the urban areas and that this would make it difficult to roll out a project of this nature throughout the district. The panchayath found it difficult to tackle other issues including the standardisation of facilities, content for training, evaluation, faculty training, campaigning, etc. Faced with this kind of a challenge, the panchayath authorities approached the Minister for IT to seek his department’s help in implementing the project. Through the minister, the authorities met officials of KSITM, ICT implementation agency of the state government the in April 2002 and presented their project idea.

A one-time ICT literacy activity was not favoured by the officers in KSITM. They were apprehensive of how the training would lead to any meaningful development in the district in the absence of more permanent arrangements. The panchayath authorities however were firm on implementing the project and suggested that the team in KSITM may modify the project by including necessary components to make it more comprehensive in nature. A committee of officers was constituted at KSITM to conceptualise the project as a more comprehensive intervention. The team undertook a study of the many ICT dissemination efforts undertaken all over the world and

¹⁰¹ Malappuram had 0.64 million families (Census 2001)

documented policy prescriptions given by multilateral agencies with a view to identify possible ‘models’ that can fit the Malappuram context.

The earlier experiences of KSITM had highlighted the issues of ICT access. KSITM had earlier, through a project called *Thanal*, created an interactive CD wherein people designated as below the poverty line (BPL) could see and decide on government supported housing possibilities. The project, however, failed to serve the purpose due to the lack of wide spread ICT access. The penetration of ICT was highly limited though the state had good digital and social infrastructure. Connectivity was an urban phenomenon and Internet penetration in 2000 was estimated to be around 0.75 per cent (KSITM, 2005). However, state government had decided to offer governance services in an integrated manner adopting a single window approach. For implementation of this strategy, the state felt the need to increase the access to ICT and Internet. The strategy was to introduce these facilities within an existing infrastructure of the state such that integrated services could be provided in a decentralised mode.

With a view to making sure that no single department owned this facility and taking advantage of the decentralised rural library network, KSITM had conceived project *Sevana*. Neither these centres nor the kiosks setup through the state public sector firm Keltron¹⁰² in urban areas offered any e-governance services. While the centres setup under *Sevana* were eventually closed down, the Keltron kiosks ultimately served as Internet kiosks for the urban youth.

KSITM found in the concept of telecentres the possibility of aligning the interests of the state as well as district panchayath. This was based on the earlier experiences with trying to provide access discussed above as well as the research on a wide body of literature related to use of ICT for development. The team identified that a set of pre-requisite conditions need to be in place for such a project to be successful. The identified conditions included ICT skill base of population, accessibility, connectivity and availability of relevant local content (KSITM, 2005). The project team proposed that the ICT scenario of the state required state intervention (for critical mass creation) considering the sub-optimal levels of demand (usage) and supply (content) markets.

¹⁰² Kerala State Electronics Development Corporation Ltd.(<http://www.keltron.org/>)

This thinking led to the idea that a critical mass of ICT access centres, critical mass of users (through the literacy programme) and critical mass of locally relevant content would serve as basis of activities for the project. The project was hence conceived with the following activities (a) access - setting up of multipurpose ICT centres/telecentres (b) skill - functional ICT literacy to at least one person in every family and (c) content and ICT services- creation of adequate and relevant local content, and ICT services and (d) connectivity - providing connectivity. The telecentre project (titled Akshaya project by then) incorporating the above elements was approved by district panchayath in October 2002. Subsequently, on November 18, 2002, Dr. A. P. J. Abdul Kalam the then President of India officially launched the project for the whole of the state.

Details of each of the components of the project are provided below.

4.3.2.a Access

Kerala has a good network of service delivery organisations like village offices, public distribution systems ¹⁰³(PDS), primary schools, primary health centres, agriculture office, and Anganwadis¹⁰⁴ catering to a catchment of 500-1000 families. Considering the role played by such access centers in the development of the state, KSITM felt that an ICT centre for 500- 1000 families would be a good starting point. Subsequent discussions with the local bodies as well as considering the financial feasibility of the centres, it was decided that every centre could cater to 1000-1200 families. The expectation was that a centre would then be available within two to three kilometres from anybody's residence. It is interesting to note that this criterion was later diluted when the project was extended to other parts of the state to ensure viability of centres – the catchment area was increased to 1000-3000 families. The Kerala chapter of the Computer Society of India had helped KSITM in framing the minimum technical specifications of equipment required in the centres (as shown in table 4.3).

¹⁰³ For distributing essential commodities like food grain, kerosene, etc.

¹⁰⁴ For taking care of infants and toddlers.

4.3.2.b Skill

Another key component of the project is an initial IT literacy phase. The idea was the creation of a critical number of IT users in the community. Through e-literacy the following were the skills that were proposed to be acquired by the neo IT literates (a) to switch on and switch off a computer (b) to browse and learn lessons through games, videos and practical sessions (c) to open word processing programmes, create and save files (d) to use computers for viewing films, listening to music etc. (e) to browse Internet and send mails, and to use other communication tools like chatting. Courseware was designed by Centre for Development of Imaging Technology (CDIT). The curriculum was finalised by an expert committee comprising educationalists and ICT experts. Before implementation, this courseware was tested with a cross section of people belonging to all the sections of the society. The courseware consisted of introduction videos, e-games version of local games, local level details and quizzes

E-literacy was funded by the local bodies. INR 120 per person was provided as training charges at the rate of INR 80 by the village panchayath and INR 20 each by the block and district panchayaths.

4.3.2.c Content and ICT services

KSITM had highlighted the need for having locally relevant content in the local language as a major requirement for the project to be successful. KSITM had a three pronged strategy for the same – (a) creation of local content by KSITM (b) channelling e-governance services in an integrated manner and (c) purchasing content developed by other players. KSITM took up the task of creating local content in agriculture, health, education and legal matters through outsourced mechanism based on expert opinion in each of these sectors. It was expected that once the service phase were to commence after the e-literacy phase was over, e-governance services and applications as well as other locally required ICT services could be offered through the centres.

No.	Description	Qty	Remarks
1	Client. The client Desktop @ 2.0 GHz or higher, 256 MB RAM , 1.44 MB FDD, CDROM drive, Scroll mouse , Keyboard,40 GB HDD (ATA/SATA) or above, 15”SVGA colour monitor , Parallel, Serial and USB ports , 10/100 MBPS Ethernet Interface, 16 Bit Sound (Duplex), Headphone , Microphone and preloaded GUI OS (MS Windows or Linux)	5	Mandatory
2	Server Above specification but with 512 MB RAM, 40 GB HDD or above, 52X CD/DVD drive and two Ethernet Interfaces with 10/100 MBPS for Networking and GUI OS (MS Windows or Linux)	1	Mandatory
3	Internal CD Re-Writer 52X 48X 52 X	1	Mandatory
4	Printer –Color Inkjet 720 DPI/12 PPM OR Printer –Laser 1200 DPI 10 PPM A4 size paper preferably with RJ 45 link	1	Mandatory (<i>Inject and Laser Printers were optional</i>)
5	Switch –12/16 Port 10/100 MBPS	1	Mandatory
6	Web CAM OR Digital Camera	1	Mandatory
7	56 kbps DATA/FAX Modem (Internal/External)	1	Mandatory
8	UPS (Individual)	1	Mandatory
9	Network –Cat 5 cabling with Information outlets, patch chords and casing & capping conduit	1	Mandatory
10	A4, Flatbed Scanner with USB interfaces and drivers –1200/2400 DPI	1	Optional
11	Lamination Equipment –4” variable temperature controlled	1	Optional
12	AC –Windows or Split Unit with capacity to suit the room dimensions and antistatic floor for the facility	1	Optional

Table 4.3 Specification of equipment in an Akshaya centre (Source: KSITM, 2005)

4.3.2.d Connectivity

Many different connectivity options were explored by KSITM for providing Internet connectivity to the centres. The options included dial-up, VSAT, cable and wireless. Based on the details obtained through a tendering process and the financial analysis undertaken, it was decided that wireless technology would be the most appropriate option for the district. WipLL¹⁰⁵ (Wireless Internet Protocol in Local Loop), an emerging wireless technology of that time along with VINE¹⁰⁶ (Versatile Intelligent Network) was adopted¹⁰⁷ for providing Internet connection to the centres. The topography and other characteristics had implications on the choice of the technology. The selection was made such that the network would provide a maximum information rate (MIR) of 64kbps and committed information rate (CIR) of 16kbps. Another advantage seen at the time was the possibility of the technology to offer higher bandwidths to centres as per their requirements. The Internet connectivity map of the district is shown below in fig 4.1.

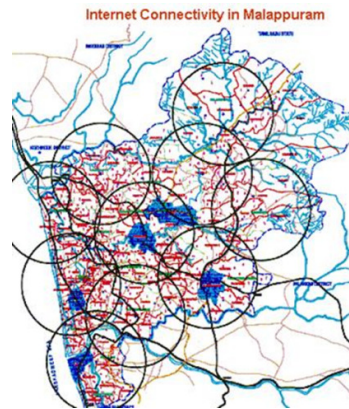


Fig 4.1 Wireless Internet connectivity map of Malappuram (Source KSITM (2005))

¹⁰⁵ This uses radio frequencies to carry voice, data, video and 'always on' Internet access over distances of 2 to 3 km with a simple antenna, and up to 25 km using a network of repeaters. The wireless network is stated to provide broadband connections at bandwidths of between 4 and 8 megabits per second (MBPS).

¹⁰⁶ This helps the wireless signals "go round corners" to overcome line of sight limitations. This technology is patented by the Canadian company, WiLAN.

¹⁰⁷ Tulip Services Ltd. was the firm selected to provide the service

Connectivity was scheduled to be provided to centres by January 2004, after the e-literacy phase. The infrastructure was, however, set up only by October 2004. It took several more months (6 months in most cases) for all the centres to get Internet connection. Implementation of the connectivity infrastructure was met with a combination of technical and other issues. Such a technology was being implemented at such scales (area of over 3500 square kilometres) for the first time in the world. Local issues such as clearance for hosting antennas, adverse power situation, difficult terrain and relatively poor infrastructure in the district contributed to the delay. Coupled with mounting costs and poor project management by the selected firm, the completion of connectivity infrastructure was substantially delayed. Centres that had completed their e-literacy phase had to wait for over nine months to more than a year to be connected. It may be noted that the whole investment on connectivity was made by the state government. Schematic diagrams of the wireless IP based local loop and the backbone network are as shown below in fig 4.2.

Fig 4.2 Wireless IP based local loop and the backbone network (Source: KSITM (2005))

4.3.3 Location and Entrepreneurs

Locations for starting Akshaya centres were identified by the district town planning department. Initially the department identified 801 possible sites in the district. The selection was based on various parameters including the availability of transportation facilities, a place for public gathering, proximity to schools/ educational institutions and shopping areas, availability of electricity, telephone facilities, etc. (KSITM, 2005:13) Considering the viability aspect of Akshaya centres, local bodies at all levels felt that it may be desirable to have 1000-1200 families under each centre and decided to limit the number of centres to 500-550. KSITM proposed that it will be appropriate if the ownership of the centres were with entrepreneurs rather than with the state.

A number of factors led to this thinking. The financial crisis and the MGP had created a situation where projects that were undertaken by non-state actors were promoted. Moreover, based on the experiences of earlier projects undertaken by KSITM, there was a feeling that such centres would not be successful under a rule based bureaucratic organisational form. The state had experience in using entrepreneurs for owning and managing the final delivery points (retail outlets) of the PDS. An alternative that was discussed at the time was to have self-help groups of women to own and run the centres. The idea was later dropped considering the amount of income expected from these centres. It was argued that these centres may not make enough income to take care of many individuals.

The idea of single entrepreneur based ownership of the centres was discussed and decided with the district panchayath. Whereas the entrepreneurs were selected by the GPs of a region, the entrepreneurs had to sign an agreement with the state government agreeing to a set of conditions including commitment to undertake all projects initiated by the government and an assurance to run the centre for a period of three years at least. A common name board incorporating the Akshaya logo was mandated for the centres as part of a branding exercise.

The agreement even had conditions on the social conduct of the entrepreneur:

“He has to sign a code of conduct to work as a social and economic catalyst by demonstrating the high spirits of democracy and perform the duties of a better citizen. Also he cannot indulge in any kind of immoral or anti-social activities.”

KSITM (2005:12)

Entrepreneurs were selected in early January 2003 for these identified locations by the GPs. Entrepreneurship development workshops¹⁰⁸ were held in Trivandrum in February 2003. An ICT vendor to entrepreneur meet was also held by KSITM in early February 2003 so that entrepreneurs could have a better business bargain for the hardware and software requirements of their centres. A total of INR 68 million was disbursed as loans. The centres were formally inaugurated on May 21, 2003 by the then state Chief Minister. A total of 630 centres¹⁰⁹ were operational in Malappuram during the e-literacy phase in 2003-2004.

4.3.4 E-literacy phase

Over the next six months (till December 31, 2003), the centres were supposed to be focussing only on e-literacy. The centres did not have Internet connectivity during this phase. Awareness building measures and campaigns, as detailed in the next section, was undertaken by KSITM during this phase and were complemented with door to door campaigns and other innovative methods by entrepreneurs. Meanwhile, the then Director of KSITM was transferred and posted as the district collector (head of district administration) of Malappuram in September 2003.

A 15 hour training programme administered usually over 10 days comprised the e-literacy module for an individual. On successfully completing the training an individual was expected to be able to:

- Switch on and switch off a computer without fear or apprehension

¹⁰⁸ With the help of a Government of India organisation called Science and Technology Entrepreneurship Development (STED)

¹⁰⁹ Some of these centres were sub-centre started exclusively for the e-literacy phase.

- Browse and learn the lessons through games, video introductions and practical sessions
- Open word processing programmes, create and save a file
- Use computer for viewing films, listening to music etc.
- Browse Internet and send mails
- Use other communication tools like chatting.

On the whole, 590 thousand people (from 650 thousand families) were, as per official records, given e-literacy training. Many centres took three to six months more than envisaged to complete the phase. Majority of the people who came to undertake e-literacy were women (around 65 per cent) though only 11.7 per cent of the entrepreneurs were women. The *neo-literates* were extremely enthusiastic and were looking forward to the e-governance services as well as other services including communication facilities being provided through these centres. The e-literacy reinforced the inevitable role of ICT in development and in their lives. During the period, many of the centres seemed to act as hubs for community activities and meetings.

4.3.5 Awareness building measures and campaigns

An interesting aspect of the e-literacy phase was the awareness building measures and campaigns undertaken to promote the project and the centres. The awareness building mechanisms employed by KSITM to promote the project included scheduled local media briefing, press releases, advertisements, using local cable channels, providing anecdotes of ICT and development projects from across the world, ICT training sessions for the media, sponsoring of village level events, etc. A series of steps were also taken to specifically attract people to Akshaya Centres. These included cultural events like Akshaya *Samskrithi* (literacy activities conducted on the theme of ICT and development), street dramas, *Praveshanotsavam* (celebrating the occasion of starting e-literacy), *Vilambara Jadhas* (proclamation rallies), Akshaya *Jyothi*¹¹⁰, Akshaya

¹¹⁰ Lighting of lamp (deepam) in every household by neo-literates

*Sandhya*¹¹¹, Akshaya Grama sabhas (Grama sabhas conducted exclusively to discuss about the project) and Akshaya school assemblies. Door to door campaigns were conducted to enrol people for the e-literacy programme.

Invariably all these efforts tried to reinforce the public enthusiasm about ICT and their assumption regarding the possibility of getting governance services in an integrated manner from a single local centre.

4.3.6 Aspects relating to cost during the e-literacy phase

The major expense incurred was for the e-literacy training. An amount of about INR 65 million was spent by various tiers of the local bodies towards payment for the e-literacy programme. An additional INR 35 million was spent by the state Government for promotion, content development and other activities. The cost of establishing connectivity came to the tune of INR 32 million. Thus total direct financial commitment to the project until the end of e-literacy came to the tune of INR 132 million. Entrepreneurs invested about INR 250-300 thousand per centre.

4.3.7 Proposed services phase

Based on discussions in December 2003 between the project team and the entrepreneurs, it was decided that all centres would provide a set of basic services as well as some specialised services. KSITM devised a business model that was referred to as the 5 + 8 + 5 model (KSITM, 2005). The model consisted of five services referred to as core services that would be offered by all centres. Another eight services related to specific sectors/industry were identified and were supposed to be offered by selected centres such that every village will have all the eight services offered by one or more of the centres. The team also prescribed the constitution of five forums (clubs) to maintain good relations with the community. This included *Shradha*, the kids club; *Mithra*, club for the unemployed; *Sakthi*, the women's club; *Bhoomi*, the farmers club and *Friends of Akshaya*. These clubs created great enthusiasm immediately after the e-literacy phase, but slowly died down as the members of the clubs did not see any advantage in being

¹¹¹ Debates and discussions about the use of ICT by villagers in the evenings

associated with the centres. Such interventions were not even attempted when the project was rolled out across the state.

KSITM undertook a performance review of centres based on their conduct during e-literacy and used the review data as criteria to allocate the specialised services to centres. A second level entrepreneur training was conducted in early January 2004 such that entrepreneurs belonging to a particular group (e.g. data digitisation) were brought together and given specialised training. A business-Akshaya entrepreneur meeting was facilitated by KSITM in August 2004 to provide opportunities for both sides to meet and engage in tie-ups.

It was felt that the identified five core services would convert the centre into multipurpose service centres offering training, information, e-transactions, e-governance services and communication facilities. The training activities during the initial phase consisted primarily of the literacy package, e-vidya (an MS office training CD prepared by KSITM), spoken English course, Arabic typing tutor, multimedia training and hardware assembling and maintenance. Our studies in 2004 revealed that practically all the income for the centres came from the conduct of training programmes. While the portfolio of programmes have changed over a period of time, even during the latest visit during October 2012 it was found that training programmes continue to provide more than 85 per cent of the income for the surviving centres. These centres were successful in running the programmes also because of the arrangements with government institutions that offer training programmes. Such arrangements and certification processes added credibility to the training programmes offered by the centres.

Akshaya was envisaged as a *one stop* information centre making available different kinds of information. KSITM had already created what was considered as the critical mass of locally relevant content in sectors/areas such as healthcare, agriculture, education, and laws and regulations. It was also felt that the centres could make available all government forms. Attempts were also made during the initial stages to encourage entrepreneurs to digitise and update local content on to the net. Except for providing forms and exam results, the centres were never practically able to provide any

meaningful information using ICT. What was envisaged under the e-transactions (referred to as e-pay) was the extension of the FRIENDS government payment services to the centres. Whereas a range of government payments, as described earlier in the chapter, are possible at FRIENDS, only utility payments and known University fee payments are possible through Akshaya centres. Entrepreneurs are allowed to collect INR5 per bill for offering this service. This facility was initially started in 98 centres in August 2004 and was later extended to 180 centres in Malappuram. Currently 151 centres offer the service in Malappuram and 750 centres in the state. This is one of the most successful activities of the centres. In effect the income (in excess of 95 per cent) for most surviving centres comes from training and e-pay.

Integrated e-governance service delivery was always considered the most important objective of the project. The Government had officially taken a decision to consider Akshaya centres as the last mile decentralised e-governance delivery centres under MGP reforms (MGP, 2002). It was felt that the centres would provide entitlement services such as certificates, help online processing of applications, undertake information dissemination services, offer telemedicine, provide agriculture and other extension services and help improve government-citizen trust through online grievances redressal mechanisms. None of the centres till October 2012 were able to provide any of these services.

For example, District Collector's online grievance redressal mechanism (e-parathi¹¹²) was initiated in early 2005 in Malappuram. After a few initial success stories, the mechanism collapsed when the then district collector left office. Attempts were recently made in another district (Palakkad), but again with limited success. Citizens had to physically reach district collectors office with documents and material evidences for their complaints to be seriously considered. This was as per the norms, rules and procedures prescribed for considering such cases. This in turn discouraged citizens from using the online e-parathi mechanism.

The centres were also considered to operate as communication hubs. The expectation was that the facility would help the communication between the people in the district

¹¹² *Parathi* means complaint

and the migrants' population. While the centres continue to offer this service, advancements in technology (particularly mobile phones) have made this no longer a sought after service. The centres continue to provide browsing facility as well as services such as printing and photocopying.

The eight business services envisaged include digitisation and data management, hardware sales and maintenance, financial kiosks, travel and tourism, multimedia, animation and designing centres, IT enabled vocational training, healthcare and product selling. Data entry activities for government departments and agencies, as well as for private firms were considered under the digitisation and data management activity. Many centres also tried to take advantage of the micro business process outsourcing (BPO) activities including medical transcription. The UID¹¹³ project of government of India aimed at creating unique identification number for all citizens was recently done through Akshaya. Centres all over enrolled 5.5 million citizens under UID. Data entry pertaining to 20 million people for the Rashtriya Swasthya Bima Yojana¹¹⁴ was undertaken by centres across the state in 2011. They also helped in entering the data pertaining to registering/reregistering of about 3 million families on the public distribution system (PDS). Akshaya centres also entered the data of 1.5 million families for the comprehensive health insurance scheme run by CHIAK, the health insurance agency of Kerala.

An interesting early attempt made through a few centres in Malappuram was to offer healthcare services like blood pressure and sugar level monitoring. The service did not have any takers and this activity died down very soon afterwards. The other business activities like hardware sales and maintenance, financial services, travel and tourism, multimedia, animation and designing activity, IT enabled vocational training and product selling were initially sporadic and finally failed to be of any interest to entrepreneurs, so much so that when the project was launched throughout the state, none of these services were even considered as possible services through Akshaya centres.

¹¹³ For more information on UID, please see: <http://uidai.gov.in/>

¹¹⁴ Please see details of the medical insurance programme at : <http://www.rsby.gov.in/>

It is important to note that Akshaya centres had undertaken some very interesting social interventions attempted in different parts of the district. These were initiated by entrepreneurs and supported by the project office of Akshaya. One such attempt was the Akshaya-Puzhakkattiri (panchayath) herbal village-livelihood for farmers. Akshaya Entrepreneurs tried to create a bio diversity map of the village. They also got experts to train people to identify herbal plants; formed groups, prepared databases and launched a project called '*Herbal Panchayath*'. Women's club in one of the centres in Kuzhimanna panchayath initiated a training project with an aim of starting 25 women-industries in the panchayath and marketing the products through Akshaya network.

Akshaya entrepreneurs in Cheekode panchayath conducted health screening of all adults in the village. The entrepreneurs were initially confronted with opposition from people regarding medical data collection and tests. These were overcome and finally the data was collected by including nurses in the team. The Akshaya water resources management project at Mampad panchayath was another interesting project that was initiated. The entrepreneurs attempted resources mapping of ground water resources, rain water harvesting, wells, streams, existing drinking water projects, etc. The panchayath subsequently prepared a project report for the year based on the database.

All of these initiatives were conducted during the e-literacy phase or immediately after it. By the end of the e-literacy phase, the centres started facing financial difficulties and thereafter no major social interventions were attempted by these centres.

4.3.8 Crisis in the immediate post-literacy period

As per the original plan, all centres would have been connected through high speed Internet by January 2004. However this got delayed by many months, as discussed earlier. It was pointed out as the only reason for the non-availability of the envisaged ICT services. Most centres hence had to rely on their income streams primarily from educational activities, practically forgetting the 5+8+5 model. Some centres did make preliminary attempts in undertaking activities associated with data digitisation, multimedia, product selling and healthcare. None of the centres could, however, sustain

these activities even for a few months. A CD called e-vidya¹¹⁵ was designed and provided by the project team in April 2004. The CD contained some lessons on word processing, spread sheet processing, etc. and the entrepreneurs were allowed to charge INR 450 per person. This seems to have been a success in most centres where people, mostly youngsters and school children, attended this course. The numbers peaked during the months of April and May during summer vacations.

Considering income possibility, most centres wanted to take up more training programmes in the absence of connectivity. The expectation was that educational CDs targeted at specific sections in the society would be provided by KSITM. This, however, did not take place. In the absence of any meaningful service being provided by the centres, they started experiencing serious financial issues. Most entrepreneurs, however, had believed that once connectivity infrastructure was available, all envisaged ICT services could be delivered.

4.3.9 The anticipated services phase or the post enthusiastic phase

While investigating the complexities involved in each of the services envisaged under the service delivery model of Akshaya over the next phase of the project would be interesting, this research concentrates on the aspect of e-governance services. Hence the focus of the discussions will be on e-governance services. Let us now consider the e-governance services that were planned to be delivered through Akshaya.

4.3.10 E-governance services

As pointed out earlier, one of the major reasons for initiating the project from the point of view of the state government was the possibility of using ICT and having delivery points of e-governance services at a village level. The following gives the kind of services that were envisaged through Akshaya.

¹¹⁵ *Vidya* means knowledge.

4.3.10.a E-Payments (E-pay)

The E-pay system extends the front-end payment mechanism, FRIENDS, discussed earlier in the chapter. E-pay is an online system for collecting various taxes and fees due to the government. Initially, 98 Akshaya centres started offering the e-payment service in August 2004, which subsequently increased to 151 (as on October 31, 2012). FRIENDS centre in Malappuram coordinates the e-payment collection through Akshaya Centres under a secured State Bank of India (SBI) online bill payment platform. Utility bills and standard University fees are accepted in the centres.

Akshaya entrepreneurs, who have an e-pay registration, deposit an amount of INR 20,000 with SBI to initiate the process. The entrepreneur can then start operations by going online to the payment website (www.e-kendra.org) and making payments. The amount gets debited against the amount that the entrepreneur has deposited and the data is transferred to the FRIENDS centre. The entrepreneur then prints out a receipt and gives it to the citizen. The data that reaches FRIENDS is then transferred to the respective department.

During the research it was found that bills along with money are collected by the entrepreneur or his/her agent and that the payments are then made together, usually on the due date. The personal trust upon the intermediary was important for the citizen to use this service. It was, however, the authorisation to collect such payments by the government that had made them trustworthy. Moreover collecting money from households for bulk submission to government counters was a regular affair in many places in the region even before Akshaya centres were set up. Majority of the citizens were not aware¹¹⁶ of how the payments were made through the computers.¹¹⁷ In other words, the online nature of the payment was not an important factor that citizens consider when they opt for giving the bill and money to the entrepreneur.

¹¹⁶ In most cases, cash is collected from the citizens' residences.

¹¹⁷ Some of the comments from the citizens included 'I think he feeds the currency into the screen'; 'I think he is putting the money into the printer'; 'I think the currency notes are scanned and send'.

4.3.10.b Entitlements

Entitlements refers to those services that citizens are entitled to get from government. These include various certificates as well as ownership documents. Akshaya centres do not provide any of these services online. The backend systems for the same have also not been developed and deployed yet in the state. Some of the entrepreneurs offer these services offline by acting as an agent of the citizen and physically getting the work done from government offices/counters. These visits have helped some entrepreneurs to understand processes and procedures and guide citizens regarding the same. Since the final documents had the sanction from the government, citizens considered this a helpful arrangement. The case might be different if these certificates came directly through an online mechanism and the centres were to offer it to citizens. Substantial institutional changes would need to be incorporated in such cases. The current laws also do not permit the centres to directly undertake any of these tasks, otherwise undertaken within government departments.

4.3.10.c Information

Specific content on health, education, agriculture and legal matters was prepared and handed over to entrepreneurs in CDs. It was observed during the study that this information was practically never used in any of the kiosks. This is in spite of the fact that the content was ‘locally relevant’ and in the local language. Detailed and in-depth studies were undertaken to find out why people kept away from using the content provided. Discussions with entrepreneurs as well as kiosk visitors revealed that the CDs were sufficiently user friendly and the content generally appropriate.

We will consider details of KISSAN project later in the chapter. It is, however, important to note that the agro-advisory services portal of KISSAN was made available through these telecentres during 2005-2006. Unlike the contents provided by KSITM, the portal had provisions for interactions. In spite of this as well as other better features, the portal or querying system was not used by farmers.

It was found that the fear of technology was not a factor inhibiting use. What emerged out of the detailed discussions with the both entrepreneurs, centre visitors, farmers and other people in the village is that there were more fundamental issues associated with their not using the content. People wanted the help of an intermediary to understand the nuances of domains such as agriculture, health and education. They did not find the entrepreneur competent unlike the domain intermediaries to provide the information. For example, people would trust and be more comfortable getting medical information from a doctor or a nurse rather than a computer or a 'known' entrepreneur. The same was the case with agriculture or education related information.

4.3.11 Akshaya project over the years

For purposes of understanding the project, we could consider an enthusiastic phase between 2002 and 2004, withdrawal phase between 2004 and 2005 and a waning phase starting from 2005. The enthusiasm for ICT, prospects of integrated services delivery near the residences and the possible intervention of ICT on development had fuelled and sustained the enthusiasm of all actors during the initial phase. As they confronted issues and every actor identified the complexities of being associated with the project, many of them started withdrawing from the project. KSITM suddenly withdrew their field level support and resources to the project. Local bodies suddenly withdrew their active support and blamed failure of feasibility on KSITM and entrepreneurs. Many entrepreneurs faced serious financial crisis and withdrew from the project. Thus by the end of 2005, the number of centres operating in Malappuram came down to 225. All these centres primarily depended on training and education activities to survive. Except for e-pay transactions and data inputting¹¹⁸ or outputting¹¹⁹, none of the promised e-governance services were offered through these centres. The overriding effect of financial crisis had by then steered the network to adopt alternate strategies and by the end of 2005 the centres were no longer seen by the public as anything beyond ordinary Internet/ICT centres.

Meanwhile the state took steps in end of 2005 to roll out the project throughout the state. The intentions and vision behind the project were now dominated by financial

¹¹⁸ Capturing PDS ration card data, insurance data, etc. on a prescribed format available on the web.

¹¹⁹ Print outs of examination results and government forms

feasibility. This was reflected even in the process of selection of entrepreneurs, number of centres, centre location etc. This study has not looked into the roll out phase, but has traced the developments in Malappuram. From 2005 to 2010, when the project was actively researched, it witnessed no new set of activities. Year after year some more centres closed down and sporadic activities undertaken by KSITM or individual entrepreneurs kept the project from dying. There was no longer a strong social agenda or any kind of active interactions with the public or the local governments. As Madon (2009) pointed out the surviving centres reveal that financial sustainability does not necessarily ensure social sustainability. During the field visits during 2011 and 2012 we did not notice any change in the situation except for more centres closing shop.

The conceptualising of Akshaya telecentre project had all the essential ingredients that cookbooks of telecentres were prescribing in the early 2000s. It tried to take care of access, skill, content and connectivity. Steps were taken to ensure that they had good interactions with local governments as well as community. The entrepreneur was identified from among the local community by the local government. Yet, the project faced numerous issues.

Akshaya can claim success in terms of literacy, education, employment etc. Akshaya project claims that by end of October 2012, the centres throughout the state have been able to make 3.25 million families e-literate. Moreover a strong and decentralised network of centres was set up throughout the state that can take up tasks that require the availability of such decentralised facilities. The project office in the state claims that out of the 2662 centres setup in the state, 2328 centres are in rural areas. Given that only 705 centres operate the more successful e-pay service, the large numbers claimed by the project office may not necessarily be operational on the ground.

The fear of survival and the resultant emphasis on financial feasibility has driven the project since 2005. This is also clear from the communication from the project team. Compared to the early phase of the project where the focus was on the possibilities of ICT to make the day to day life of people better, the communication has always been that of activities undertaken to make the project feasible. The focus became one of

avoiding closure rather than looking at what was being delivered through them. A quote from the current project director sums up this mood.

“Attrition rate of Akshaya entrepreneurs is barely five per cent. Most of entrepreneurs who set up the centres by investing three lakh¹²⁰ rupees are now generating revenue of minimum INR 20,000 a month” says Mathew.”

(ToI, 2012)¹²¹

The network that emerged during the e-literacy phase seems to have disintegrated into its parts and a new network with a different orientation has emerged. In the phase immediately after e-literacy, the network started to collapse since the actors were in constant disagreement, primarily over social sustainability versus financial sustainability prioritisation. Once financial sustainability gained prominence, many of the initial actors left the network. However, the new network took a momentum of its own for achieving financial sustainability with a high degree of closure without democratically accountability. There were clear tendencies for economic entrepreneurship over social priorities in the absence of state coordination (Madon, 2009). The Akshaya project gives a good indication of the implications of networked governance that is seen as an appropriate governance arrangement under the NPM regime.

This discussion takes us back to the very beginning of the project. Why were they created? What was envisioned in them? Are the assumptions about the enormous benefits of ICT and integration valid? Do they play a role in “knowledge for development”? Do they serve the purpose of e-governance service delivery? Information systems studies have constantly witnessed in many contexts how the outcomes of IS projects are different from the initial intent. This study is not aimed at tracing that drift, but is about exploring the core of that initial conceptualisation related to multipurpose nature of telecentres.

¹²⁰ One lakh = 1,00,000

¹²¹ Times of India, June 6, 2012 (Available at: http://articles.timesofindia.indiatimes.com/2012-06-06/india/32077860_1_service-centres-akshaya-project-uid-registration)

We had studied e-governance services to understand this phenomenon. It is evident that over the many years, the centres have not been able to undertake any meaningful e-governance delivery to citizens apart primarily from payment services and a few related to data inputting or outputting. Why are telecentres unable to deliver the integrated e-governance services envisaged? Our analysis would need more understanding of whether this is a phenomenon associated with telecentres or all ICT front-ends? Has the aspect of integration played a role?

What about specific projects where only a single domain service is provided over an ICT front-end? We have already seen that in the FRIENDS project where only one set of services (payments) are undertaken. We did find that the project has been successful. We also noted the requirement for domain intermediaries for successful transactions in certain cases and constraints in extending the model to more locations. We will now try to understand how services are provided in the case of KISSAN project that is specialised in providing agriculture related services.

It may be recalled that whereas payments for utilities have been one of the successful activities undertaken over Akshaya telecentres, providing information has been found to be a failure. To facilitate comparative analysis, the e-governance projects identified for this study were related to payments (FRIENDS) and agro-advisory services (KISSAN). We will now discuss details of the KISSAN project.

4.4 KISSAN (Karshaka Information Systems Services and Networking)

There has been an interesting series of initiatives taken by successive governments aimed at reviving the agricultural commodity production in Kerala. The efforts in this direction were aimed at all the different aspects of the agricultural supply chain and included strategies like extending the agriculture extension system to the village level, group farming, marketing support, subsidies, input support including credit, support prices, etc. In the early 2000s, there was an increasing expectation on bio-technology and ICT to serve as enablers of the state's agriculture development. Karshaka¹²² Information Systems Services And Networking (KISSAN) is a project that was

¹²² *Kissan* as well as *Karshaka* means farmer

conceived in this context by the Indian Institute of Information Technology and Management – Kerala (IIITM-K), Department of Agriculture, Government of Kerala and the Kerala Agricultural University. The project sought to support agriculture extension through ICT mediation aimed at linking specialised groups of agriculture consultants or experts interacting over a knowledge management portal run by the project to different end users. The project was conceived to strengthen this network consulting by building awareness through a mass media television programme called *Krishi Deepam* that was designed and run by the project team. The overall aim was to use ICT to “*aggregate, share and disseminate information of importance and interest to the farmers, agriculture workers and officials in ways that enhance the total agriculture development and farmers’ welfare in the state*”¹²³.

4.4.1 State agriculture department machinery

The department of agriculture in Kerala came into existence in 1956. The department functions under the ministry of agriculture with Agricultural Production Commissioner as the chief functionary followed by the Secretary of Agriculture. The Director of Agriculture heads the implementing agency, the Directorate. Agricultural research, education and extension are the three key functions of the department. The department also deals with the formulation and implementation of various programmes to augment production of both food crops and cash crops in the state. It also has the mandate of promoting scientific methods of cultivation, plant protection, etc. and arranging the supply of high yielding varieties of seeds, seedlings, planting materials and plant protection chemicals to farmers. The department runs agricultural farms, soil testing laboratories, seed testing laboratories, fertiliser quality control laboratories, pesticide testing laboratories, etc.

Under the Director of Agriculture, the department has offices at the regional, district and panchayath (village) levels. There are district offices in all the 14 districts, headed by Principal Agricultural Officer. Deputy Directors of the department act as nodal officers for two to three blocks of a district. Assistant Directors, positioned at block level, act as both the implementing authority of agriculture projects of block level local

¹²³ KISSAN-Kerala Approach (available at www.kissankerala.net)

self-governments as well as supervisors of Krishi-bhavans. Krishi-bhavans¹²⁴ at the panchayath¹²⁵ level act as the grass-root level office headed by Agricultural Extension Officers¹²⁶ (AEO) and is the basic contact point of the farming community. The AEOs are assisted by two to three Agricultural Assistants in every Krishi-bhavan.

In spite of the fact that the agriculture machinery had delivery mechanisms right up to the panchayath level in the state (unlike in most other Indian states), the mechanism is confined to providing agro-advisory services particularly at the input side of the logistics of agriculture. The over reliance on rules and procedures meant that Krishi-bhavans were primarily seen by farmers as places of permit and subsidy disbursements. This adherence to the rules also made it very difficult to offer any meaningful role in the market side of the agricultural logistics. In the late 1990s, Krishi-bhavans were instructed to play the lead role in planning, formulation, and implementation of agriculture projects of local self-governments. Considering the post liberalisation scenario and positioning of the delivery mechanisms under local governments, the agriculture department felt the need to reorient the functioning of the department as well as its delivery mechanisms as a facilitator that provides technical and information support, research backup, infrastructural facilities, institutional support for market intelligence, marketing tie-ups, and training.

¹²⁴ A re-orientation of the department with World Bank assistance was undertaken during 1983 and the training and visit (T and V) programme was implemented. The agriculture development units and the Krishi-bhavans were established for each panchayath during the period 1986-87.

¹²⁵ There are 1046 Krishi-bhavans in the state though there are only 999 panchayaths. This anomaly is on account of the fact that when the erstwhile training and visit (T and V) system at block level was extended to panchayath level in 1986-87, there were 1046 panchayaths. Subsequently, the numbers came down on account of ward and panchayaths delimitation exercises.

¹²⁶ Mostly graduates in agriculture science. Some of them are promoted senior Agriculture Assistants (Diploma holders in Agriculture Science). The post is currently re-designated as Agricultural Officers, but the term AEO is used in the report.

4.4.2 Beginnings of KISSAN

In 2001, government decided to devise a set of strategies aimed at improving the agriculture sector in the state. One instance was the setting up of a high level committee on Bio-Technology (BT) and ICT to advise the government on *“how to deal with seasonal afflictions set off by pests and other agents in the farms, the use of bio control methods, use of tissue culture for developing disease-resistant and highly productive seeds/ saplings, and use of appropriate instruments for disseminating such information among the farming community”*. The high level committee formed two subcommittees, one on BT and the other on ICT.

As a research institute working in the area of ICT, IIITM-K¹²⁷ was chosen to conceive a suitable project for the sector. Based on the inputs from the committee, a team within IIITM-K organised several workshops and discussions involving farmers in various parts of the state. The team had initially envisaged the creation of back-end database and web portal for dissemination. These visits, however, especially to some of the remote parts¹²⁸ of the state, made the team realise that a multimode delivery approach comprising of the web, television, radio, call centre and kiosk would be required for effective dissemination of information. Based on the observations of the team and the deliberations by the subcommittee on ICT, the project proposal on KISSAN was prepared.

The initial idea was that KISSAN will aggregate and disseminate relevant and updated information to farmers, scientists and policymakers on a range of subjects including production, technology, processing, marketing, trade, quality control, weather and supply of inputs. It was also thought that the project will help in providing guidance relating to specific crops, inputs on soil and fertility, expert advice on issues faced by

¹²⁷ IIITM-K (www.iiitm.ac.in) is a post graduate academic and research and development institute started by Government of Kerala in 2000 with a view to prepare ICT professionals with advanced skills and to also support the government in the use of ICT in various sectors including governance, education, agriculture, etc.

¹²⁸ In the village of Vattavada, in the backward district of Idukki the team found that infrastructure facilities were very bad. The local tea estate club had TV and radio that was a source of information. The team used laptops (battery powered) and the WorldSpace service to show farmers the possibilities of the technology since there was frequent power failure. The team was questioned by farmers as to why computers (alien to them) were being used and not TV and radio for providing the same information. These types of questions were raised by farmers in many other locations as well.

farmers, information on best agricultural practices, latest trends in agricultural product prices and information on agricultural credit. It was envisaged at that time that data, audio and video information will be made available to farmers through satellite based broadcasting, cable TV networks, Internet and through kiosks in Krishi-bhavans. The state agriculture department and its personnel were not directly involved in the project at that stage.

Meanwhile, on account of decentralisation, Krishi-bhavans in the state were brought under Grama panchayaths.¹²⁹ Considering this structural shift and the implications of liberalisation, the agriculture department was planning to reorient itself to play the role of a facilitator. Moreover, in 2002 as part of modernisation in government programme (MGP¹³⁰), there was a larger thinking within government that downsizing of state was most essential to continue without fiscal crisis. Considering the possibilities of ICT, the then Agriculture Director felt that computerised agri-kiosks would be an effective strategy since they could eventually replace the manned Krishi-bhavans. It was expected that farmers could directly interact with the machine for all their information requirements.

During the year 2002, the department accorded administrative sanction for KISSAN proposal and pilot level implementation was initiated at IIITM-K. An implementation committee headed by the Director of Agriculture was constituted. The most important milestone of the project was the induction of six young AEOs¹³¹ into the KISSAN project team in IIITM-K. A clearer definition of the deliverables of the project emerged out of the interactions between the existing team in IIITM-K and the incoming AEOs who had substantial field experience. The first phase of the services was launched during the month of March 2003 and the project was officially inaugurated on November 01, 2003. The project team took efforts to ensure that that state agriculture department was an active partner throughout the project.

¹²⁹ There is widespread lack of clarity on issues pertaining to dual reporting (to the state government as well as the local body) for these institutions

¹³⁰ www.keralamgp.org

¹³¹ These Officers (one PhD and five post graduates in Agriculture) were sent by Government exclusively for this project, on a work arrangement basis. Their selection was based on an internal circular seeking voluntary officers followed by a selection by the department in consultation with IIITM-K. Being on work arrangement, these officers technically continue to have the authority of AEOs

4.4.3 The components of KISSAN project

KISSAN has a multimode approach consisting of the following major components (a) Web services (b) Agri-data centre (c) Television based agricultural information dissemination system (Krishideepam) - programmes then being stored on an Agri video channel on Youtube¹³² (d) Agri-information Kiosks and (e) Call centre. Though the project team contemplated the use of radio also as a medium for information dissemination, this idea was later dropped as cable TV penetration increased and the TV programme became popular.

4.4.3.a Web services

One of the most important components of the KISSAN project is the web service module, which offers information services over the web. The portal (www.kissankerala.net) is designed with a view to cater to the information needs of the farmers as well as government officers. The stated specific information services are (a) query management services (b) state-wide market information on various agricultural commodities (c) online agri-advisory services (d) online fertilizer recommendation services (e) weather information and forecast (f) management of crop, fertilizer, water and soil etc. (g) harvesting and processing (h) administrative information (schemes, working instructions, financial assistance etc.) (i) interactive discussion forums (j) success stories, case studies, best practices (k) planting material (selection, variety, cost, etc.) (l) location specific information and recommendations.

The web portal of the project is visited by about 6,000 visitors in a month (October 2012). The most widely accessed pages include those on crop information and the query management system. About 15,000 queries have been answered ever since the portal was launched (till October 31, 2012). Around 12000 fertilizer recommendations have also been made during the period. The website gives updated information on price as well as planting material availability. Some of the key components of web services are discussed in detail below.

¹³² Please see <http://www.youtube.com/user/kissankerala>

Query management services: The query management service is one of the most important components of the KISSAN project. It works on the idea that farmers / public can send their questions about crops/practices/materials over the project portal and that it will be answered by experts/ scientists. The person can attach up to two images like symptoms of disease / pest attack along with the query. The person is given a token number for future reference. Using this token number, the person can get the answer to his/her query from the frequently asked questions (FAQs) link after one or two days. Answers will also be provided by e-mail if the e-mail address is specified. If the person who has asked the question indicates that the identity as well as the answer need not be put on public domain, the answer is provided only to the person. The project team has over a period of time been able to categorise the queries and place the questions for general viewing on the website. The categories under which the answered queries are available on the net include field crops, plantation crops, spices and aromatics, floriculture, farm mechanisation, animal husbandry, medicinal plants, beverages and stimulants, market information, fisheries, allied enterprises and general. The query management module is primarily available in English and not in *Malayalam*, the local language.

When a query is posted on the web, the AEOs attached to the project in IIITM-K takes reasonable effort to answer the question at his level. In case the answer is known to him/the group the answer is posted back almost immediately. However, if the question is not answerable at their end in terms of non-availability of information or expertise, then it is posted by the AEO formally or informally using any media (telephone, e-mail, etc.) to senior experts in the Kerala Agricultural University/Research stations/Department of Agriculture. The answers obtained from these experts are then displayed on the system for viewing by the farmer who posted the question. In many cases, however, the query from the farmer may not contain all the contextual details required for giving an informed answer. Considering the type of direct queries over the web, the language involved as well as the fact that such direct querying can be done only by people who have direct access to ICT systems indicate that it is not the poorest of farmers who makes a direct query over the web. Many large farmers as well as people who are based in the Gulf often use the system to get information about crop details, investment opportunities, etc. The idea of agri-kiosks attached to Krishi-

bhavans stems from the need to provide an access to poor farmers to post their queries on the web and use other web services.

State-wide price information: Updating of data happens on a regular basis. The department of agriculture has entrusted the Assistant Directors (Marketing) of all the districts with the mandate of collecting data from important markets through field level staff. Appropriate mechanisms like telephones have been provided in selected Krishi-bhavans for providing updated information to the Assistant Directors. The data thus collected through the official mechanism is then entered into the portal by the project team. It was, however, observed that the larger majority of farmers were using other formal and informal price information sources. One of the most prevalent methods was to use the telephone¹³³ and/or mobile phone to get a set of prices from the neighbouring markets. One of the demands from the farmers with whom discussions were held was that price information about select commodities as well as markets could be obtained as SMS on their mobile phones. This feature was added in March 2012.

Weather information - The portal regularly updates the water vapour image as well as the infrared image of India through arrangements with the Indian meteorological department (INSAT 3A Images). However, no specific regional information that would be relevant to the farmer is available. Though there were earlier attempts to update weather information on a regional basis regularly, this did not continue. Most farmers did not know that weather information was available in the portal. Moreover, all of them were of the opinion that the weather forecast details are available from the radio and television and that they would never use a website to get this information.

Virtual markets module: The concept of the virtual market module was that it will provide a 'virtual' market place on the web for buyers and sellers to come together and transact. At the time when the concept of virtual market was being developed, commodity exchanges were becoming popular in the country. In spite of some early successes¹³⁴, this module did not work eventually. Buyers had apprehension about the

¹³³ The state has the highest telephone density in the country of 7 per 100. It also has the highest rural telephone density in the country with 5.1 per 100, which is India's target for 2010. Source: KSITM (www.keralaitmission.org)

¹³⁴ The virtual market module helped in the export of about 100 tonnes of ginger once.

identity, quality and track record of sellers and sellers had apprehensions about identity, financial status, etc. of buyers, akin to the situation in Akshaya. One farmer pointed out that the more perishable the product the more scared he would be to transact with someone whom he did not know. It is important to note that the existing department system also does not have adequate strengths to play a role in a conventional manner.

4.4.3.b Agri- data centre

The agricultural data centre located in IIITM-K, acts as the backend for the web services of the project. It provides a single platform to aggregate available information on agriculture, helps customize the information dissemination, speeds up the content process analysis and provides an open platform for the content providers which are connected to the network environment. The data for the project flows into the systems from various formal and informal sources including the Farm Information Bureau (FIB), Directorate of Agriculture, Kerala Agricultural University, District Agricultural Offices, selected Krishi-bhavans, research stations, etc. The data is collected either systemically (e.g. agricultural prices) or randomly (e.g. the AEOs getting queries answered by experts in the agricultural university) and uses various modes of technology for collecting this data, including the Internet, telephone, etc. A data processing and research unit is setup for this purpose. They continuously interact with the domain team and keep changing the structure of databases, querying methods and screens, updating video content, price information, etc.

While most of the relatively static data (like crop information) is available in the local language, some of the critical components of the project viz. querying can be done only in English. Moreover, searching can also be done only in English. While the team understands the importance of local language interface, the issue is more complex and generic in nature as far as Malayalam use over ICT devices are concerned. The lack of following a standardised keyboard layout for the language is a major issue. However, even if a standardised keyboard layout that overlies the present QWERTY keyboard is developed, people would still find difficulty in typing in Malayalam given that it is a phonetic language.

4.4.3.c Krishideepam

Using the visual media, especially television, is not new for government dissemination activities. The minister strongly believed that one of the important components of her strategy to improve the agriculture sector in the state was to provide ‘value added’ information to farmers preferably targeting them at their own homes through the medium of television. The ‘*seeing is believing*’ philosophy followed in agricultural extension practices combined with the access factor were the driving forces behind the decision to use television for information dissemination. The team also believed that television programme will create the necessary interest in the farmer who can then get more specific queries answered through other components of the project. The TV programme was telecast over a popular TV channel (Asianet) with every episode showing successful farmers, farming practices and other agro-advisory services. The programme is not only one of the most successful components of the project; it has also become a very popular TV programme in the state. With more than 450 episodes, the project team currently has a full-fledged team and infrastructure to create videos in-house.

4.4.3.d. Agri-information kiosks

The department had always wanted to extend the web services to their field office, the Krishi-bhavans, with a view to help the bilateral flow of data and to also encourage an ICT mediated interface with farmers. The kiosks were started in November 2004 in 10 selected panchayaths of Thiruvananthapuram district, as a pilot. Housed in the Krishi-bhavans, all the kiosks are equipped with multimedia computers, web cameras, network accessories and dedicated Internet connections. The operation of each kiosk is supervised by the AEO of the Krishi-bhavan and is supported by the agricultural assistants. The following table (table 4.4) gives the details of the selected panchayath/Krishi-bhavans where the kiosks were initially launched. The study on agri-kiosks was carried out based on five of these centres (indicated in italics).

Kazhakuttam block	Nedumangadu block	Trivandrum urban block
<i>Pothenkodu</i>	<i>Nedumangadu</i>	Vattiyoorkavu
Sreekariyam	Karakulam	<i>Ulloor</i>
<i>Kazhakkuttam</i>		Kudappanakunnu
<i>Mangalapuram</i>		
Attipra		

Table 4.4. Selected Krishi-bhavans where the agri-kiosks were launched.

The typical services offered through the kiosks to farmers include farm/crop advisory services, helping them with the online query management services, showing video programs and using online fertilizer recommendation system to provide such details. However, what makes the kiosks important is that they are seen by the farmers as their first contact point with government on matters relating to agriculture. While many farmers point out the inadequacies of the Krishi-bhavans to deal with their issues, they also seem to have substantial trust in the agro-advises that are generally given by the AEOs. It hence was natural for most farmers to consider AEOs as the intermediary for getting crop information and getting their queries answered. About 120 farmers visit these kiosks on a monthly basis. Apart from issues of computer usage skills and language, the AEO (domain intermediary) makes a huge difference in how the information exchange is effective. Moreover, the web services offered substantial empowerment to the AEOs in discharging their activities. This was true in the case of urban as well as rural kiosks. Video clippings were a major attraction for most farmers as it showed them how certain practices have to be followed. However, agri-kiosks were not replicated throughout the state. The policy direction from the government (for decentralised integrated services delivery) did not favour the creation of such facilities in every field office of departments; instead the policy favoured the use of multipurpose telecentres to offer such services. However, the study shows that the assumption made at policy level leads regarding dis-intermediated approach contradicts the activities at the field level.

4.4.3.e Call Centre

A telephone call centre is another component of the project. The call centre is made operational by the AEOs who work on the project site in IIITM-K. The call centre gets about 500-750 calls every month. There are some 100 farmers who regularly contact the team over the telephone. The process involved in the call centre is similar to answering a query on the website. The query on the call is immediately answered if the information is available or else it is collected from various sources and the caller is informed. If the call relates to a specific crop, pests, etc. about which the AEOs in IIITM-K are not aware of, then they take the advice of scientists in the agricultural university. If the query pertains to input availability, and the information about the same is not available in IIITM-K, the same is collected from FIB or Directorate of Agriculture and the caller is informed accordingly. Enquiries with farmers revealed that they were more comfortable using the call centre on account of language and interactivity than the web portal directly.

4.4.4. Characteristics of information transactions

Detailed analysis based on the cases that we studied would be attempted in the next chapter. At this stage, however, some of the important characteristics of providing information are discussed below with a view to contrast the characteristics of Akshaya with KISSAN. The attempt is to understand the role of human intermediary, aspects of trust and interaction and multipurpose nature versus multi-mode approach. As described earlier, one of the assumptions of the Director of Agriculture at the time when the project was initiated was that a computer mediated information flow to farmers would ultimately lead to a situation whereby farmers could directly interface with computers for all information exchange. However, this study shows that intermediation by a domain expert (*domain intermediary*) is extremely necessary for information dissemination to be effective and complete.

The project enables farmers to directly use the portal and get their queries clarified. However, in practice most farmers approach the AEOs or interact with the call centre for the same purpose. The initial understanding during this study was that the language

used on the web portal (English), access to ICT resources and skill to use computers had constrained the farmers in directly using the web portal. Detailed enquiries were made with farmers and experts as well as the AEOs. The study revealed the significant role played by AEOs as domain intermediaries. The techno-scientific language (professional norms of the exit system of modern agriculture) used by the experts need to be ‘translated’¹³⁵ by a member of that institution. The AEOs also add the necessary contextual details to the query.

One interesting aspect revealed by the study is that contrary to the initial belief that computer mediation will make AEOs redundant, what was observed was that not only is their intermediation important but also that they themselves are empowered in the process. For example, the querying over the web has instilled more confidence in the AEOs since they can now update themselves with the latest information and could use the details for more ‘informed’ discussions with the farmers. Modules like the fertilizer recommendation system, while ultimately helpful to the farmers, does away with a lot of clerical work for the AEOs. Along with the role of the domain intermediary the personal initiative and enthusiasm of the individual AEO also plays an important contribution. The project team believes that since AEOs have financial resources available from local bodies and could now also utilise the project components, they are better equipped to design and deliver effective programmes and projects at the Panchayath level.

What emerges are the following: (a) farmers will generally not directly use the machine to source information, at least in the short term (b) there is a need for an intermediary (c) the intermediary has to be a domain expert and not a generic intermediary (d) the domain intermediary has the potential to be empowered because of appropriate ICT systems. This is not surprising because the ICT systems were reinforcing the existing institutional makeup of the department and its services.

The study points towards the need to clearly identify the difference between how information is processed in the back-end and how it is delivered in the front-end. It seems possible to employ ICT based systems in the backend for building databases for

¹³⁵ Also involves language translation.

information delivery to farmers or to capture, archive and use such information for policy making, price control, etc. The actual delivery medium, however, needs to be identified in accordance to the characteristics of that service (e.g. mobile phone SMS, interactive voice systems over telephone line, etc.). The medium of delivery seems to depend on the nature of the information, the region and its infrastructure availability and characteristics of the service, etc.

As seen during the study, most farmers require only a non-interactive medium to receive information pertaining to price, weather, etc. Newspaper, radio, television, mobile (sms), etc. seems to be ideal medium for this kind of information. However, when it comes to introduction of crop ideas or practices, interactive systems are favoured - a combination of television and call centre/agri-kiosk. While television takes the message to a larger section of the targeted farmers, the interactive mediums help the interested ones gather further specific¹³⁶ details. Another dimension that also needs to be captured is the infrastructure as well as existing penetration of medium in a region. The experience of the project suggests that in some of the remote areas¹³⁷, use of existing and available media are important.

From the study of KISSAN, it follows that a multi-mode approach for information dissemination seems to be effective both for interactive and non-interactive media. The video programmes produced for the television programme is also used in agri-kiosks and YouTube as video clippings. The web portal and the details thus prepared are also used for the call centre and in the agri-kiosks. Multi-mode approach helped in decoupling the backend data technologies from the front-end delivery media. This contrasts with the Akshaya multipurpose nature of kiosks and the whole emphasis on trying to integrate services. It may be specifically be noted here that the failure of the virtual market model in the KISSAN website highlights the difficulties involved in integration of services and the complexity associated in dealing with the layers of various social institutions involved with every service. Further the study also reveals that in all those cases where the project has been successful, it was possible only

¹³⁶ More the degree of specificity of the question, more the need for interactivity.

¹³⁷ See case of *Vattavada* village explained earlier (128).

because ICT was aligning existing actors and reinforcing the institutional logics associated with those processes or services.

4.4.5 Implication of integration on KISSAN

It was observed during the study that the agro-information kiosks attached to agriculture offices were helpful for many farmers. The kiosks would be successful only if the AEO were to provide intermediation. As discussed, the department has a huge network of agriculture offices across the state and down to village level. One would expect that based on the experiences in the 10 kiosks, agri-kiosks would be started in all the agriculture offices in the state. Instead, that proposal was not considered at all by the state government. The policy guidelines favoured integrated services at the point of delivery. This policy direction restricted the departments from setting up kiosks across the state. The project was allowed to continue with the portal with the expectation that it could be provided through Akshaya centres.

4.5 Summary

This chapter gave detailed descriptions about the Akshaya project. The chapter also provided details about the two other e-governance projects, against which the e-governance services aspects, were compared and contrasted. Some of the key issues that emerge from the chapter include the institutional nature of ICT as well as integration, the importance of intermediaries, institutional and personal trust, multipurpose versus multimode for government services, and interactions of governance mechanisms. The analysis of the cases attempted in the next chapter would shed light on the phenomenon and help us in addressing the research questions.

5.0 Introduction

The first and fourth chapters have already shed light on the context and the specific cases. We have also considered the broader macro-background including the significance of ICT, reforms programme and the state's vision of providing integrated services using ICT front-ends. These discussions reveal that Akshaya could be considered as a reconceptualization or re-problematisation of the state's initial strategy of ICT based front-end delivery through FRIENDS. In this chapter, we critically evaluate the set of promised e-governance services from Akshaya – services that are delivered and those that are not. Comparison with other e-governance services delivery projects (FRIENDS and Kissan) provide a rich understanding of the various dimensions of the phenomenon under study. The field data was analysed using the framework and the methodology described in Chapter 3.

The study has taken into consideration both the political as well as the institutional dimensions associated with the construct of integration. Our previous discussions have already brought to light some of the political dimensions associated with the construct. Most of the telecentre studies assume that the technology is capable of providing all government services and blames the *social*, particularly the localised level of context for the low uptake of services from telecentres. The issues commonly pointed out include lack of skill among citizens, local content, employee resistance, lack of willingness and/or ability to pay for services, etc. Akshaya provides an interesting case wherein many of these aspects were considered in its conceptualisation. There are, however, factors such as strong employee resistance within government departments towards extending these services beyond their organisational fields.

The chapter starts by identifying the e-governance services that were envisaged or attempted through the telecentres. By employing translation, we then try to understand the process, the actors, nature of actors and actor behaviour. We identify the apparent

political processes, factors and the issues that constrain or enable services delivery. Such an understanding of the apparent issues is then led by the framework to in-depth analysis of the origins and meanings of such scripts. The study traces the institutional nature of issues and its implications. The characteristics of the tasks associated and its implications on services delivery are considered. ICT implementation and the implications of functional simplification and closure are analysed in the case of different types of services. The aspects of intermediation and trust are further analysed to provide deep insights into the issues that underlie the very conceptualisation of telecentres and integrated front-end projects. In other words, whereas translations trace whether and how networks (services) were created (delivered), concepts of functional simplification and closure, intermediation and trust provide the analytical capability for the study to explain the phenomenon. The comparisons between case studies provided important inputs for the analysis.

5.1 E-governance services through Akshaya telecentres¹³⁸

As discussed in the previous chapter, Akshaya telecentres were envisioned to provide all e-governance services in an integrated manner. It may be recalled that government of Kerala had classified e-governance services as payments, information and entitlements (Kumar, 2003). Our attempt below is not to adopt the categorisation but to understand how many of the services under these categories actually were attempted and were actually offered. The following services were attempted at various points in time:

- a. Utility bill payments
- b. Payment of motor vehicle tax, local body tax and university fees
- c. Information pertaining to agriculture, health, education and government schemes
- d. Agriculture product marketing transaction (e-krishi)
- e. Information pertaining to school and university examination results
- f. Downloading government forms

¹³⁸ FRIENDS and KISSAN projects are considered as *black-boxes* for purposes of analysis.

Out of the bouquet of promised e-governance services through the telecentres, only utility payments under e-pay services were operational through these centres even at the end of October 2012 (other than downloading of forms or providing exam results). There is very little domain specific information provided on sectors such as agriculture, healthcare, education, etc. There are no entitlement based services or certificates provided over an ICT front-end through the centres. The state has not yet been able to also implement any meaningful back-end systems for providing entitlements or for issue of certificates like birth certificate, income certificate, death certificate, etc. There are, however, some entrepreneurs who undertake such tasks offline by actually visiting these government offices physically and working as an agent for the citizen.

We initially consider translations of the attempted e-governance services. We examine e-pay as well as provision of agriculture information/marketing more closely with a view to compare and contrast against FRIENDS and KISSAN. We attempt to understand the actors and institutional alliances and conflicts through the process of translation initially, followed by a detailed analysis of the implications of ICT through functional simplification and closure, intermediation and trust.

5.1.1 E-pay transactions

E-pay transactions refer to the provision of payments to government departments/agencies that could be undertaken from Akshaya telecentres. E-pay services are linked to FRIENDS centres and not linked to the departments or agencies directly. In other words the telecentres or entrepreneurs do not deal with participating departments directly. We have already discussed that there are two kinds of payment transactions that happen at FRIENDS centres. The utility payments based on an already available bill/demand note (relatively easy) and other payments where a demand note/bill is generated at FRIENDS based on the information provided by the citizen (requires a domain intermediary). Non-demand note based services do not work at all through the Akshaya centres. For reasons of analysis we consider one utility payment service and one non-demand based service. In both the cases the services would consist of heterogeneous actor-networks that consist of actors like the abstract system of financial transactions, institution of bureaucracy, departments/agencies, other global

institutions, local institutions (including corruption, caste, etc.), departments/agencies, citizens, employee unions, central acts, state acts, legacy systems, databases, etc. Let us consider electricity bill payments as an example of utility bill payment and motor vehicle tax as an example of non-demand note based payment. We will now trace the attempts for translations.

The actors to be considered for the analysis include the specific service, KSITM, FRIENDS, citizens, Akshaya entrepreneurs, bank, e-pay portal, utility departments/agencies, other departments whose payments were being collected at FRIENDS, ICT and integration. We would try and understand the translation process using the key concepts from the four moments of *translation*.

Translations are the product of continuous negotiations and not just the results of an initial momentum provided at their point of origin (Akrich and Latour, 1992). The moments of translation are the process of aligning the interest of the focal actor with the interests of a diverse set of actors (Callon, 1986). As discussed earlier, the moments of translation include Problematisation, Intersement, Enrollment and Mobilisation.

5.1.1.a Problematisation

Callon (1986) describes problematisation as “a system of alliances, or associations, between entities, thereby defining the identity and what they ‘want’.” As discussed before, this is the first moment of translation when the focal-actor defines the identities and interests of other actors that are consistent with its own interests. It then establishes an obligatory passage point (OPP) and renders itself indispensable. In this phase, a problem context needs to be put forward. Solving the problem requires the participation of a number of actors. KSITM was the focal actor in this case.

Let us consider the motivation and interests of each of the actors. Both the services have motivation to be available in a decentralised manner across the state with a primary interest of ensuring maximum collection. The dynamic network would itself be subject to substantial negotiations within its network. The electricity employees union would oppose such a system which reduces their power and disallows their own counters to be

enhanced using ICT. Similar is the case with motor vehicles employees union. However, the processes followed seem to be more functionally simplified in the case of utility payment compared to the other. In the former, the task involves only data entry based on an available bill. The institutional logic and process of the latter, however, requires that the information required for computing the required payment itself is a complex process that necessitates intermediation.

We have already discussed some aspects of the motivation of KSITM in this regard. KSITM was considering the possibility of extending FRIENDS services to the sub-district level. Moreover the popularity of FRIENDS continuously reinforced the prospects of ICT and integration. KSITM, as was ICT and integration, was motivated to extend the service to gain further acceptance. Unlike when FRIENDS was started, KSITM had more control over e-pay since the FRIENDS centres were all working under it. As discussed, KSITM was constrained by lack of resources and opposition from participating departments to extend the services to the sub-district levels.

FRIENDS had similar motivations and wanted its services to be available at more decentralised levels. Further, it also wanted the new decentralised mechanisms to be linked and brought under it. Thus it would ensure that there was no parallel activity and that its own identity would only be further enhanced by joining the network envisaged. The banks were motivated by the large number of transactions, security and the support of government.

The entrepreneurs were interested in being part of a successful ICT project. Undertaking government related payment transactions would give considerable respectability to the centres. Given the nature of transactions, there was a possibility to continuously be in contact with the people around the centre. Of course, they were also motivated by the possibility of regular income stream on account of utility payments. Citizens, particularly in the rural areas were interested in such a decentralised payment mechanism that would reduce their effort and time in travelling to multiple departments for making payments. The presence of a known local entrepreneur, a known centre and the support provided by government were further motivation for citizens. Moreover citizens did not have to physically move around many officers to make payments. In

most cases the money was collected from home. Government departments/agencies were not very interested in this extension as it was seen as attempts to reduce their significance and power. Once again the powerful pressure of integration as an institution made alternate strategies look difficult, if not impossible. Since e-pay was linked to FRIENDS and not to participating departments directly, the opposition from departments was not very critical for this particular service.

The focal actor, KSITM, made itself indispensable and defined the nature of the problem and forced others to accept e-pay as the way forward.

5.1.1.b Interessement

Interessement, or “how the allies are locked into place,” is about reinforcing the commitment with a view to making sure that alternate appropriation by actors and their networks do not take place (Cornford *et al.*, 2010). The essential idea was to ensure that actors were not motivated to consider any other alternative. A major issue that could have come up was the proposal by departments that they could start ICT based payment centres in their own decentralised offices. This would have gone against the interest of other actors including integration, FRIENDS, KSITM, e-pay portal and Akshaya entrepreneurs. This was effectively handled by making sure that e-pay was directly linked to the existing and popular FRIENDS project. Utility services did not have any problem since their operations in FRIENDS were streamlined beyond involving their parent departments or agencies. This would mean that domain expertise is not required for these transactions. In the case of non-demand based services, however, the parent department and domain knowledge are critical for intermediation. The former service could be undertaken without the parent department getting involved, whereas the latter would require the involvement of the parent department. The former service is aligned to the interest of KSITM in this case and the latter is not.

Banks had apprehensions regarding security of payment gateways and whether entrepreneurs would make payments on time. E-pay portal took care of the security apprehensions by showcasing internationally accepted financial transaction standards. It was also agreed that entrepreneurs would deposit money in the bank and that

transactions will be limited to the extent of balance deposit available in the entrepreneurs account and indicated on e-pay portal.

Through the phase of interessement the actors were able to identify the linkages and the E-pay was accepted as the obligatory passage point.

5.1.1.c Enrollment

“No matter how convincing the argument, success is never assured” (Callon, 1986). As the new network emerged, all actors tried to inscribe different meanings (their interest) and enrollment could take place only within a “margin of negotiation” (Latour, 1987). Of course, enrolments are seldom easy or direct (Cornford *et al.*, 2010). Whereas the interessement phase is concerned with isolating the actors, the enrolment phase is about aligning the interests of the actors.

The interests of KSITM, FRIENDS, entrepreneurs and the institutions were aligned with that of e-pay portal. An important factor that helped citizens to be enrolled was their personal trust in the entrepreneurs. Citizens also had immense trust on the institutions of ICT and government. While for citizens getting printed receipts authorised by the state was a major trust building measure, the same amounted to an increased respectability for entrepreneurs. Moreover, since the utility services were not disconnected after making payment at Akshaya, citizens were convinced about the mechanism. The district collector gave strict directions to utility departments to consider the receipts from Akshaya as equivalent to department receipts.

The roles to be played and linkages with others were defined by the focal actor and incorporated as the script on the e-pay software.

5.1.1.d Mobilisation

Bringing together the hitherto dispersed actors and aligning them along the OPP was undertaken through spokespersons for the parties involved. We find that all actors have defined and coordinated roles and are enrolled in alliances. This is the phase when it is

decided as to 'who speaks in the name of whom' (Callon, 1986). Actors become the legitimate spokespersons of the groups that they claim to represent. KSITM plays the spokesperson's role in this new network.

Requirement for domain intermediaries in other services restricted the remittance of payments at Akshaya to only utility service payments. In other words, though one would expect an easy translation of the e-pay service to at least include those services that were already being offered by FRIENDS, we find that the characteristic and dynamics associated with the heterogeneous actor-network of the services plays an important role in whether it can be offered. Whereas the utility payment services networks seems to have the institutional logic that supports payments over telecentres, the institutional logics and actors of the other services restricts the service from being delivered over telecentres.

An important aspect that emerges from the analysis is role played by certain actors to ensure that the e-pay system could actually be launched and services delivered. It also highlighted the significance of staff resistance in taking services outside of an organisational context. The interventions of the district collector and legitimacy of ICT and FRIENDS made it possible for the service to be launched through non-state actor run telecentres. The question that naturally rises then is about why only utility payments were possible. Whereas FRIENDS was aligned to the interest, the non-demand note based services offered at FRIENDS could not be channelled through Akshaya. These services were undertaken with intermediation and this intermediation was not available at Akshaya. E-pay did not have an alternate approach to take care of this issue.

The tasks underlying utility payments seem to be structured and standardised; aligned to be incorporated into software through functional simplification and closure. In the case of non-demand note based payment services, such rules and process cannot be completely captured onto a software system. Some aspects of the transaction required to be offloaded on to offline traditional bureaucracy (e.g. computing the amount, verification, etc.). Hence this is not the type that could be offered online through the telecentres.

What emerges from the analysis is a very powerful message. In the dominant techno-deterministic literature on telecentres, there is a constant reminder that if the *social* is taken care (in this case employee resistance and citizen awareness) then the telecentre would be able to provide any service. This analysis clearly shows that even when these factors are considered the services offered depends very much on the characteristics of the service and the implications of ICT through functional simplification and closure. We shall consider other scenarios to probe further evidence in this direction.

5.1.2 Providing agriculture information

The provision of agro-advisory information services have been highlighted in policy literature as a major advantage of telecentre in rural settings. This service could be conceptualised as consisting of actors such as the abstract system of agriculture, bureaucracy, central acts, state acts, employees union, databases, legacies, procedures, processes, citizens, etc. These actors are currently locked in a dynamic arrangement where the service is generally provided through *access centres* of the institutions through its face work. Through translation, what is attempted is to define telecentres as the access point to the abstract system of agriculture and the telecentre intermediary as the facework of the institution.

KSITM had created what was considered as locally relevant information in the local language on topics such as agriculture, healthcare, education and legal matters. None of the contents developed were extensively used. One interesting attempt was to make available KISSAN portal through telecentres. We will now trace the attempt for translation and further analyse as to why things happened the way they did.

Agriculture Information service, Akshaya entrepreneurs, KSITM, state agriculture department, Agriculture content CDs, KISSAN, AEOs in Malappuram, and farmers ICT and integration constitute the actors in this analysis.

5.1.2.a Problematisation

At the time of conceptualisation, KSITM had identified that the success of ICT delivery centres would depend on the availability of relevant content. At the time when the project was conceived there was very little content available in the local language over the Internet. The discourse on knowledge for development led KSITM to prepare material relevant to sectors such as agriculture, education and healthcare. The CDs were prepared by domain experts scripted with their institutional logic. It may be noted that the KISSAN project had not started functioning during the initial phase of Akshaya. However, attempts were subsequently made to channel KISSAN through Akshaya as part of the larger services integration policy.

KSITM had expected that there would be huge demand for the content that they had created and that its delivery would help the project in pursuing its twin goals of social acceptance and income generation. ICT was motivated by its possibility to ensure information symmetry and barrier free flow of information directly to farmers. Farmers had an interest in getting agro-advisory services and depended on ICT to provide them with direct and updated information regarding crops, markets and inputs compared to information they were receiving from the Krishi-bhavan. The service could not be aligned with the interest of others. The institutional logic that underlies the abstract system of agriculture would reinforce this institutional logic and showcase the significance of the power of its members.

The AEOs in the village were strongly opposed to such a service being offered through telecentres. Their opposition was even stronger when it was decided that KISSAN would be provided through Akshaya. They considered the channelling of such a service through telecentres as infringing on their role and power. They wanted KISSAN to be made available through their own offices. The powerful institution of integration did not allow this to happen. The focal actor, telecentres tried to make itself indispensable and force others to accept it as a way forward.

5.1.2.b Attempted Intersement and Enrollment

Farmers were already using the agro-advisory services offered by Krishi-bhavans. The motivation to use telecentres was only because of the institutional power of ICT and its perceived link to development. They would use the service only if it was substantially better than the existing one. Hence the negotiation was about how the service could be better than whatever was available. Entrepreneurs soon realised that they were not trusted as experts in the field. The content CD initially and the KISSAN portal subsequently were not directly used by the farmers in the absence of a domain intermediary. KSITM soon realised that they did not have the organisational settings to take care of the requirements of domain intermediation required for the service to be successful. The service as an actor showed how its institutional logic would prevail over other logics. The AEOs also discouraged farmers from going to the telecentres. Farmers had to visit Krishi-bhavan for many services including availing subsidies and hence they did not want to antagonise the officers. The actors did not agree to lock into a place or accept the OPP. The agriculture content thus failed to be used. A detailed analysis on this failure is further provided in the chapter.

It may be noted that KSITM had created information pertaining to health and education as well in the local language using experts in these sectors. The content (in CDs) was made available along with agriculture information CDs to all Akshaya centres. These contents were also not used by citizens or the entrepreneurs.

5.14.3 Agriculture marketing transactions

Agriculture marketing transactions are not undertaken by the traditional bureaucracy. The expectation from ICT is that it will be able to undertake such things that the traditional bureaucracy cannot achieve. The actors that need to be considered in this context are the following: ICT, Akshaya telecentres, KSITM, state agriculture department, KISSAN, e-krishi¹³⁹ portal, farmers, and buyers.

¹³⁹ *Krishi* means agriculture. This was a portal created by KSITM with a view to enable agriculture transactions without intermediaries.

5.1.3.a Problematisation

Akshaya telecentres were interested in this activity for two reasons. On the one hand this could be an income stream and on the other this would help the centres to be aligned with the basic and dominant activity in many villages. Farmers had difficulty in identifying the best markets or buyers for their products. They believed in the discourse that such a system will do away with the constraints and intermediaries of traditional markets and that it will equip them with the necessary information and transaction possibilities to sell to markets/buyers that give them the highest price. KISSAN portal was successful in providing agro-advisory services at the input of agriculture logistics. It was, however, not able to take care of the marketing aspects of this logistics. It saw in e-Krishi the possibility of extending this activity through telecentres. The department of agriculture did not have any motivation to participate in this activity. On the contrary they were resistant to the idea and felt that any such activity will undermine their power in the existing structure. The institutional pressure of bureaucracy meant that the department considered this as an activity undertaken by another government entity, KSITM which was not under their administrative control.

Buyers were an unknown entity and continued to be so, since transactions did not happen. The idea, however, was that buyers from far and wide would show keen interest in participating in the transactions. KSITM, the focal actor was interested, like the entrepreneur to show this as an income generating activity as well as a major development intervention. The institution of ICT powered the assumption that disintermediation through technology was possible. This was the embedded script in e-Krishi platform. This problematisation phase saw telecentres playing the role of focal actor and defining e-Krishi as the way forward.

5.1.3.b Attempted Interessement and Enrollment

This should have been a phase when the alternative appropriation of actors does not take place. This was never the case. e-Krishi had a script that was entrenched with the rules of the market. This required a substantial amount of offline activity to be undertaken to ensure that the *market* module worked well. Negotiations between the

actors did not lead to any alignment. State agriculture department did not even participate in any negotiations. Akshaya took efforts to collect a database of farmers (ultimately 12,500) who could participate in the project. KSITM took efforts to negotiate with buyers and finally made a database of about 100 institutional buyers. Both KSITM and e-Krishi kept putting forward the idea of seamless dis-intermediated transaction between the farmers and the buyers. Farmers and buyers primarily wanted an assurance from e-Krishi that the platform should ensure that a trust mechanism be established so that sellers and buyers could be reliable. That is when KSITM took up the effort of identifying institutional buyers rather than individual buyers. However, neither KSITM nor e-Krishi (as was the case of KISSAN) could come up with a mechanism nor negotiate satisfactorily with farmers and buyers in this regard. KSITM, e-Krishi and Akshaya did not have the strengths, skills, knowledge or institutional allegiance to undertake any offloaded offline tasks.

KSITM had meanwhile tried to give legitimacy to the project by getting it included as the only agriculture project (among the 14 projects) taken up under the Information and Communication Technology for Development programme of the UNDP¹⁴⁰ in India. However, the actors failed to be in alignment and e-Krishi portal failed to operate.

It may be noted that the telecentres were able to download information pertaining to government schemes and related application forms and provide them to citizens. Providing examination results pertaining to school and university examinations continue to make Akshaya telecentres popular during such time. Some centres also make good income during that particular *season*. A detailed analysis of these two activities is not being attempted at this stage. We would, however, subsequently consider this service as part of the analysis in the next section.

However, two important aspects may be noted in connection with these two services. Unlike the other e-governance services that we have considered, these are two activities where the ICT skill of the intermediary to search and download is enough to ensure service delivery. Moreover, departments/agencies do not have any opposition in

¹⁴⁰ Please see <http://www.undp.org/content/india/en/home/presscenter/pressreleases/2008/11/18/e-krishi-project/>

telecentres providing these services, since these activities do not affect their organisational processes or power.

Government departments were not considered important in the initial stages of the project. They were not involved in any substantial way during the e-literacy phase. It was, however found that they were important actors when it came to the services stage. From an actor-network perspective, these actors were not even considered during the conceptualisation and subsequent translation of telecentre network. They did not have any interest aligned with those that resulted in telecentres except the coercive force of the policy framework and integration that disallowed alternate discrete service provisions.

5.2 Implications

The e-pay mechanism¹⁴¹ is the only successful¹⁴² e-governance service being provided by these centres¹⁴³. E-pay owes much of its success to the already existing FRIENDS project and the role of KSITM. FRIENDS project itself was seen as a flagship e-governance project of the state that created public enthusiasm as well as confidence in the use of ICT in government. Similarly, success of e-pay in the initial stages brought a lot of confidence to entrepreneurs and citizens about the feasibility of the promised set of services. It may however be noted that the e-pay system, though conceived as a more comprehensive payment gateway, was successful only for making utility payments (Bussell, 2012). It may be recalled that the citizens making payments were not even aware of the process involved in making payment through the centres or how the transactions were being made. In other words, the user-friendliness of the ICT interface does not seem to have any significance on citizens availing e-pay services.

Though e-pay was able to front-end FRIENDS project, other services that had the

¹⁴¹ By end of July 2012, Akshaya e-pay collections (since 2004) had crossed INR 2000 million state-wide. By end of October 2012, the total number of transactions reached 71,81,689 and total amount collected INR 2,50,92,83,504. Average monthly collection is about INR 44 million from about one hundred and forty thousand transactions (Source: E-pay website www.e-kendra.org).

¹⁴² Apart from downloading and providing various forms and examination results from the net.

¹⁴³ The study found that the income from e-pay provides about 90per cent of the income from e-governance services provided by these centres.

backend provisions could still not be offered through the telecentre. Why is it that utility e-pay mechanism of Akshaya are more successful compared to others? Are the institutions, their interactions and processes associated with such payments more amenable for it being channelled through an ICT front-end? Why is it that in spite of the availability of localised agriculture information, it was not being offered or availed as a service?

5.3 Institutional complexity and functional simplification

“Instrumental ability of ICT” is subject to the extent to which they are able to capture the complexities of the processes that they try to codify (Kallinikos, 2009). The complexities associated with the processes arise from the embedded institutional logics that underlie such processes. The conceptualisation of services as heterogeneous network of actors gives the analytical lens to understand this with profound clarity. Functional simplification and closure associated with services would at times require that unforeseeable complexities are offloaded back into the institutional system to handle it in the traditional manner (Kallinikos, 2009). However, it is important from the point of view of this study to consider this matter from another angle. Functional simplification and possibility of offering a service over telecentres is limited by the institutional alliances and conflicts between the institution of ICT and integration, and the institutional actors that constitute the heterogeneous network of specific services.

Let us consider the case of payments. Functional simplification and closure provides a good analytical lens to differentiate between the demand note based payments and non-demand based payments even at FRIENDS. It may be recalled that considering the information needed for making payments, the payments made at FRIENDS are classified into two – utility payments that are paid based on a demand note and the ones that are paid after computation of the required payment with the help of the person at the specialised helpdesks. For example, a citizen who comes with an electricity bill already knows how much he/she needs to pay and hence approaches one of the counters, hands in the demand note as well as money and completes a transaction. On the other hand, a student who wants to pay University fees for an examination/a combination of examinations needs to initially identify through interaction with the

person at the counter the actual amount to be paid and then effects the payment. A non-IT intermediary needs to be present to translate the individual need of the citizen to a demand note and thereby help the individual make the payment.

The demand notes (or bills) are nothing but tokens of functional simplification and closure attempted by some technology. The identification of usage and computation of bills through complex tariff structures is an intricate algorithm. We increasingly observe automation of this stage and functional simplification and closure being attempted at this stage of the process. The demand note or the bill captures all this process into as a single token. The demand note also comes with specified rules including last date of payments, fine in cases where there is delay and when a utility would be disconnected if the payment were not to be made. Demand note thus represents a token that helps automation of the processes after the demand note has been created. In the case of non-demand based payments, the demand note gets generated only after the human intermediary has taken information from the citizen and processed it to generate the demand note. Whereas the rest of the payment process is functionally simplified and closed, the necessity for human intervention at the initial stage constraints any direct services to be offered over a ICT front end. What emerges from the study is that in the case of payments, online services are possible only if functional simplification and closure is attempted without the necessity for offloading anything on to traditional bureaucracy for issuing demand note. This is an essential pre-requisite to offering services in an integrated manner. It may, however, be noted that availability of a range of individual payment services online does not necessarily mean that they can then be offered in an integrated manner. We will consider this aspect later in the chapter.

We will now consider the case of functional simplification and close in the case of utility payments through e-pay. The functional simplification of utility payments seems to have been possible because of the alliance of ICT with the heterogeneous network of utility payments undertaken through FRIENDS. The project has been in existence for many years and has hence been considered as black-boxed from the point of view of the utility payment services of e-pay.

Functional simplification of utility payments was achieved in a number of ways:

- A mechanism was created (FRIENDS) wherein payments received on behalf of different utility department /agencies are directly credited to government/department/ agency bank accounts as per the agreed terms with the departments/agencies.
- Data pertaining to transactions are provided to them either online, offline or as print outs as per the requirements of the department/agency.
- E-Pay services of Akshaya were directly linked to FRIENDS and not to the utility departments/agencies concerned. This meant that for utility departments/agencies, their link was only with FRIENDS and not with individual Akshaya units. In the absence of FRIENDS centres, the success of transaction through Akshaya would have been extremely difficult.
- FRIENDS had undertaken substantial streamlining and rationalisation – FRIENDS receipts were legally considered to be equivalent to getting a receipt from the department/agency concerned. Similarly approach was undertaken in the case of Akshaya as well. Akshaya receipts were legally considered to be equivalent to receipts from the department/agency concerned.
- Variability of all kinds were restricted and standardised processes were built for easier coding – e.g. payments beyond the last date of payments were not collected because the delay in payment meant a complex calculation depending on the delay and the location of the utility service.
- Payment mechanism between Akshaya centres and FRIENDS were enabled through the bank ensuring that FRIENDS and Akshaya never had to interact on this issue. Moreover, the banks ensured that transactions being made by the centres were restricted to amounts already deposited with them. This process

ensured that payment transactions always meant actual cash transaction – an essential requirement for all government departments/agencies.

- FRIENDS was completely coordinated and managed by KSITM. Hence it was easy for e-pay to be linked to FRIENDS without any of the other departments and administrative mechanisms coming into the picture.

Coupled with functional simplification and the institutional power of ICT (particularly associated with the success of FRIENDS) it became difficult for the employees of participating departments to resist the move to introduce e-pay in the district. As discussed earlier, the district collector, by virtue of heading the district administration was further able to launch e-pay services. It may, however, be noted that only demand note based payments (e.g. utility bill with the charges specifically mentioned) were feasible through Akshaya telecentres. In spite of the institutional nature of ICT, Akshaya centres were able to offer only those services where functional simplification allowed simplified procedural sequences that did not require “offloading into the traditional system” (Kallinikos, 2009). This is also the rationale for the centres to offer examination results successfully. This argument is further elaborated as we consider the other cases.

Discussing institutional logics, it is interesting to note that payments to local Panchayaths (with demand note) cannot be made through Akshaya centres because of the fact that the law restricts such payments to be made only to specific employees of the local governments. Whereas one could argue that the complexity of the process in this case is as simple or complex as the utility payments are, the conflicting institutional logic of this service made it impossible for this rather easy transaction to be undertaken through the telecentres. In other words, the institutional logic of this service necessitated a complete offloading to traditional system, given the fact that entrepreneurs do not have the mandate to collect such payments.

We have considered the issue of non-demand note based payments earlier in this section. Online processes are usually dependent on and supported by offline processes that are culturally and institutionally embedded (Kallinikos, 2009). As discussed earlier,

in FRIENDS centres there are specific persons employed from non-demand note departments that offer this service (through specialised helpdesks). This would mean that the process undertaken in such cases requires the intervention of a human intermediary to help compute the amount to be paid. Getting such human intermediaries at a district level has been a major challenge even for FRIENDS centres. In the case of Akshaya centres, the entrepreneurs are not equipped to handle the second set of payments given the complexity as well as domain expertise required in computing these payments. In other words, the institutional logic of these payments made the telecentre intermediary an invalid intermediary for these services.

In the case of agriculture information service as well, the study noticed the importance of domain intermediary in undertaking the service successfully. It was also found that the trust upon the intermediary as a member of an established institution was critical in successfully providing the service. We will discuss the implications of intermediary and trust in the next section. At this stage, however, it is important to note that the institutional alliances and conflicts between the institution of ICT and the institutional actors that constitute the heterogeneous network of specific services limit the functional simplification of processes involved in services and thereby the possibility of offering it over telecentres directly. As an intermediary institution based mechanisms, KISSAN had mechanisms to handle whatever was offloaded to the traditional system. Akshaya telecentres were not equipped to handle the offloaded task.

The need for a mechanism to handle offline tasks is further illustrated by the agricultural transactions portal of KISSAN. The traditional agriculture department function had failed to undertake agricultural transactions and had confined itself to the agro-advisory services part of the agricultural logistics. When KISSAN portal was created, the assumption was that the technology would now address this issue. The simplification of the process required the offloading of certain vital processes like quality assurance, which the traditional system was not equipped to handle. Hence this activity envisaged under KISSAN failed.

Conflicting institutional logics of ICT and the institutions that constitute the heterogeneous network of the particular service requires that a number of tasks that

make up the service could be functionally intricate requiring offline systems and intermediaries (Kallinikos, 2009; 2011). This would be the case with a number of e-governance services. Let us consider the case of entitlements and certificates. In most of the cases, the traditional system would have to undertake personal verifications, site visits, and a series of activities that require the presence of domain intermediaries. While delays on account of following such processes may be considered inefficient, it may be important to consider that such systems have been part of the bureaucratic institutional approach to ensure checks and balances across an egalitarian society.

We have found from our analysis that tasks such as utility payments can easily be automated compared to services such as the provision of information regarding health, education or agriculture, which involves problem-solving by employing analytical skills. Drawing on the analysis undertaken by Cordella and Tempini (2011), we had already discussed how Mintzberg's (1993) topology could be used to explore how ICT is implicated based on the bureaucratic configuration. The tasks involved in utility payments are the kinds that are undertaken by machine bureaucracy whereas the provision of specialised information such as healthcare, education or agricultural information would be undertaken by professional bureaucracy. In such cases, what could be attempted (as is done in the case of Kissan and FRIENDS) is functional simplification and closure such that unforeseen and/or analytical problem solving activities are offloaded from the technology back into the institutional system. Some services could then be offered online and some would require offloading of some aspects to traditional bureaucracy before the service can be offered online. There could also be services where such offloading would happen at the initial stage or first contact point itself as is the case with non-demand based services. Services such as entitlements would be even more complex considering that the process leading to entitlements would require a series of online and offline activities to be undertaken to complete the task.

The e-bureaucratic approach (Cordella, 2007) demonstrated in the case of FRIENDS and Kissan highlights the significant role that ICT plays in making the tasks more efficient and effective without altering the foundations of the bureaucratic order. Their cases as well as the services promised/offered through Akshaya demonstrates how attempts to integrate the varied set of services through one single front-end are

theoretical unsound. The analysis clearly shows that it is purely deterministic to assume in the first place that all e-governance services can be provided over an ICT front-end and that they can be delivered in an integrated manner.

5.4 Intermediary and Trust dimensions

We have seen from literature that an ideal telecentre intermediary is supposed to have good social networks (Diaz Andrade and Urquhart, 2009; Bailur and Masiero, 2012), be local (Hughes, 2004; Puri and Sahay, 2007; Gopakumar, 2007), be trusted by the community (Heeks, 2002b; Gopakumar, 2007), have business acumen (Kurian *et al.*, 2006) and be competent in the use of ICT (Roman and Colle, 2002; Gopakumar, 2007). Considering the cases and specifically focusing on e-pay and agriculture information, we, however, find that the required telecentre intermediation is more complex than the way it is portrayed in literature.

It may be recalled that in the case of non-demand based payments (e.g. motor vehicle department payments) at FRIENDS, there are specific persons employed from non-demand note departments to offer intermediary services. In the case of Akshaya centres, entrepreneurs are supposed to act as the intermediary for all such services. It was observed during the study that citizens use e-pay only for utility payments. Non-demand based e-pay services cannot be offered until the *offloaded* offline activity (Kallinikos, 2009) is intermediated. The result is that none of the non-demand based e-pay services are offered through Akshaya telecentres.

FRIENDS was preferred over conventional department counters (CDC) by 97.40 per cent of users (Madon and Kiran, 2002). Such comparisons were enabled by citizen perceptions that both were government operated (Gopakumar, 2007). The service officers (intermediaries) in FRIENDS were automatically trusted as facework of the new access point by people on account of the institutional trust in government. In a state like Kerala where the trust in government is very high (Sen, 1992), this could very well be expected. In the case of Akshaya project, entrepreneurs had realised the huge public

trust in the institution of government. They took every step possible¹⁴⁴ to highlight the centres as an extension of government. It is true that the local status of an entrepreneur is beneficial particularly in getting the citizens to such centres and initiating interactions. Being a local person, the entrepreneur (given the way he/she is selected) is personally trusted as well. During the initial stages of the study it was felt that the reason why people were ready to transact over e-pay was because of the personal trust that they had in the entrepreneur. Further detailed analysis of the case revealed that the trust is not just on the person but on the institution of government.

“I know the local entrepreneur Mr Mujeeb. I trust him because he is from my neighbourhood. However, if you were to ask me whether I would trust any entrepreneur who had the support from government, I would definitely say yes. It will only be like a local manager of the bank or a local village officer. Irrespective of who the person is, I would trust him.”

Mohammad Sakeer, Veliyankode

The backing from the “legitimate” state was critical for this activity. This is further evident from the fact that in cases where entrepreneurs have changed over a period of time, e-pay services have not got affected. Other trust enabling mechanisms were also built into the system like the possibility of checking over website to ensure that the payment from the centre has actually reached the department/agency. For most people, however, the litmus test to successful payment and trusting the mechanism meant that their utilities were not disconnected!!

“Electricity to my house has not been disconnected nor my telephone connection.....so it must be working...ICT is great...”

Abdul Nasser, Kondotty

Another important aspect connected with the payment process is the aspect of regularity of payments. Most citizens need to make use of the e-pay system once in a month or

¹⁴⁴ Akshaya centres have the Kerala state government logo in their buildings/premises. The entrepreneurs also introduce themselves as accepted agents of the state. Their image of proximity to government was reinforced by their ability to offer e-pay services.

two considering the regular billing cycles associated with utility payments. These regular and repetitive interactions also lead to the development of continuous trust (Hoehle *et al.*, 2012) in the mechanism and influence their decision to continue to use it.

The KISSAN website had the provision for farmers to directly query the system and get answers from experts positioned in KISSAN base office. This research showed that farmers do not use this directly. Instead they take the help of AEOs for this querying process. Farmers had difficulty both in terms of using computers as well as communicating in English (language used on the website initially¹⁴⁵). Detailed analysis, however, showed that their unwillingness to use the website was because of other reasons, other than the apparent problems. The significant nature and role of the AEO as a domain intermediary was soon revealed during detailed investigation. The AEO is conversant with techno-scientific language of the expert system of modern agriculture practices and is hence able to play an active role, even as a ‘domain translator’ between the farmer and the expert (Gopakumar, 2007).

Whereas AEOs directly deal with the simpler or known queries from farmers, they post the more complex ones on the KISSAN website with the necessary context¹⁴⁶ or case history. On receipt of an answer from the expert, the AEOs provide the necessary *reverse* domain translations as well as provide appropriate localisation/personalisation¹⁴⁷ to the information. Being an institutional member of the expert system of agriculture, AEOs are enabled to undertake domain intermediation. In addition to this, they also value add the intermediation through their understanding of the region and the farmer.

This is a case where the information seeker (farmer) is availing services from the access point of the abstract system (global institution of modern agricultural practices). Personal trust upon the intermediary at the access point is critical for this interaction but

¹⁴⁵ Usage remained low even when the content was provided in the local language.

¹⁴⁶ Suppose the farmer wants to know about the solution to ‘yellowing of coconut leaves’. The expert on the other hand can understand the problem only if this is corroborated with a set of information like what fertilizer was the farmer using?, Whether he was watered the plant? Is this a problem with only one coconut tree?, etc. The AEO takes a history or adds the necessary context for the query and mails it to the experts.

¹⁴⁷ Based on the information about the farmer, his practices and the area where the cropping is undertaken.

it is the trust upon the abstract system that leads the person to the facework of the institution (Giddens, 1990). Even in cases where the farmer is not convinced about the knowledge levels of a particular officer; the farmer is most likely to approach another AEO because of his/her belief in the abstract system.

Our analysis shows that this institutional trust relationship does not exist between the farmer and the telecentre intermediary regarding domain centric activity (including the provision of domain specific information services). Though the telecentre intermediary may be personally trusted (regarding his/her integrity) and hence may be entrusted with money for utility payments, he/she would not be trusted for providing a specific service like domain information. This is because the telecentre intermediary is not seen as the conventional facework of the access point of the abstract system of modern agricultural practices. Similar is the case regarding other domain specific activities like healthcare, education, etc.

An interesting incident that happened during the project provides important insights on the discussions on trust. An effort was made by the district administration to undertake *health-mapping*¹⁴⁸ of *Cheekkode* village in partnership with the local entrepreneurs. Teams consisting of local college volunteers along with Akshaya entrepreneurs were deployed to collect certain basic individual health data including weight, height, blood glucose and pressure levels, blood group, etc. The teams were equipped with modern medical equipment and instruments for collating the data. Almost immediately after starting the activity, the teams found the going difficult. People across households in the village maintained the stand that they are ready to undergo the screening process only if the team was accompanied by a doctor or a nurse - in other words a known facework of the abstract system of modern medicine. It was definitely not the case that they did not trust the Akshaya intermediary or the volunteers. People simply could not see them as members of the institution of modern medicine. Ultimately the mapping work was done by including nurses in the teams.

As pointed out in the case study chapter, under the 5+8+5 scheme one group of centres was supposed to concentrate on the theme of healthcare. In these centres there was a

¹⁴⁸ Though referred to as health mapping by the authorities, it was closer to a health screening activity.

proposal to set up health kiosks that would be helpful for the community as well as be a source of income for the entrepreneur. The kiosk was set up such that people could check their basic parameters like blood pressure levels, blood glucose levels, etc. Even in the few centres where this facility was installed, it turned out to be a failure. People did not avail this service in spite of it being physically close to their place of residence compared to the testing centres that were far away in the cities and towns.

“No, it is not that I don’t trust Afsal (the local entrepreneur). He is a nice guy. However, when I go to the testing centre, I can get the values as well as recommendations from the people there. What knowledge does he (Afsal) have about diseases and medicine? How can I trust him on that? He is not a doctor or a nurse or even a compounder (refers to pharmacist/lab technician).”

Appunni, an elderly gentleman, Kaalikavu

People wanted the services to be provided through a trusted interface of the abstract system of modern medicine. When we compare between interactions that happen between telecentre intermediary and citizen with similar interactions happening in the other two cases, it becomes obvious that citizens avail services from institutionally accepted access centres using the intermediary or the facework of the institution. In other words, the institutional memberships of the intermediary and institutional acceptance¹⁴⁹ of access points are both critical for successful interactions and transactions to happen with that institution.

Trust in the abstract systems or the global institutions arise out of a paramount respect for technical knowledge on account of the widespread ‘hidden curriculum’ of science (Giddens, 1990). This is particularly true in the context of a state like Kerala which enjoys 100 per cent literacy and adherence to the practices of modern sciences, particularly medicine and education. Avgerou (2002: 244) points out that “medical and pharmacy sciences are major disembedded institutions claiming universal knowledge

¹⁴⁹ The argument might give the feeling that global institutions have specified access points universally. This is not the case. The access point to an abstract system or a global institution in a given region would depend on the institutional interactions at the local level particularly between the global and the local (Avgerou, 2002). We thus find a diversity of access points of global institutions across the world. The access point to a global institution at the local level is also based on local beliefs, practices and perceptions.

regarding diseases, health and therapy”. This is the case with other abstract systems of technical knowledge as well. The organisational forms through which these abstract systems present themselves are bureaucratic in nature and would hence showcase all its characteristics including aspects of delineated roles and responsibilities. Professional bureaucracies undertake tasks that involve analytical problem solving necessitating human intervention. The skills required are standardised though the tasks themselves may not be.

Telecentres are not automatically perceived as the access centre (compared to whatever are accepted in a region) to the different abstract systems which underlie the promised services from telecentres. This also means that the telecentre intermediary is neither seen as a member nor as the facework of the modern institutions or abstract systems that underlie the promised multiple services. The study shows the significance of the role played by institutions in the heterogeneous network that constitute these services. This also clearly explains as to why translations in such cases did not happen.

The above analysis also fundamentally questions a major assumption and argument put forward in telecentre literature that the telecentre intermediary has to be from the local community, irrespective of his/her institutional memberships. We have already seen that the local intermediary would be trusted for a few services, but would not be trusted for providing the range of services. Being local is not the constraint; it is the difficulty in taking multiple institutional memberships and becoming the facework of multiple abstract systems – being local and global at the same time! Integration demands such an absurdity in a world where organisational forms are defined by bureaucracy which limits the role of individuals.

Observing it from a different angle, for telecentres to provide multiple services, they need to undergo translations on the heterogeneous network constituting the anticipated multiple services. They would be unable to do so in the case of many services on account of the institutional nature of those services including the need for domain intermediary and trust associated with the abstract system and its face work. Telecentre intermediaries could be in a “vulnerable position, straddling networks” (Bailur and Masiero, 2012). Switching caps of facework of institutions is, however, not easy.

Moreover, there is also the possibility that one identity could act as a constraint in providing another service.

In the case of Akshaya, the entrepreneurs' local identity was helpful for people in the community to use these centres for low level ICT training. The same identity restricted people from enrolling on any advanced course, as they perceived that the urban based training centre would have better expertise in these matters compared to their local entrepreneur.

The institutional power of integration and ICT (and the taken for granted assumptions regarding its ability to deliver *knowledge*¹⁵⁰) does not seem to have allowed any detailed analysis of the underlying institutionalised mechanisms. It is clear from our analysis that telecentre intermediaries will have to play the face work of a range of institutions for interactions with citizens to be successful. If institutional membership of intermediaries is critical for providing that particular set of services and if telecentre intermediaries cannot play the role of the facework of multiple institutions that constitute the promised set of services through telecentres, how can the multipurpose telecentres truly be multipurpose? The complexity of the issue can further be understood considering the politics and negotiations that are already contained in the heterogeneous network of any service.

5.5 Conclusions

The analysis through translations showed the failures in providing e-governance service other than utility e-pay services. The analysis negates the view pointed out in a majority of studies that issues arising out of the localised level of context were the case of telecentre failures. The analysis of e-pay clearly shows that it is not employee resistance that has constrained the e-payment of non-demand based payments. If it were, then the utility payments would also have not been possible. The institutional characteristics of the service and the implications of functional simplification and closure shows that many of the tasks associated can only be undertaken with human intermediation. In the

¹⁵⁰ The telecentres under M S Swaminathan foundation in India are referred to as the Village Knowledge centres (VKCs)

case of non-demand based payments the human intermediation is needed at a stage where the requirements of the citizen are identified by a department employee in the beginning of the transaction chain and guided on how much payment needs to be effected. In the case of services, such as information delivery offered by professional bureaucracy, there is trust on the professional offering such information. In other words, the information can only be provided by professionals who have membership in the abstract system or are part of the community of practioners belonging to that abstract system. This would mean that such services can neither be offered online nor through the local intermediary/entrepreneur running telecentres.

Exploring the foundations of institutions and organisational configurations has helped in highlighting the diversity of the nature of task and the implications of functional simplification and closure on the construct of integration. We also found cases where availability of one service constrains the availability of another, questioning the simplistic notion that any number of services could be seamlessly offered through telecentres.

The expectations about telecentres was that they would enrol as members of complex multiple networks associated with enlisted services without much issues, given that it is an ICT innovation! The analysis showed how difficult it is for such enrolments and translations to happen given the underlying foundations that make up the institutional actors in the heterogeneous networks of services. The significance of technology as functional simplifications and closure are also overlooked in the deterministic discourse on integration.

The analysis or the research at no point supports (or condemns) bureaucracy or integration. Instead the effort is to draw our attention to how integration is taken for granted, without any serious fundamental institutional, technological, organisational and process considerations.

6.0 Introduction

This final chapter summarises the findings of this study, reflecting upon the research journey and addressing the research questions. The chapter also presents the contributions of the research towards theory, policy and practice of IS. The chapter further examines the limitations of the research and discusses the scope for future research in this area of study.

6.1 The background

“By harnessing the advances in technology, making services more accessible through multiple channels and more responsive by providing ‘joined-up’ services, the citizen has access to information relating to services through one point of contact. It will be a consumer-led revolution bringing with it more efficient government, more transparent ways of doing business with the different branches of government; a two way path of consultation and collaboration; a new level of accountability for elected and unelected officials; and more open and responsive politics.”

Silcock (2001)

As we observed in the initial chapters, the bureaucratic form of organising the state was increasingly considered inappropriate considering its routine, initiative-stifling office work and an introvert organisational culture of rigid administrative procedures and redundant complexities (Kallinikos, 2006). The governance reform programmes under NPM were aimed at rectifying the problems with bureaucracy and ensuring good governance by increasing transparency, efficiency, accountability and guaranteeing citizen centrality. Given the larger background of liberalisation and the move of the state to step aside to play a non-interventionist role, ICT was seen as the right “tool” to enable the pro-liberal reforms within governments. ICT was thus “the great legitimiser¹⁵¹” and an integral part of the reforms programme.

¹⁵¹ Please see Noir and Walsham (2007)

The assumptions behind the introduction of ICT, among other things arose primarily from the notion of integration – both cross departmental integration at the back-end as well as services integration at the point of delivery. We have already discussed how integration as an institution aligned interest of actors in favour of integrated services delivery through mechanisms such as portals and telecentres. The widespread support for e-governance initiatives and for integration, both in the developed as well as developing worlds, arose primarily based on techno-deterministic literature and assumptions regarding related applications of ICT in the business sector (Navarra and Cornford, 2004). Such discussions have not considered the implications of ICT, particularly on the nature of tasks and processes as well as organisational configurations. Though the initial set of scholarly work generally indicated successes of integration and disintermediation in the private sector, bulk of the later studies showed failures on both fronts.

Yet, the notion of integration continues to be unchallenged in most of the e-governance projects attempted all over the world. The motivation for non-state operated integrated ICT front-end services delivery centres (telecentres) stems from the underlying philosophies of the reforms programme as well as the human development paradigm that gained prominence in the late 1990s. Substantial resources were earmarked by countries and multilateral agencies for establishing telecentres based on the assumption that these centres could bridge the digital divide, offer development solutions and work as key actors in local governance.

In the process, telecentres gained prominence as a development phenomenon. What made telecentres attractive was the perceived possibility that a range of services could be offered in an integrated manner through a single interface in rural settings. This gave rise to the attributed multipurpose nature of telecentres. The possibility of multiple services and hence multiple income streams drives business models of telecentres. We, however, find that telecentres have failed to offer multiple services and are confronted with issues of survival.

It is against the above mentioned background that this study was undertaken in order to understand the various dimensions associated with the attributed notion of multipurpose nature of telecentres. The review of literature helped in uncovering the underlying assumptions and connections between the conceptualisation of telecentres and the NPM led governance reforms and e-governance programmes. By adopting the larger canvas of governance and e-governance, the research was able to link issues across them and identifies factors that constrain delivery of multiple e-governance services over telecentres.

6.2 The Study

This study has tried to address the primary research question: *to what extent do telecentres enable multipurpose service delivery* and related sub-questions: *do telecentres and its ascribed multipurpose phenomenon have implications for e-governance services delivery? If so, what and why?; how do ICT implementation and the need for intermediation affect multiple service delivery over telecentres? and how is the sustainability of telecentres implicated by the attributed multipurpose nature of telecentres?*

The concept of ICT and management as institutions, as used by Avgerou (2002) gave analytical strength to the analysis. Theorising integration as an institution also gave important insights. Services were abstracted as black-boxed yet dynamic heterogeneous actor-networks. This conceptualisation succeeded in capturing the complexities associated with services as well as issues that arise on account of the interactions between institutional actors. Introduction of telecentre into the heterogeneous network that constituted a particular service was analysed as attempted translations. The concept of functional simplification and closure showed how the characteristics of services, processes and associated organisational structuring affect the way a particular service is delivered. Many services cannot be offered without human intermediation at various stages of the tasks/processes involved. In this way, not only did the study highlight the difficulties with these attempts (even for channelling a single service) but also highlighted the complexities in attempting multiple services to achieve the ascribed multipurpose nature.

The research adopted an interpretive stand and followed a longitudinal multiple embedded case study method. Three separate case studies were undertaken for this research. Apart from an extensive study of a telecentre project, case studies of two other e-governance projects that are aimed at providing a single class of services were also undertaken. This approach gave opportunities for comparing and contrasting across the projects and provided a good understanding of service delivery across these three projects. Qualitative data was collected and analysed as part of the study.

6.3 Intermediation and multiple service delivery

The research framework helped us in understanding the implications of technology in terms of functional simplification and closure as well as the institutional and organisational characteristics associated with services. A key aspect that emerges from the study is the need for intermediation associated with services and its particular implications in the front-end of service delivery. Let us now consider how the need for intermediation affects multiple service delivery over telecentres. As discussed earlier, most of the telecentre studies as well as the literature on ICT based intermediaries in the context of developing countries indicate that the intermediary has to be local, should have good entrepreneurial abilities, ICT skills and understand the potential of ICT for social change (Heeks, 1999a; Cecchini and Raina, 2002; Cecchini, 2003). The literature also suggests that if the intermediary is local then he/she will be trusted (Heeks, 1999a; Gopakumar, 2007).

It looks obvious that the entrepreneur or the intermediary managing the telecentre should be from the local community. Most projects have invested substantially in improving the ICT and entrepreneurial/management skills of entrepreneurs based on the above understanding. In the context of developing countries where there are acute shortages of doctors, agricultural extension workers, teachers, etc., it was believed that the telecentre intermediaries would be able to channel the digital content pertaining to specialised domains to the people who need such details.

The study highlighted the implications of global institutions on local processes and practices. We found how services delivered in a particular context are a resultant of the complex institutional interactions between the local and the global disembedding institutions. As Avgerou (2002: 244) points out “medical and pharmacy sciences are major disembedded institutions claiming universal knowledge regarding diseases, health and therapy”. In a given context like Kerala, the modern healthcare services are confronted with the global institution of modern medicine primarily with the local institution like the institution of *caste*¹⁵². Whereas doctors are considered as the facework of the abstract system of modern medicine, the local institutional pressure of caste exerts pressure on the selection of the specific doctor by people. It may be noted that the conceptual apparatus employed in the study has the capability to capture such institutional interactions.

It can be seen that many of the abstract systems related to specialised scientific knowledge including modern agricultural practices, education and even governance are disembedded institutions that claim universal knowledge in their respective fields. Though the facework as well as characteristics of the abstract system would vary according to the context and local institutions, the facework would necessarily have the logics of the global disembedding institutions. In other words, the accepted facework of global institutions would vary according to the characteristics of the local context. The institutional framework, however, would only allow this accepted facework to be the intermediary for that particular service in a given context. This calls for a radically different understanding about the requirements/profile of a telecentre intermediary.

It follows from the above discussion that the assumption of the significance of local entrepreneur for successful interaction needs enquiring. Being local would be helpful in carrying out tasks (such as payment and low level training) that require the intermediary to be a member of the local community or institution (e.g. caste). However, it would require him/her to be a member of a specific global abstract system to provide intermediation for services associated with that global abstract system (e.g. modern medicine). He or she needs to be seen as the accepted facework of the global institution in the local context.

¹⁵² Please see Srinivas (1996) for more details on caste system in India.

From the point of view of the telecentre, the intermediary would then need to play *multiple* faceworks of *multiple* abstract systems if *multiple* services were to be offered. This study shows the difficulty in one person taking up multiple institutional memberships and hence the difficulty in intermediating a range of services. ‘Access points’¹⁵³ are distinctly differentiated by the institutional logic that underlies the specific service associated with the abstract system. A single intermediary would not be considered as facework of a range of abstract systems. Being one facework (e.g. doctor) inhibits his/her being a facework of another (e.g. agriculture officer). The need for intermediation thus affects multiple service delivery over telecentres and draws our attention to the issues surrounding the conceptualisation of telecentres.

Telecentres were conceived to provide a range of services including information services directly to the people. Drawing on the experiences from KISSAN project and comparing that with the Akshaya telecentre case, the study gives evidence to the effect that use of ICT might be more helpful for intermediaries or for intermediary institutions. It is interesting to recall that it was the institutional nature of integration that exerted pressure favouring telecentres, over the use of ICT within intermediary institutions.

6.4 Complexity of interactions

Based on the study, let us also discuss the implications of the ascribed multipurpose phenomenon on e-governance services delivery. Telecentre literature points out that interactions with the local community and stakeholders are important for the survival of telecentres. We have, however, seen that this notion of interaction seem to be highly limiting and does not consider the larger gamut of interactions that need to happen with a range of actors, including those connected with the anticipated services. As discussed earlier, telecentres need to be engaged in complex interactions with governments, private entrepreneurs, international donors, telecommunications suppliers, local

¹⁵³ Access point is the human face of an abstract system in a given context. While doctors are the access point to the institution of medicine, agricultural professionals are the access point to the institution of modern agricultural practices.

companies, civil society organisations and individual community members (Madon, 2005).

The current study has extended this approach, to understand the implications of providing multiple services through telecentres. Analysis of governance services reveals that it consists of a number of actors that are generally *assembled* together in a rather *fluid* but *contained* state. The power, politics and complexity of interactions in services was captured by conceptualising them as dynamic heterogeneous actor-networks that are considered black-boxed over time. These actors consist of institutional actors as well, and the services are governed by institutional interactions and the resultant institutional logics in a given context. The interactions in the context of services are highly complex considering the large number of institutional actors that play a role in the assemblage of the services. It is to this black-boxed but dynamic heterogeneous network of actors that telecentres are now introduced as an additional actor. This is an attempted translation of the network that constitutes the service. The resultant network after this attempt depends on whether the institutional logics of the service are aligned with the underlying interests of telecentres or not. This is the case with one single service. Attempting multiple translations with multiple services is a requirement to becoming a multipurpose telecentre. This would also mean attempting multiple interactions across many different and conflicting institutional logics.

There are two aspects to be discussed in this context. The complexities associated with attempting multiple translations need to be noted. Similarly, an important aspect to be considered is that the success of one translation could enable or constrain another translation. While the former is about the difficulties faced by telecentres in interacting across a huge range of actors to achieve the multipurpose nature, the latter is about how the successful delivery of a particular service would then constrain or enable another set.

This study shows that successful translations with a network of one service enable the telecentre in successfully attempting more translations in the similar set of activities/domain. For example, if we consider the case of e-pay, we find that once any one government payment service has been successfully initiated, citizens are ready to

use the system to make payments for other services as well. In other words, the inclusion of payment of service say x , does not seem to exclude payment for service y , provided it is similar to service a . Payments for other services, however, may be constrained on account of the characteristics of that service or the actors involved in that service.

Telecentre intermediaries are considered to navigate roles and belong to multiple networks (Bailur and Masiero, 2012). Evidence from this study, however, suggests that such navigation of roles as intermediaries is not easy to achieve. For example, taking multiple institutional roles or trying to be facework of multiple institutions would not work. By becoming the facework of one abstract system it becomes difficult for the same individual to be the facework of another abstract system. Thus, being successful in offering one service could constrain another set of service or services. Whereas membership in the local community was helpful in successfully offering low level ICT training programmes, the same became the reason why people do not use the centre for attending any advanced ICT training programmes. They do not believe that the centre and their local entrepreneur are capable of offering the kind of training programmes that could be offered by ICT training centres in urban areas. This was a widely held perception irrespective of the actual qualification of the entrepreneur.

Thus, telecentres are confronted with both the problems of multiple translations as well as how one translation constrains or enables another. The study shows that there is a motivation towards adding more services along a single class of service. We have already seen that focus on a single class of service might increase the likelihood of success of telecentres (Kuriyan *et al.*, 2007). In the case of Akshaya, we find that lower level ICT training and e-pay operations add up to more than 98 per cent of the total revenue and activity time of most centres. The evidence on the aspect of one class of service constraining another is not exhaustive considering the very small number of e-governance services offered through the centres. However, as pointed out in the previous paragraph, one could find that lower level ICT training and the local identity of the entrepreneur were reasons for people not to use Akshaya centres for advanced ICT training programmes.

Evidence from this study questions the fundamental notion of multipurpose or integrated nature of telecentres. The two aspects that we are currently discussing have neither been considered at a theoretical level nor at a practical level in the conceptualisation and implementation of telecentres. One could argue that the ascribed multipurpose nature of telecentres paradoxically inhibits multiple services!

6.5 Sustainability and multipurpose nature

This study shows how sustainability of telecentres is implicated by the attributed multipurpose nature of telecentres. Sustainability of telecentres is generally discussed in terms of financial sustainability and social sustainability- either separately or taken together (Masiero, 2011). Studies have pointed out that sustainability revolves around factors such as financial viability, staff capability, community acceptance and service delivery (Baark and Heeks, 1998; Whyte, 1999; Hudson, 1999; Roman and Colle, 2002; Harris *et al.*, 2003; Harris, 2004; Furuholt and Sein, 2005). Writers like Madon (2005) point out that the long-term survival of such telecentres depends upon the way in which interactions are managed with a host of actors.

As discussed, financial sustainability of telecentre is built around the multipurpose nature and expected multiple income streams. As was analysed earlier, each and every service is considered as a heterogeneous actor-network consisting of many institutional actors. Sustainability of a service thorough the telecentre will depend on how far the telecentres could be successfully translated into the network¹⁵⁴. Drawing on the earlier analyses and considering the nature of the telecentre and the intermediary it is but obvious that achieving multiple translations are difficult and that telecentres cannot become an actor in each and every one of the networks that constitute the anticipated services. In other words, only those activities will be sustainable through telecentres where a resultant network was created after successful translation.

The study has extended the arguments of Madon (2005) regarding sustainability by pointing out the need for effective interactions between the various social actors and

¹⁵⁴ The network of actors is black-boxed but dynamic, and the inclusion of the telecentre into the network might fundamentally change the way the network operates.

with the local and global institutions. While the exact mode of involvement of these actors would vary across different contexts, it is evident from literature as well as the studies undertaken that successful translations are key to the sustainability of activities in the context of a telecentre.

The importance and the difficulties of coordination of a network are well known. The micro-management and the coordination of such networks at a local level are critical for the success of offering e-governance services and other services through telecentres. Telecentres literature as well as the Akshaya case shows that most of the telecentres/entrepreneurs do not have the capability to coordinate the complex set of network. On account of the fact that these networks need to be different across various space and time, centralised systems/agencies undertaking or promoting such projects also find difficulties in micro-managing at a centre to centre level. While the centralised agency can come up with a set of 'standardised' systems based on the interactions with the macro social actors of governance; it will be extremely difficult for it to manage the interactions of the specific networks associated with a particular telecentre.

The discussions in this section are not aimed at providing a framework to evaluate sustainability, but to provide a theoretical understanding on how sustainability of telecentres is implicated by the attributed multipurpose nature of telecentres. We have looked at telecentre sustainability from the point of view of activity or service sustainability. As already discussed, one of the key aspects to service sustainability is whether the telecentre entrepreneur has the membership to the institution that governs that particular activity or service. The discussions on translations should be seen as requirements for sustainability of individual services. In other words, even the sustainability of a single activity of the centre would require a complex, diverse and dynamic process of translations. The more the number of identified activities, the larger would be the associated complexity. Further, it is important to note from the earlier sections that the successful translation of one service could constrain the translation of another.

It follows from the analysis that financial sustainability of ICT centres is taken care of only in situations where one or two dominant class of services are offered. This has

been the clear evidence from the Akshaya project as well. Surviving centres have not generally bothered to undertake multiple services. Having understood the limitations of their operation, the more successful and surviving telecentres have focussed on and consolidated, primarily one or two services – training and e-pay. While low level ICT training cannot be considered as an online service, this has had substantial demand in the rural settings. The other minimal services (constituting about 2 per cent of the revenue and time) were offered only because the centres were able to sustain themselves financially on the dominant two services.

The theoretical deliberations and supporting evidence from the field show that the idea of an ICT interface providing a range of services is nothing but techno-deterministic. Such centres are theoretically constrained to provide only those services where the institutional logic of the service would allow that to happen. In addition, on a practical note, the complexity associated with trying to provide multiple services is difficult for the intermediary to achieve. In effect the successful centres offer only one or two dominant class of services.

The overall sustainability of the centres would depend on these dominant services. Researchers like Stoll (2003), Wellenius (2003) and Rao (2008) argue that telecentres that fulfil public services role cannot become financially sustainable and requires funds partly from external sources. However, such arguments assume that multiple services are possible and that market price correction needs to be attempted by way of subsidy in one form or the other. The importance of this study is that we have been able to show that this assumption is unfounded and that irrespective of the support, these centres would still not be able to provide the range of public services that are anticipated from them. Moreover, the analysis shows that the multiple income based business models of telecentres are fundamentally wrong. Relevance and social sustainability of telecentres would require a good understanding of the limitations of telecentres rather than its assumed potentials.

6.6 Telecentres and multipurpose e-governance service delivery

The analysis provides important insights into our current understanding about telecentres - regarding nature of services, integration, need for local intermediary, sustainability, etc. In the process, this study has been able to provide a good understanding about the extent to which telecentres could enable multipurpose service delivery.

We have seen the role played by integration as an institution in the conceptualisation of telecentres. The conceptual framework of the study has helped us in understanding the difficulties associated with the telecentres trying to offer even a single service. We have further traced how these complex interactions of institutions and their underlying logic needs to be confronted in multiple ways for a range of services to be offered. We have also found that functional simplification and closure attempts across services are complex with the possibilities of creating interdependencies. The analysis also showed how multiple points of offloading from online systems would be required for many types of services delivery. Moreover, our analysis has shown that the success of offering one service could very well constrain another. The aspect of intermediation and sustainability of services also helped this study in highlighting the myth behind the multipurpose nature of telecentres.

Main stream e-governance literature has mostly considered e-governance services as a homogenous set of services without giving adequate focus on the institutional and organisational characteristics and dynamics associated with these services. Hence the arguments are based on the assumption that if a particular service works, then all the services would. This is a very simplistic way of looking at the services and the complexities of institutions, actors and interactions that make up every service. It also obscures the implication of ICT implementation and its characteristics of functional simplification and closure. Analysis of the dynamics behind the heterogeneity of a range of services provides a good understanding of the difficulties in achieving integrated service delivery or the phenomenon of multipurpose nature telecentres.

Based on this study, we observed that such ICT delivery centres would be able to provide one or two (a few) services rather than an unlimited number of services. The multipurpose nature would then have to be considered and confined to a well-defined set of few services. Telecentres may lose much of its charm as a development phenomenon in the process! The learning from this study has important implications for policy makers as well as practitioners.

Cases of integrated services delivery in developed countries are also not very different or encouraging. The portfolios of services offered/constrained are found different from country to country depending on their historic and localised rationale of institutional presence. Studies by West (2004) and Chen (2010) in the context of USA, Torres *et al.* (2005) in the context of Europe, and Reddick and Turner (2012) in the context of Canada reveal that government portals have not been able to provide the range of services that were initially envisaged through them. Advanced online transactions are practically non-existent in most portals all over the world (Chen and Thurmaier, 2008). Using the framework of this study, it can clearly be seen that the logic of what work and what does not is associated with the characteristics of the services, complexity of interactions, organisational configuration and functional simplification and closure attempted. The United Nations E-government survey (2012) have also found that even in the case of developed countries portals are used for providing some static information than for any meaningful transactions. Moreover, the study also identified that the usage levels of available e-services remain very low. Though the idea of integrated ICT front-end, single stop shops, portals and models of integrations have been discussed for a while, very little is actually known about their status through scholarly studies (Kohlborn *et al.*, 2013).

6.7. Governance implications

In the earlier chapters, we traced how the bureaucratic form of organising was being put aside in favour of a new reform regime built around the powerful assumptions behind NPM, ICT and integration. We found that the bureaucratic form of organising is fundamentally and intrinsically related to the principles of modernity including its non-inclusive nature (Kallinikos, 2004a). Distinction of roles from individual was a major

innovation that is fundamental to the bureaucratic form of the state as well as its processes. It is this essential characteristic that helps human beings to undertake action along well defined and delimited paths by isolating themselves from their *personal individual* to the *organisational role* specified for them.

This powerful theme has been an underlying philosophy of most of the institutions of modernity including abstract systems such as medicine, law, agriculture, etc. This principle also epitomises the democratic principles of equal treatment of the members of a society as well as rational decision making processes (Cordella, 2007). As against the arguments by advocates of reforms, writers such as Hyden (1983) and Kallinikos (2004a) suggest that it is the lack of not adhering to principles of bureaucracy that is the fundamental problem with states. Using the concepts of functional simplification and closure and drawing on field data, the study also provides strong support to the e-bureaucratic arguments of Cordella (2007) on the use of ICT to improve efficiency and effectiveness and reinforcing the egalitarian principles of bureaucracy.

Handing over the services of the state to entrepreneurs fundamentally questions the egalitarian principles that were otherwise embedded in the bureaucratic form of organising. A concept of citizens (Cibbora, 2005) is replaced with one of customers. Though, initially Akshaya entrepreneurs tried to enrol all possible people in the village on to the new network, it was seen later that this trend changed and the services were restricted to people who were willing and capable to pay the service amount. Segmentation of the telecentre users was eventually created and ‘*privileged customers*’ were extended special services like collection from home, reminders about payment and credit facility for usage.

“Of course you need to differentiate between your customers. I need to make sure that the ones who bring in most of my business are specially taken care. I even resort to a bit of cross subsidy to ensure that they are happy with me.”

Akshaya Entrepreneur, Kottakkal

After the initial enthusiasm, most entrepreneurs started taking steps to boost their business and financial inflow. Efforts for social activities and interventions gave way to

economic entrepreneurship (Madon, 2009). The conflicting logic of management, ICT, bureaucracy and egalitarian principles of state plays itself out in these centres - between private value and public value (Cordella and Willcocks, 2010; Cordella and Bonina; 2012). On the one hand, ICT innovation and its alliance with the institution of management favour outsourcing (Avgerou, 2002). On the other hand, we observed from the case as well as the theoretical foundations of these institutions that outsourcing could undermine the very nature of egalitarian principles of governance. Cordella and Willcocks (2012) criticises the concept of *contract state* since it is based primarily on the core competency argument, applicable to competitive environments. They point out that democratic principles and need for generating public value should guide strategic ICT decisions including that of outsourcing. If centres run by non-state actors were to be the point of citizen contact for a range of services in countries such as India, it automatically raises a number of theoretical as well as practical questions on governance.

The logic of efficiency embedded in NPM and ICT innovation further confronts the logic of effectiveness that is an underlying logic of the state and bureaucracy. In an effort to improving efficiency and productivity, entrepreneurs continue to choose between those services that maximise income for their computer hours rather than trying to provide those services that may be seen by the state or the citizens as more important for the region.

“Yes, we have custom made CDs on agriculture, health, education, etc. provided by Akshaya office. The project office also keeps telling us about providing these set of information to people. I am not sure who wants it. Not seen anyone coming for this. What is my advantage? Nobody is going to pay money to watch these CDs. I can run a class during that time.”

Akshaya Entrepreneur, Perinthalmanna

It is not significant as to what an important service is or what is perceived as an important service, it still follows that the logic is one of efficiency and not effectiveness. As we have already seen, there aren't many e-governance services working in these centres to do a more detailed analysis of the same. It emerges that

unlike the logic of roles inscribed within the institution of bureaucracy, entrepreneurs cannot suspend or isolate themselves from the ‘person’ that they are and the logic underlying their *being* makes it inevitable that they pursue a goal that is unlike that of bureaucracy.

As has been pointed out, the most apparent issue arising out of this scenario is the selection of services that entrepreneurs are willing to offer through centres. The provision of these services is linked to the financial returns from those services in the long run and would hence have in any case been a barrier to the promised set of services that the bureaucracy has historically been offering. Whereas the institutional forces of ICT and integration tend to portray that services hitherto provided by bureaucracy would be offered through a single window in a more efficient manner, the same forces confront that of bureaucracy to restrict the number of services that can be offered through such centres.

Non-inclusive nature coupled with rule bound behaviours is also considered to be pivotal in avoiding opportunism and favouritism (Kallinikos, 2004a). ICT and its ally NPM promise to do away with the rent seeking opportunities and thereby ensuring information symmetry, efficiency and accountability (Singh and Sahu, 2008). Such arrangements with non-state actor could only give rise to private monopolies with possibilities of information hoarding and rent seeking. There are no e-governance services other than e-pay and downloading of forms and hence there is no evidence in the project studied as to whether telecentres have made any difference to this aspect.

Deviation from the roles assigned, and efforts to interpret policies using discretion and taking decisions based on beliefs and stereotyping have been found particularly among the street-level or citizen facing bureaucrats (Lipsky, 1980). These deviations¹⁵⁵ from the institutional norms of bureaucracy lead to corruption, nepotism, etc. What is interesting to note from the point of view of our discussion is that rent seeking happens in circumstances where the institutional framework considers rent seeking as inappropriate and a deviation.

¹⁵⁵ Such deviations could be discussed as the resultant of the interactions between the *global* bureaucratic institution with the *local* institutions such as local culture, caste, etc.

The non-state actor models without specification of roles leads to a situation where such tendencies cannot be theoretically even be considered as rent seeking. It is appropriate in a market scenario to segment the customers and come up with preferential pricing mechanism. It has been seen that politicians in India try to block new forms of services delivery on the realisation that the new forms threaten their ability to extract rents (Bussell, 2009; 2012). It is very likely that telecentre intermediary would see an opportunity for rent seeking if these services were to work. In other words the much discussed transparency that is attributed to the non-state actor run centres under an NPM regime does not seem to have a sound theoretical or practical basis. The very basis of the assumed link between ICT and increased transparency is contested in the case of OECD countries as well. Studies reveal that ICT does not seem to have made any major impact on accountability in countries such as United States (Norris, 2004; Pina *et al.*, 2007), Canada, Australia, New Zealand and other major 15 EU countries (Pina *et al.*, 2007).

What about the core notion of integration that underlies the conceptualisation of telecentres? Does integration lead to more democratic accountability? It again becomes important to point out that the bureaucratic order through the limiting of roles plays an important egalitarian and accountability role. Democratic accountability requires the institutionalisation of distrust into the architecture of democracy (Sztompka, 1999). Division of power, checks and balances and limited competence of institutions is a fundamental principle of democracy, undertaken to consider distrust that institutions would otherwise tend to expand, monopolise decisions and abuse their powers (Sztompka, 1999). Hence for democratic accountability it is important that explicit construction of the mechanism of mutual control among different institutions, branches of government and so forth needs to be undertaken. Integration attempted through NPM does not consider such fundamental governance issues and hence the argument that integration would help achieve accountability looks very naive. The advocates of NPM might possibly want to integrate the institutions of judiciary, parliament and executive for more citizen centeredness!

6.8 Multipurpose vs. multimode – different approach

This study has shown that the assumption of multiple services through telecentres do not necessarily happen on account of reasons that we discussed in earlier sections. It was identified during the study that citizens wanted different set of services to be offered over different platforms - computers, handheld devices, Internet, telephones, televisions, physical documents, etc. These requirements were based primarily on the characteristics of the service. As was seen from the study, citizens used telecentres for making payments but agriculture office for agriculture related information and local primary health centre or doctor for availing the healthcare related information.

In the case of KISSAN project, though the price information was available on the website, hardly any farmer used this service. Instead all price related information was being transacted over their landline or mobile phones. In the case of Akshaya as well, none of the farmers came to the centre to browse and get the price details from the portal. Whereas the farming and other details on the website as well as the query system was used by the intermediary AEO, the telephone system was used more by the farmers to get their queries answered by the KISSAN team. As pointed out in the case study, KISSAN follows a multimode approach. This multimode approach including website, telephone and television seems to have helped users to avail different services from the project.

An approach towards multimode as against multipurpose seems to be more helpful in e-governance services delivery. The multimode approach mentioned here is different from approaches described as multimode, multichannel or convergence discussed under mainstream e-governance literature (Roy, 2006; Misra, 2011; Navarra and Cornford, 2012). Whereas convergence refers to the possibility of offering audio, video and other materials in an integrated manner over a portal, the multi-mode and multi-channel refers to such portals being made available through multiple channels or devices.

All these approaches again pre-suppose the creation of a portal (point of delivery) where services can be provided in an integrated manner. Such services are then anticipated to be provided through multiple channels. The website could be technically

made with a view to be used across multiple devices. The multi-mode approach being discussed here is devoid of an initial assumption of integrated service delivery. The enrollment of actors into networks surrounding the technology requires that these actors adopt attitudes and actions congruent with those of the interests inscribed in the technology (Walsham and Sahay, 1999).

Another way of looking at this is to recognise how these inscribed interests are aligned with the interests of other actors. For example, agriculture price information needs to be provided over telephones/mobile phones or local newspapers. Televised programmes have a significant impact on understanding information regarding health, agriculture, education etc. The approach is to identify the most appropriate mode of providing a service by considering the social and the technology together, rather than presupposing a technology and assuming that all services could be provided through them. Such an approach takes the focus back onto the services and citizens. As was clear in the case of Kissan, the back-end database for the provision of information could be the same, though the information is provided through appropriate modes/channels. Most of the e-governance projects undertaken are led by the assumption of integration from its very conceptual phase. The argument here is to consider a rethinking on this very fundamental aspect.

As new forms of devices and technology options come up, they become the new *messiah* of e-governance and development. In the phase that Heeks (2008) refers to as ICT4D 2.0, there was a huge enthusiasm for employing mobile phones. Heeks (2008) points out that considering the constraints of the telecentre model, ICT4D 2.0 is more likely to happen through *m-development*. There is great enthusiasm about the use of mobile phones and web 2.0 (and web 3.0) for delivering e-governance services in an integrated manner (Kaplan 2006; Pena-Lopez, 2007; Thompson, 2007; Singh and Sahu, 2008). Though the discussions on the use of such technologies are increasing, has the underlying philosophy changed? Not really.

As soon as a new technology/device emerges, there would be excitement about conceptualising it as point of delivery of e-governance and other services delivery in an integrated manner. The institutional pressure of integration does not allow alternate

thinking to take shape. The new devices or technologies would be constrained along the same lines as the telecentres, but due to a different set of reasons and probably for a different set of services. For example, Kaplan (2006) draws our attention to the constraints in using mobile telephones in developing countries as a healthcare intervention on account of issues of stigma and privacy since there is shared use of the devices. Thompson (2007) highlights how the paradigm of social life associated with Web 2.0 has implications on services delivery. Until there is an understanding among policy makers and practitioners about the underlying issues, it looks like the quest for that *magical* technology or device that would finally allow integrated service delivery will continue to excite human minds. ICT4D 10.0 may not be far away.

6.9 Services – the drift

It is important to note at this stage that the above discussions should not give rise to a sense of *static regime*. The conceptualisation of services in this study provides for its dynamic nature. Giddens (1984) points out that work relations change through changing routines, rules, and resources. Actors in governing interactions make use of the enabling as well as constraining, the conserving as well as power elements of the interactions they participate in (Kooiman, 2003). Attempts in this direction need to be considered as projects in themselves. One may consider a creative drifting process (Ciborra, 2000) that is embedded with an attitude of care, hospitality and cultivation rather than controlling management measures as a possible approach under such circumstances. As pointed out by Latour (1986: 267), “the spread in time and space of anything – claims, orders, artifacts, goods – is in the hands of people; each of these people may act in many different ways, letting the token drop, or modifying it, or deflecting it, or adding it, or appropriating it”. Structural dimensions of governing interactions are limited and broadened by institutions, general social constructs, patterns of communication, material and technological possibilities and societal power distributions (Kooiman, 2003). Would ICT access be provided to existing departments/agencies or intermediary institutions? Would doctors or agricultural officers work from telecentres on specified days in a week or month. This would require institutional changes and is a matter of policy choice and negotiations. Such or similar changes could possibly happen over a period of time. The more important aspect that needs to be considered is the motivation

that drives any such changes. Are they fundamentally driven by the need for enhancing egalitarian principles and public value? If not, then the whole change is questionable. If fundamental principles have to be followed rather than apparent ones, we would require a very different approach to reforms and e-governance and in the way in which e-governance is evaluated (Cordella and Bonina, 2012).

6.10 Contributions of the study

6.10.1 Theoretical contributions

Telecentre studies have rarely addressed the issues and linkages with e-governance and governance adequately. This study has traced the conceptualisation of telecentres itself to the way governance reforms have been attempted and the role played by ICT as an institution. Further this study brings out the huge enthusiasm for integration of services in the context of NPM and e-governance. The notion of integration has been taken from the business world and was supposed to satisfy the citizen centricity as well as resolve the issues of silo style functioning of the bureaucratic form of state. Bulk of the literature discusses integration from a technical and managerial perspective. An alternate theorising of integration adds to our analytical understanding of how it plays a role in e-governance and telecentre projects. By considering integration as an institution, it was possible to show how achieving integration was not rational choice but based on granted assumptions. The alternate theorising also showed how the power and politics of actors play a role in taking an approach that is aimed at ensuring integration of services at the point of delivery. Such efforts lead to policy directions that invariably lead to creation of e-governance portals and telecentres, making alternatives unthinkable. The underlying belief in the possibility of integration of services at the point of delivery leads to the ascribed multipurpose nature of telecentres. By theorising the concept of integration as an institution, the study has not only been able to address the research questions appropriately but has also contributed towards researching such phenomenon in IS studies.

An important contribution to literature is the conceptual consideration of every governance service as a heterogeneous network of actors that are black-boxed but

dynamic. Since actors also consist of institutional actors, such a framework helps in capturing all the local and global institutions that are associated with a service. In other words, the conceptualisation of services would analytically help in considering all the relevant institutions and institutional interactions in a given context. Such conceptualisation helps us to go beyond the distinctions of local and global and understand the institutional interactions associated with services in a given context. This conceptualisation also helps in extending the concept of abstract systems (Giddens, 1991) to consider institutional interactionism (local and global) across geographic locations as well as capture the dynamics involved. The introduction of an ICT innovation could then be considered as attempted translation, the process and outcomes of which could then be traced. Thus this conceptualisation not only provides a helpful mechanism to understand services in a given context but also captures the dynamic characteristics of the service. The interactions across the actors thus conceptualised, extend the theoretical construct of interactions as used by Kooiman (2003) for studying governing interactions in the contemporary world.

Drawing on the concept of functional simplification and closure, this study was able to highlight the heterogeneous characteristics of services, and its implications on tasks and processes as well as organisational configurations. The analysis showed how automation and offloading offline are part of the processes undertaken for delivering services. Such online-off line modes demonstrate the difficulties in integrating services and highlight the significance of human intermediation. The study also shed light on the importance of trust associated with intermediation in the context of services. It may be recalled that Giddens (1991) has argued that defined facework of institutions offer the intermediation to a service from an abstract system. Telecentre literature has long considered that a local person is significant to ensure the success of services through telecentre. This study questions this taken for granted assumption in the light of the findings that most services require intermediation undertaken by the facework member of the abstract system that constitutes the service. It is only if the service characteristics require a local person to act as the facework of the service that the argument made in telecentre literature would work. The study also points out that the facework member of an abstract system need not be universally defined, but would depend on the context. Considering services as a heterogenous network of actors allows this aspect to be

analytically addressed. The adopted theoretical approach also gives the analytical capability of considering the complexities of intermediation associated with the efforts to provide multiple services through telecentres. These are important contributions to literature.

Majority of the literature on NPM and ICT point out that ICT innovation like e-governance and telecentres would lead to achieving citizen centricity, efficiency, transparency, decentralised delivery and democratic accountability. The same school of thought based on a belief in the power of the market also considers contracting out many of the government activities as means of making government operations more efficient. Telecentres are one such mechanism where government services are attempted to be contracted out to a non-state actor (usually the entrepreneur). This study has clearly showed that such mechanisms have an inherent theoretical weakness of network failures. They are being led in a direction dictated by the intentions of the members of the network rather than following any democratic principles. This study showed how economic entrepreneurship and financial intentions overtook the direction of the centres and the network, and drew them into what was desirable from a financial point of view and not from a social point of view, as was initially envisioned in these projects. The phenomenon of closure of networks driven by the motivations of non-state actors is bound by design not to favour democratic accountability. In other words, the study shows that mechanisms brought in under the guise of accountability through the reforms process follow the principles of the market rather than egalitarian principles. The theoretical implications arising out of the telecentre intermediary being treated distinctly from a role based bureaucratic order is also profound.

While the study was focussed on e-governance services delivery over telecentre platform, the findings of the study also offers important learning and contributions towards our understanding of ICT based services in general.

6.10.2 Practical and policy contributions

A substantial amount of money is currently being spent on e-governance programmes in general and telecentres in particular in the context of developing countries. As

mentioned in Chapter 1, in India alone, the central government Department of Information Technology (DIT) is in the process of rolling out 100,000 Common Services Centres (CSCs)¹⁵⁶ across the country especially in rural areas. The country plans to subsequently roll out another 500,000 such telecentres as village knowledge centres¹⁵⁷ with the explicit idea of channelling specific domain knowledge to rural communities. We have also discussed attempts in many other countries including Bangladesh, Sri Lanka, Dominican Republic, Iran, Tanzania, Sudan, etc. for implementing large-scale telecentre projects. The study is topical and provides policy makers and practitioners' substantial insights about the issues confronting e-governance services and other services over telecentres and ICT mediated systems.

This study provides a sound analytical framework to policy makers on how e-governance services mediated through an ICT platform is affected by the interactions of governance actors. It is felt that the study would enable policy makers to understand the fallacy behind the techno-deterministic assumptions of integration and multipurpose nature of telecentres. The approach undertaken would also give practitioners a framework beyond the usual stakeholder based analysis to have a more complete understanding of services before attempting e-governance as well as service over telecentres. This framework allows them to understand aspects of sustainability associated with these services. The approach helps practitioners in identifying issues associated with the conceptualisation of the multipurpose telecentres and its multiple income streams based business models. An understanding that these centres could at best offer only a very few set of ICT based services would possibly help practitioners and policy makers in appropriate decision making.

Aspects of trust and need for human intermediaries associated with services have been clearly portrayed in the study. This raises questions regarding policy directions on integrated services delivery over telecentres as well as the policy preference for local entrepreneurs in running telecentres. The dis-intermediated mode of information delivery for achieving information symmetry and the idea of non-state operated ICT

¹⁵⁶ CSCs, as discussed in Chapter 1 are telecentres being created under Common Services Centre scheme (<http://www.csc-india.org>). CSCs are envisioned as the **front-end delivery points for Government, private and social sector services to rural citizens of India.**

¹⁵⁷ Please see <http://www.mssrf.org/ect/index.htm>

centres offering such services directly to rural end-users stems from the underlying principles of NPM and the institutions of ICT and integration. The institutional logics of these dynamic services cannot be simplistically considered to be amenable to integration or disintermediation.

A major finding with immense practical implications is that ICT seem be more helpful for intermediaries (e.g. doctors, agriculture officers, etc.) and being located in intermediary institutions (e.g. hospitals, agricultural offices, etc.) rather than for the end users in rural areas. The study also supports the e-bureaucracy argument that ICT when used to foster the fundamental foundations of bureaucratic form of government, can lead to improving efficiency and effectiveness. Another important policy implication highlighted by the study is the lack of democratic accountability associated with non-state operated telecentres. The findings from the study suggest that the democratic principles underlying the concept of citizens are being overlooked by the market based perspective of customer. The study shows how contracting out services have profound implications on the egalitarian functioning of societies and on notions of citizenship.

It is pointed out in literature that once services are integrated at the point of delivery (e.g. through a portal), then the same could be made available through multiple channels and devices. However, it has been found from this study that integration of services is difficult to achieve and that what is required is not the availability of the same integrated portal services over multiple channels. Instead, certain channels and devices have the capability to provide a specific service in an effective manner (e.g. agriculture price information is effective over mobile phones and not effective over the net). This study hence suggests that multi-mode approach should be about providing the appropriate service through an appropriate device (by considering the social and technical together). This understanding of multi-mode approach would be helpful for policymakers and practitioners dealing with delivery of services.

6.11 Limitations of the study

This research has drawn on the theoretical understandings from a range of allied fields. The choice of theories and the methodology adopted were both challenging given the nature of the research questions.

The project site was visited over a period of time (7 years) to observe and understand the phenomenon being studied. The research questions required such a longitudinal approach. While the research provides insights into key research issues, they would need further enquiry across time to understand the way issues such as trust acts upon work practices as well as the way people perceive possible new *facework* of abstract systems. While the longitudinal case study approach has contributed to the analytical strength of this study, it is also important to note its limitation in terms of the time required to understand issues in detail. While the conceptual apparatus was analytically sound to consider all kinds of local institutions, the lack of actual services came in the way of effectively employing them. An interesting aspect that could have been captured in more detail was the implications of corruption as an institution in the local context.

In theoretical terms, the use of an interpretive approach seems to have done justice to the research, though it is important to note some of the limitations. Certain ambiguities were encountered across certain conflicting situations and the predominant understandings have been captured in the study. Another important aspect that needs to be highlighted is that the interpreted results are based on the particular context in which the study was conducted. While the research understanding could be generalised across many environments (Walsham, 1993; 1995; Klein and Myers, 1999; Lee and Baskerville, 2003), it is important to take note of the specific particularities of the new context, when the understanding from this study is extended to that context.

6.12 Areas for further research

Telecentres continue to draw the attention of national and international policymakers as possible “tools” that could act as outreach posts of a range of services and thus aid the development of a region. We hence observe that substantial resources are being

earmarked by various bodies for introduction of telecentres in developing countries. The current study needs to be viewed against the larger academic interest to understand the various dimensions associated with e-governance, telecentres and development. The current research has highlighted some of the issues associated with the multipurpose nature of telecentres.

However, this research has not focused on the assumed development implications of telecentres. This is an area that requires substantial scholarly work. The implications on various aspects of governance also require scholarly attention. This study has focussed on the issue of trust from the point of view of e-governance services through telecentres. An associated area for research will be to understand the effect and implications of various e-governance services on the trust of citizens upon governance and the state, explored to some extent by Avgerou (2006) and Smith (2010). Furthermore, the long term implications in this regard also need to be studied.

Drawing on Giddens (1984), it was argued in the thesis, that the current study does not rule out the possibility that such ICT innovations could change work practices and be institutionalised over a period of time. In-depth and fundamental academic research, especially focussing on the long term implications in this regard would be a key contribution to literature. An important contribution would be to trace the direction or institutional pressures that underlie any such change.

As discussed earlier, most telecentre studies have looked at sustainability from the point of view of financial sustainability. This research has contributed to literature in terms of understanding sustainability at the services level. However, more research needs to be undertaken to identify the issues surrounding the short term, medium term and long term sustainability of telecentres, extending the understanding from the current study.

The study has also highlighted key issues that arise on account of the outsourcing of governance or governments services to non-state actors. The study raised issues of failures, network drift and lack of democratic accountability associated with such arrangements. However, there are a range of issues related to governance including

implications of corruption associated with such arrangements that require further research.

6.13 Reflection

This research journey was part of my larger interest in understanding the implications of the interactions between technology, organisations and people. I was particularly interested in learning about e-governance and about the use of ICT for development. The study and the research experience have been very fulfilling and enriching. The philosophical base and outlook to my research were an outcome of my interactions at LSE.

The study gave me opportunities to visit, interact and read about many e-governance and telecentre projects, particularly in India. It was found that most telecentre projects had a very similar script – initial enthusiasm about ICT, great hope in integrated services delivery, large number of centres and ultimately difficulties in the survival of the centres.

My association with Akshaya project has been long and intense and I have attempted to closely understand the project and its various dimensions. Every visit to the district, centres and the villages revealed more interesting aspects regarding the project. In 2012, I came across an UN ESCAP technical paper published in 2009. The following is a paragraph taken from the article:

“In Kerala, India, telecentre networks were used as decentralised delivery points for government services on a public-private partnership model. The Akshaya, telecentre network project in Kerala, continued to provide, health, education, agriculture and legal services besides e-governance. These services empowered rural communities and enabled them to be active partners in the e-governance process. The telecentre networks have the ability to disseminate information to a large number of people, thus allowing public officials more committed towards community services. Further telecentre networks have contributed to reducing the space for corruption in the government sector due to the ICT based application process.”

It took a few moments for me to realise that the author was discussing about the same project that I have followed for over a decade. I remember that Akshaya project was

initiated because of similar reports regarding *success stories* elsewhere in the country and abroad. It looks like these have now been replaced with projects like Akshaya to fuel thoughts for new ones. ICT, integration, e-governance and telecentres continue to fascinate multilateral agencies and governments in spite of available evidence. So privileged are these concepts that attempts are always made to order the *social*. Scott¹⁵⁸ (1998) discusses four conditions that play a significant role in most planning disasters. They include “*administrative ordering of nature and society by the state; a ‘high-modernist ideology’ that places confidence in the ability of science to improve every aspect of human life; a willingness to use authoritarian state power to effect large-scale interventions; and a prostrate civil society that cannot effectively resist such plans.*” The story of telecentres does not seem to be very different.

6.14 Conclusion

The study has questioned the simplistic notion of the ‘multipurpose’ telecentre. The discussions in the thesis have helped us to understand how integration as an institution has played a role in the way the notion of multipurpose as well as telecentres were conceived. This study has brought to light the complexities involved in this notion as well as some of the important reasons as to why multiple services through telecentres are difficult to implement than what they are portrayed to be. The study also shows that characteristics of specific e-governance services are based on the complex heterogeneous actor-networks that constitute them. The analysis using functional simplification and closure has not only provided insights into the heterogeneous nature of services but also the significance of intermediation. Thus it also questions the analytical approaches that consider these services as homogeneous in nature.

The significance of trust in ICT mediated services and its implications on the multipurpose nature were also brought out. It was found that multiple services would require multiple intermediaries with multiple institutional memberships to be simultaneously present in the telecentre for providing multiple services. The study also showed how sustainability of services is based on the nature of their heterogeneous network and how the introduction of telecentres as an additional actor in that process has implications on the larger sustainability of telecentres.

¹⁵⁸ *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*

Our analysis shows that the institutional logics and the actors associated with the services do not in most cases have attitudes and actions congruent to the interests inscribed in the technology. What is evident from the study is that the introduction of telecentres into the existing networks that constitute most services does not lead to successful translations. If the ascribed multipurpose characteristics are on account of the institutional nature of ICT and integration, then one is forced to ask the question: multipurpose - for whom?

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Annexure 1

Interview map

The questions as well as the conduct of the interviews were intended to increase understanding about the four core themes of this thesis, namely Integration, Interaction, Intermediary and Sustainability. While these themes are not treated as discrete, their categorisation helped to guide the conduct of fieldwork and subsequent analysis of data. Each of these themes draws on wider concepts related to governance which were used during interviews.

Theme index

No.	Theme	Concepts considered
T1	Integration	governance reforms, ICT, development, NPM, citizen centricity, functional simplification, decentralisation, efficiency, effectiveness.
T2	Interaction	bureaucracy, networked governance, outsourcing, <i>contract state</i> , citizen, accountability.
T3	Intermediary	functional simplification, domain intermediaries, facework, abstract systems, trust, access point.
T4	Sustainability	functional simplification, service complexity, service delivery, dynamic nature of services.

Group :	Political leaders, bureaucrats and consultants at the state level
<p>Interview topics</p> <ul style="list-style-type: none"> • Kerala development model, crisis and governance reforms [T1, T2] • Linkages between governance reforms, development and ICT [T1, T2] • E-governance strategy: front-end versus back-end integration efforts [T1, T2, T4] • Significance of citizen centricity and decentralisation - integrated services at point of delivery [T1, T2, T3,T4] • Experience of e-governance projects/high visibility people oriented projects [T1, T2,T3,T4] • Significance and aspirations behind Akshaya project [T1, T2, T3, T4] • Implications of outsourcing government services [T1, T2, T3,T4] • State government support for Akshaya project [T1, T2, T4] • Support from government department/agencies to Akshaya project [T1, T2, T3,T4] • Complexity involved in services and service delivery [T1, T2, T3,T4] • Evaluation of Akshaya project – over the years [T1, T2, T4] 	

Group :	Officers of KSITM - Trivandrum office and project office
<p>Interview topics</p> <ul style="list-style-type: none"> • Linkages between ICT and governance reforms [T1, T2] • E-governance approach - significance of integration [T1, T2, T4] • Significance of the focus on integrated services at point of delivery [T1, T2, T4] • Integration – challenges and complexities in service delivery [T1, T2, T3, T4] • Efforts for integration- lessons and learning [T1, T2, T3, T4] • Significance of Akshaya project and multipurpose nature [T1, T2, T3, T4] • Entrepreneur (non-state actor) model of services delivery [T1, T2] • Support for Akshaya project [T1, T2] • Significance of telecentre intermediary [T3] • E-pay services – constraints and enablers [T1, T2, T3, T4] • Complexities associated with other e-governance services [T1, T2, T3, T4] • Evaluation of Akshaya [T1, T2, T3, T4] 	

Group :	Political leaders, bureaucrats, elected representatives of local bodies at the district level
<p>Interview topics</p> <ul style="list-style-type: none"> • Social backwardness of the district and aspirations about using ICT [T1] • Linkages between ICT and development [T1] • Decentralisation and services delivery [T1, T2, T4] • Implications of integrated services at point of delivery – significance of multipurpose nature [T1, T2, T3, T4] • Aspirations behind and experiences of Akshaya project –social and development implications [T1, T2, T3, T4] • Support for Akshaya project from local governments [T1] • Support from district offices of government departments/agencies [T1, T2, T3, T4] • E-literacy and telecentre usage [T1, T2, T3, T4] • Implications of outsourcing government services [T1, T2, T3,T4] • Experiences with e-pay services – constraints and enablers [T1, T2, T3, T4] • Experiences with other e-governance services – constraints and enablers[T1, T2, T3, T4] • Telecentre sustainability[T1, T2, T3, T4] • Evaluation of Akshaya project [T1, T2, T3, T4] 	

Group :	People under the ‘foot print’ of telecentres
<p>Interview topics</p> <ul style="list-style-type: none"> • Aspirations ICT and development [T1] • Expectations about e-governance services delivery [T1, T2, T3, T4] • Akshaya project experiences and personal stories (pre-literacy phase, e-literacy phase and post e-literacy phase) [T1, T2, T3, T4] • Importance of local community/geographic status of entrepreneur [T3] • E-literacy and telecentre usage [T2, T3] • E-pay services – constraints and enablers [T1, T2, T3, T4] • <i>Development</i> information services – problems [T3, T4] • Significance of intermediation in services delivery [T3, T4] • Significance of government services being offered by non-state actors [T1, T2, T3] • Telecentre sustainability over the years [T1, T3, T4] 	

Group :	Entrepreneurs
<p>Interview topics</p> <ul style="list-style-type: none"> • Profile of entrepreneur [T3] • Aspirations for an association with ICT [T1, T3] • Implications of being Akshaya entrepreneur – social entrepreneurship [T1, T2, T3, T4] • Telecentres and its multipurpose nature – challenges [T1, T2, T3, T4] • Telecentres and regional development [T1, T2, T3, T4] • Support for Akshaya project from state and local governments [T1, T2] • Support from district offices of government departments/agencies [T1, T2, T3, T4] • E-literacy and telecentre usage [T1, T3] • E-governance services delivery – challenges and experiences [T1, T2, T3, T4] • Telecentre sustainability – challenges [T1, T2, T3, T4] • State government and local government support [T1, T2, T3, T4] • Implications of local community support, trust and interactions [T1, T2, T3, T4] • Intermediation of services [T1, T3, T4] • Experiences and learning over the years [T1, T2, T3, T4] 	

Group :	Government officers attached to utility departments
<p>Interview topics</p> <ul style="list-style-type: none"> • Implications of e-governance approach and department administration [T1, T2] • Significance of integration – the focus on integrated services at point of delivery [T1, T2, T3, T4] • Implications of FRIENDS project on the department/citizens [T1, T2, T4] • Implications of Akshaya project and e-pay on department/citizens [T1, T2, T4] • Department counters and front-end services [T1, T2] • Outsourcing of government services delivery [T1, T2] • Service characteristics and process changes adopted for FRIENDS/e-pay [T1, T2, T4] • Role of intermediation [T3, T4] 	

Group :	Government officers attached to KISSAN project
<p>Interview topics</p> <ul style="list-style-type: none"> • Implications of governance reforms and services delivery [T1, T2] • Significance of integration – the focus on integrated services at point of delivery [T1, T2, T3, T4] • KISSAN project – challenges and experiences [T1, T2] • Multi-mode approach – learning [T1, T2, T3, T4] • Channeling through Akshaya centres - experiences and learning [T1, T2, T3, T4] • Significance of intermediation in service delivery [T3, T4] • ICT and intermediation [T1, T3, T4] • Constraints in rolling out agri-clinics [T1] 	

Group :	Government officers attached to FRIENDS
<p>Interview topics</p> <ul style="list-style-type: none"> • Significance of integration – the focus on integrated services at point of delivery[T1, T2, T3, T4] • Significance of FRIENDS project[T1, T2] • Concept of Service Officers [T3] • Support from participating departments/agencies [T1, T2] • Characteristics of services [T4] • Back-end computerisation and integration [T1, T2] • FRIENDS services delivery – experiences and learning [T1, T2, T3, T4] • Channeling through Akshaya centres - experiences and learning[T1, T2, T3, T4] • Significance of intermediation [T3, T4] 	

Group :	People/Farmers using the services of KISSAN
<p>Interview topics</p> <ul style="list-style-type: none"> • Aspiration for use of ICT in agro-advisory services [T1] • KISSAN services delivery – experiences with different modes [T3, T4] • Kissan portal – challenges in usage [T3, T4] • Channels and services – challenges and prospects [T1, T3, T4] • Kissan services through Akshaya centres – experiences [T1, T2, T3, T4] • Significance of intermediation [T3, T4] • Comparison between Krishi-bhavan and Akshaya centres [T1, T2, T3, T4] • Comparison between AEO versus Telecentre intermediary [T1, T2, T3, T4] 	

Group :	People under the ‘foot print’ of FRIENDS
<p>Interview topics</p> <ul style="list-style-type: none"> • Significance of integration – the focus on integrated services at point of delivery[T1, T2, T4] • ICT and administrative reforms[T1, T2] • Difference between Department counters and FRIENDS counters[T1, T2] • FRIENDS services delivery – experiences and learning [T1, T2, T3, T4] • Channeling through Akshaya centres - experiences and learning [T1, T2, T3, T4] • Significance of intermediation[T1, T2, T3, T4] 	

Concept of integrated services in Kerala – tracing the beginnings

Kerala has a unique and interesting historical background in terms of development experience, state-citizen relationship and its constituent highly influential and unionised workforce and bureaucracy. The creation of strong legitimacy and accountability upon the state were propelled by a combination of these historic events and geographic factors that aided social movements and facilitated positive social capital (Sen, 1992). The early achievements in social development and redistributive practices led to the coining of the much discussed term, *Kerala model of development* (Veron, 2001).

The rising social expenditure in a scenario of financial crisis and economic stagnation challenged the Kerala model of development (George, 1993; Tharamangalam, 1998; Chakraborty, 2005). Important factors identified for the crisis included labour militancy, high wages, trade union opposition to labour saving technologies and inefficiencies in public administration (Kannan, 1998). The rising unemployment had led to massive migration to various parts of the world, notable the Gulf region (Harilal and Joseph, 2000). Remittances from the expatriate community were largely used for consumption rather than for production (George, 1997). There was considerable debate in the 1990s regarding the need for governance reforms and economic development, by retaining the ethos of responsible state as well as public action. The attempted reforms programme were, however, guided by philosophies and premises that were at times at odds with the earlier development approaches of the state. Introduction of ICT into the reforms agenda was important both technically and politically.

Guided by the overall approach of the study, the following discussions are analysis led and the effort is to understand how the notion of integrated services over department level decentralised ICT front-end gained acceptance and legitimacy at the state level.

The Kerala state government

As discussed earlier, the 73rd and 74th amendments to the Indian Constitution in 1993 mandated the creation of democratically elected local self-governments at the village level. Kerala not only made legislative steps to devolve administrative powers but also took a major step, starting in 1996, to allocate 35-40 per cent of the state budget to local bodies, as it saw decentralisation as an opportunity to recast its development experience (Veron, 2001). Kerala's uniqueness was further demonstrated in the participatory planning and implementation through mass campaign as against the World Bank's recommendation for institutional reforms and division of functional responsibilities (World Bank, 1999; Veron, 2001; Issac and Franke, 2002). Though this approach helped in large scale participation of people and civil society in decentralisation processes, it did not lead to the expected institutional design and administrative structure on its own (Issac and Franke, 2002). It was increasingly felt that the functional responsibilities and the relationship between the hierarchical central structure of state government and the local bodies had to be redefined and restructured. This, in effect led to the adoption of the World Bank formula for decentralisation and NPM based reforms programme (Raman, 2009).

An Administrative Reforms Committee (ARC) was constituted¹⁵⁹ in 1997¹⁶⁰ by the state government (run by Left Democratic Front - led by left parties) to look into these issues. The ARC was headed by the Chief Minister and hence the observations and recommendations reflect the larger thinking of the then government. The terms of reference of the Committee included (a) "to suggest measures calculated to improve the efficiency of the administrative machinery to enable it to cope with the developmental activities in a welfare State" and (b) "to suggest measures to cut unnecessary and avoidable paper work and for using modern management techniques in administration" and (c) "to suggest measures including changes in the hierarchical setup for the co-ordination of the activities of the different Government departments and the Panchayat

¹⁵⁹ As per a State Government order Go (Ms) 7/97/P&ARD Dated, 26-5-1997

¹⁶⁰ It may be noted that the ARC was constituted before a policy on ICT was announced. The first ICT policy of the state was announced in 1998. A brief description of the same is provided subsequently.

Raj and Nagarpalika Institutions¹⁶¹ and for the avoidance of overlapping in such activities”.

The ARC produced 15 reports, collated together as the *Consolidated report of ARC* (2002). The report included detailed macro guidelines as well as department level recommendations. The details of the report are pertinent to this study and had profound implication on the conceptualisation of citizen centricity, integrated services at the point of delivery and multipurpose telecentres. The ARC recommendations criticised the bureaucratic form of government and drew substantial arguments from NPM school of thought. Given below are some of the observations as well as recommendations of the ARC that are relevant from the point of view of this study.

Commenting on the state bureaucracy, the ARC noted that:

“There are certain problems affecting bureaucracy in India, particularly in Kerala. There is a general consensus that a perceptible decline has taken place in the standards of public service. Though several reasons could be attributed to this phenomenon one cannot but pinpoint to the lack of discipline, both imposed from above and flowing from within. The culture of rights and demands probably had some justification in the beginning when Government servants were poorly paid and were victims of whimsical decisions by superior officers. But over the years, it has hardened into a negative behavioural pattern showing unwillingness to take on responsibility, incapacity for professional improvement and propensity for rude behaviour. This problem is compounded by an apathetic attitude on the part of supervisory officers who also act as if they are not accountable and feel that they have not been given the freedom required for being accountable. A general mood of cynicism is apparent.”

One of the key recommendations of ARC is regarding the need for increasing efficiency through the coordination and convergence of the activities of government departments. The report recommended that various departments should network their functions with a view to take advantages of the possibilities of integrated services to citizens.

¹⁶¹ Refers to the local self-governing institutions/governments.

“.. Departmentalism has also proved itself to be a bane of civil service; it has been exacerbated in the context of the coalition political set-up in the State. Vertical hierarchies have sprung up impervious to even suggestions of coordination or convergence.”

The ARC report discusses how the bureaucratic form of government is “*under attack from all ideological points of view*” across the world. The report takes a strong stand for the need for undertaking administrative reforms to improve efficiency and citizen services. The report states that “*it is a reform or perish scenario*” and that “*..Kerala cannot isolate itself from the all-pervasive mood for reform.*”

On the one hand the report lauds modern methods of management and the need for incorporating the same to improve efficiency and on the other, it shows a strong belief in the use of ICT to improve the day-to-day functioning of administration as well as in delivering services. This enthusiasm to use modern management practices and ICT in government is reflected throughout the report. Statements such as the following highlight the thinking underlying the report - “*use of modern technology can definitely increase output per unit*”,.....“*..much to learn from the best practices..*”,.....“*.. Information Technology has become very affordable and extremely user-friendly and any further delay in its application to administration would be retrograde.*”

For the first time in the history of the state, in line with the philosophy of NPM, the ARC strongly associated the role of the state with achieving efficiency. It pointed out that the state need not necessarily directly provide all the services and that it should play the role of a facilitator and regulator more effectively. Bureaucracy was condemned for its inefficiency and recommendations were made for adopting flexible forms of organising and for entering into outsourcing and contractual relationships in line with the “*contract state*” (Cordella and Willcocks, 2010) philosophy of NPM.

The ARC reports highlight the thinking of the government in the late 1990s in terms of redefining the state, and reforming administration, with a view to improve the economic scenario of the state. Dominant in this thinking is the idea of providing services in an

integrated manner as well as the use of ICT for achieving efficiency. This was an important period in the history of the state - a period that writers such as Veron (2001) refer to as the transition period to the new Kerala development model.

Given this background of the ARC report and recommendations, and the extremely difficult state fiscal situation by the late 1990s, the state government (incidentally with the left parties in power) decided to take external financial help from the Asian Development Bank to the tune of US\$775 million with conditionality of governance reforms (MGP, 2002). Modernising Government Programme was initiated by the state government.

The 1998 IT policy of the state¹⁶²

The decade of the 1990s witnessed huge growth in software export, at rates unobserved in any sector in the country before (Heeks, 1996; Arora *et al.*, 2001; Saxenian, 2001; Singh, 2003; Kiran, 2002b; Srinivasan and Krueger, 2005). There was growing enthusiasm on the prospects and contribution of ICT for the economy in general considering the then financial crisis and more particularly issues of unemployment and balance of payment (Kaushik and Singh, 2004). Every state in India wanted to capitalise on the opportunities that ICT gave, predominantly in terms of possibilities of software export. ICT policies were announced by states in the mid-1990s with a view to attracting firms into their states. The state of Kerala also announced its ICT policy in 1998 (GoK, 1998). The policy of the state not only covered aspects relating to the industry but also on its use in various sectors of the economy. This followed the state's constant effort to come up with policy frameworks that were redistributive in nature. The preamble of the state ICT policy of 1998 states that:

“1.1 Information Technology (IT) is the world's fastest growing economic activity. It is transforming resource-based economies to knowledge-based economies. Information services, products and production processes are evolving rapidly.

¹⁶² A new IT policy was issued in 2001. The new policy focused entirely on ICT industry. It was announced by the new government that came to power in 2001 that it will continue to pursue the e-governance and dissemination of ICT aspects included in IT Policy, 1998.

Knowledge engineering is replacing pure data and information oriented engineering. The application and impact of Information Technology is so pervasive that it is affecting issues as diverse as balance of payment, skill development, design competence, mass media reach, industrial competitiveness, publication, communication, transportation, health, financial infrastructure, industrial productivity and managerial efficiency.

1.2 Information Technology is a tool of productivity and efficiency and will lead to better transparency in the functioning of the administration. With its appropriate use the governance of the State can be made highly effective and citizen-friendly, contributing to the standard of living of the people. Internet is becoming wide spread and popular and electronic commerce is going to be the way the world will do business in future. Entirely new ways will evolve by which future Governments will function.

1.3 "Leadership in the world's largest industry" is a dream which any economy would work towards. More so, if such industry contributes to redistribution of wealth through the creation of large scale employment. And further so, if the pressures on land and environment are less and the demands for capital and energy are modest. This is precisely what Information Technology promises. Very truly the most people-friendly and environment-friendly industry of modern times - one of the greenest industries of all times.

1.4 Kerala is a highly advanced society. The wide mass base which the media enjoys in the State and the penetration that communication technologies have been able to make, will see Kerala emerging soon as a 100 per cent Internetised State - very truly, an Information Society.

1.5 The Government of Kerala feel the silent revolution that is taking shape and realize the need for an appropriate policy and strategy for Information Technology in the State. This IT Policy document has been the result of elaborate discussions that have taken place at various levels, involving manufacturers, users, service

providers, R&D organizations, educational institutions and various other interest groups.” (GoK, 1998)

The policy targets were the following:

- 1. “PC penetration of 10 per 1000 of the population by year 2001*
- 2. All Colleges to be hooked on Internet by 2000, and all schools by 2002*
- 3. Internet Kiosks in every Panchayath ward, accessible to any member of the public*
- 4. Modernisation and **integration** of Government functioning using IT:*
 - a. IT will be used to deliver Government services in a manner that is affordable, reliable, accessible and delivered to the citizens in a short span of time. All Government Departments will have facility to place as much information as possible on their respective websites for the benefit of the public.*
 - b. **Services** will be provided in an **integrated manner** to the public **from single point of access**. A common screen based proforma will be made available to all Internet users who want to interact with the Government.”*

The policy also identified the need to “*improve computer/IT literacy*” and to this extent pointed out that “*.....Internet booths will be established at appropriate centres for popularising the use of Internet. Specific emphasis would be given and appropriate programmes evolved to impart training to the rural population who otherwise do not have access to computers. It is expected that the computer literacy in Kerala can be greatly enhanced through such initiatives.*” The policy also had components that were aimed at facilitating decentralised administration:

- I. “Building up resource-based data repositories and citizen databases for decentralised planning*
- II. Implementing computerized services at the Panchayat level in issue of certificates, licences, etc. and in tax-collection which can result in perceptible improvement of services available to the common man*
- III. Providing Internet/Intranet services at the Panchayat level with the specific objective of fulfilling the right of information of the community at large”*

The policy document highlights the immense confidence in ICT and its use in improving public administration and in integration as a means to provide multiple services through a common front-end. The idea of providing services to the grass root level is entrenched in the Kerala model of development. Most governments in Kerala have generally tried to prioritise distributive issues, since their support base consists primarily of “labouring poor in general and organised labour in particular” (Kannan, 1998). Citizen centric ICT projects were hence given priority.

The state had witnessed huge protests against introduction of computers into work environments in the pre-1990s. However, the crisis in the socio-economic sphere of the state and the taken for granted assumption regarding ICT as an enabler of the state helped the government to come up with the ICT policy. The policy itself could be considered as a successful translation of a heterogeneous network of actors: *“manufacturers, users, service providers, R&D organizations, educational institutions and various other interest groups”*.

A task force on IT implementation in government was constituted to create plans to operationalise the policy. In line with the policy and the ARC recommendations, the task force recommended that departments for ICT intervention should be selected on the basis of their degree of citizen interaction (citizen centricity) and tax appropriation. While acknowledging that improving internal operations of departments and cross-department integration are important, the task force identified integrated services at the point of delivery as a priority for e-governance activities in the state. The report points out that the prioritisation was based on an assumption that improvements in front-end would automatically force the use of ICT in departments/agencies, process changes and integration in the back-end processes.

However discussions held with people who were involved in the preparation of the report revealed other unwritten rationales as well, shared by members of the task force.

“Citizen centricity was the keyword. Even the tax dimension was brought in to make the Finance department happy. The effort was to provide all government services through a single interface. Integrating across government departments

was difficult. Employees are highly unionised. Department heads would also not allow any drastic change or sharing of resources. We knew attempting integration at the back-end was going to be a non-starter. Channelling existing services into a single interface was considered easy”.

Person 1 involved in preparing task force report

“We knew citizen centred services were the key to successful e-governance. Integrating across departments was going to be extremely difficult. These guys (people in departments) are interested in their own affairs. They will play politics and will not allow any major change. In fact most of us felt that even the projects undertaken within departments were taking a very long time and did not provide any perceivable advantage to citizens. Providing services in an integrated manner in the front-end was not going to be a problem particularly with the availability of computers. We also wanted to show people that finally ICT was going to deliver”.

Person 2 involved in preparing task force report

This thought was further reflected in the task force recommendation for implementing a range of projects that were termed “high visibility people-oriented projects”, with a view to reinforce the faith of people in the benefits of ICT and in line with the citizen centricity demanded by NPM. The task force had recommended that immediate steps should be taken to provide services in an integrated manner through ICT front-ends (Task force, 1999).

Kerala State IT Mission (KSITM)

A department of Information Technology was set up by the state government shortly after announcing the IT policy in 1998. The Kerala State Information Technology Mission (KSITM) was created as a field directorate¹⁶³ of the Department in 1999. KSITM¹⁶⁴ was given the responsibility for implementing the IT policy initiatives

¹⁶³ In the organisation structure of governments in India, departments generally refer to the policy making organ and directorate to the implementing counterpart. This distinction is not used in most cases and the two are used interchangeably

¹⁶⁴ Please see www.itmission.kerala.gov.in

regarding ICT industry development, e-governance and ICT for development. We would confine our analysis and understanding of KSITM to the aspect of e-governance and ICT for people projects.

In line with the recommendations of the IT task force of the state, KSITM planned to support 34 department (based on degree of citizen centricity and tax collection) projects and formulated a few projects with a view to addressing the requirement for high visibility citizen centric projects pointed out by the IT task force. It is important to note that no attempts were made for cross department integration. Instead a state level *high power committee* for Information Technology and e-governance, headed by the Chief Minister and consisting of ministers and senior government officials was constituted with a view to coordinate inter-department matters related to e-governance. It became increasingly clear to KSITM that coordination between departments was extremely difficult.

KSITM decided to immediately identify possible projects that could provide services in an integrated manner over an ICT front-end. The first attempt was to see whether these services could be offered through some existing government departments/agencies. KSITM soon realised that departments were interested in offering their services using ICT front-ends from their own existing counters. Institutional pressure of ICT had by then grown to such huge proportions and forced departments/agencies to use it internally. Departments wanted their counters to be made more effective using ICT. The policy direction of the state, however, favoured integrated service delivery.

Some departments/agencies like the national telephone firm (Telecom, later became BSNL) were also ready to host counters where other utility payments could also be made. This was, however, opposed by other utility agencies/departments. KSITM finally decided to identify mechanisms within government where integrated services could be offered such that the mechanism itself was not seen as a threat by other government departments/agencies.

The *Sevana* project was conceived in this context (KSITM, 1999). The idea was to create access centres attached to the strong and widespread village libraries in the state.

These centres are supported by the government as civil society organisations. It was believed that the village libraries were ideally suited for this arrangement because most libraries had good access, wanted to be part of the information network and were never seen as aligned with any particular kind of government services. It may be recalled that the project which was initially started in Trivandrum and spread across 14 centres in all districts eventually died on account of issues connected with availability of relevant content and operational problems. Even though, the project never gave any e-governance services, it was initially successfully in providing Internet access to rural communities.

Based on the e-Seva project¹⁶⁵ that was started in Hyderabad in Andhra Pradesh state, KSITM had conceived the idea of creating new centres where all government services could be provided in an integrated manner. The project (FRIENDS) was conceived based on the assumption that individual citizens interact with government across many departments for (a) utility bill payments, (b) seeking information and (c) services that require authentication (like certificates) and entitlements (Kumar, 2003). Eventually, FRIENDS became popular as a centre where payments to different agencies could be made.

We will trace the formation of FRIENDS centres, the politics, the negotiations, successes, constraints etc. as we attempt a translation analysis later. Meanwhile, it is important to consider the interests and motivations of state government departments and agencies. We will trace this aspect in the forthcoming sections.

State government departments and agencies

The Kerala state government consists of a large number of departments/agencies. It has a total of 130 departments (secretarial and field departments), 77 autonomous bodies, 28 welfare fund boards, 89 public sector companies, 29 cooperative units, apart from tribunals, commissions, development authorities and other institutions including schools and colleges. We have used the nomenclature departments/agencies in this study to denote all these entities. Like most governments these are highly compartmentalised

¹⁶⁵ Please see <http://www.e sevaonline.com/>

with employees and heads of departments interested in the specific affairs of the department/agency. Any project that promised to integrate cross functional departments or integrate all their services¹⁶⁶ into one single interface front-end project, like the FRIENDS was “opposed by departments on account of the fear that they would lose their existing authority and power” (Kiran, 2002a).

Employee unions within departments/agencies strongly opposed such moves and, according to the then IT Mission Coordinator of KSITM, this opposition was severely raised by head of departments during meetings held by KSITM in 1999 and 2000 as part of conceiving integrated services projects. Moreover, since the early 1980s, Kerala’s governments were defined by a bi-polar¹⁶⁷ coalition party system (Chiriyankandath, 1997; Heller, 2000; Rajan, 2001; Kumar, 2004; Nirmala, 2006). Since different political parties were in charge of departments/agencies, efforts for integration were met with substantial opposition (Kiran, 2002a). Bussell (2012) points out that coalition politics played an important role in shaping technology-enabled service provision in Kerala.

Significance of ICT and integration in actor behaviour

As discussed earlier, towards the end of 1990s, there was huge enthusiasm in all parts of India regarding the rapid growth in numbers and activities of ICT industries in cities like Bangalore and Hyderabad. This enthusiasm assumed great proportions and soon ICT was seen as the answer to many different development problems confronting the country. Moreover there was huge belief in using ICT to make governments efficient and in line with the NPM based reforms agenda. During the period 1996-2001, the LDF, led by the Communist Party of India (Marxist) was in power. That ICT had grown to such institutional proportions by that time was evident from this government’s eventual emphasis on ICT (Bussell, 2012). As we discussed earlier, the LDF led by Communist Party of India (Marxist), had till the late 1990s opposed ICT and particularly, its introduction into government functioning, on the premise that it would

¹⁶⁶ Had earlier failed in the case of industrial clearance mechanisms such as District Industries Centre and Single Window Clearance mechanisms.

¹⁶⁷ Left Democratic Front (LDF) and United Democratic Front (UDF).

lead to job losses¹⁶⁸ (Mathew, 1998). In other words, the institutional force of ICT was able to overcome the opposition to ICT as a labour saving technology that existed earlier among a large section of politicians¹⁶⁹ and bureaucrats.

It was found, that there was eagerness to use ICT in government for providing a range of services in an integrated manner. The ARC report and reforms programme portrayed integration as essential for governance reforms, a notion that got established in government policy and programmes through IT policy of 1998 and the reports of the task force on IT implementation in government. However, as this policy got closer to its implementation strategies and projects, the emphasis shifted towards integrating services at the front-end rather than attempting any serious back-end integration. Integration of services at the point of delivery was considered as desirable and achievable and in line with the citizen centricity goal of NPM. Notion of integration assumed an institutional nature as it was uncontested and taken for granted.

One would expect the institutional pressure of ICT to have forced individual departments to provide their services using the new technology. Instead the institutional pressure of integration forced departments to align with the idea that all services would be offered in an integrated manner at the point of delivery. This in effect made the alternative impossible. In other words, though the enthusiasm for ICT was huge, the policy direction tried to ensure integrated services at the point of delivery to citizens rather than discrete department ICT counters for providing services to citizens.

Having understood the actors, we would now undertake the translation process using the key concepts from the four moments of *translation*. The analysis has been carried out with a view to understand how the notion of integrated services delivery was initiated in the state.

¹⁶⁸ Giving “it an ideological aura by surmising that it may lead to redistribution of wealth” (Mathew, 1998).

¹⁶⁹ The Government led by Left Democratic Front (LDF) which had historically run agitations against the introduction of labour saving technologies including computers came up with the ICT Policy of 1998 to embrace ICT for the development of the state.

Moments of translation

The moments of translation include Problematisation, Interessement, Enrollment and Mobilisation.

Problematisation

In this phase, a problem context needs to be put forward. Solving the problem requires the participation of a number of actors. KSITM was the focal actor in this case. Each of the actors had their own interest in being part of the emerging network. We will try and trace it at this stage.

- **KSITM:** The organisation had the mandate to conceive projects to operationalize the IT policy. The primary interest of KSITM was to undertake cross department integration as well as integrated services at the point of delivery. KSITM did not attempt any projects that had a cross-department integration element, on account of employee and political party oppositions that we have already discussed. Instead it tried to initially implement *Sevana* project as an integrated services delivery project by only taking the rural library networks into consideration. That attempt soon failed.

KSITM quickly learned three important aspects (a) attempts to undertake integrated services delivery would need continuous negotiations with departments/agencies and cannot be achieved through the *Sevana* route (b) high visibility front-end ICT projects would be required to sustain the enthusiasm for ICT (c) instead of trying to use any of the existing department/agency counters (as was the case with *Sevana*), KSITM wanted to ensure that a new set of centres were started under its administrative control. FRIENDS project was conceived by KSITM considering these interests.

- **State Government:** The state government was interested in projects that would help in coordinating and offering state government services over an integrated platform. The motivation was to showcase that it was taking all possible steps like

many other state government in India in using ICT for providing citizen centric services. The state government was also excited about having FRIENDS as a mechanism that did not require substantial reforms at department level (so that they don't have to confront the established bureaucracy and its structure) or undertaking any major backend ICT implementation.

- **IT policy:** The policy required that government services should be provided in an integrated manner to citizens. It believed in ICT as an enabler of the administrative activities of the state by being *efficient, citizen-friendly* and *contributing to the standard of living of the people*. The concept of FRIENDS project was clearly aligned to this interest.

- **State government departments and agencies**

For most departments/agencies the choice was limited by the policy to opt between cross-department integration and integrated services at the point of delivery. In this given circumstance they were forced to opt for the latter in principle though they were very apprehensive about such a move. The enthusiasm for ICT was strong among departments/agencies and many felt that FRIENDS would eventually lead to ICT being used in their own departments. The departments/agencies were more interested in offering services through their own counters using ICT and thus reinforcing their power over those particular services. Moreover, they were not interested in any projects that would affect their organisational staff strength. The conceptualisation of FRIENDS tried to take care of these concerns.

KSITM defined the nature of problem as integrated services delivery (of all government services) at the point of delivery as a means to achieving citizen centricity. This problematisation provided the legitimacy for the FRIENDS project. From an ANT perspective, we find that the focal actor (KSITM) made itself indispensable to the other actors by defining the nature of the problem and forcing the others to accept a way forward [*FRIENDS project*]. With the goals and ambitions set, the initiating actors entered the interessement phase.

Interessement

KSITM had inscribed its interest into the conceptualisation of the FRIENDS project. As discussed, the idea was to provide all services for which citizens would approach government departments/agencies - (a) utility bill payments, (b) seeking information and (c) services that require authentication (like certificates) and entitlements (Kumar, 2003).

The initial conceptualisation of FRIENDS was done by aligning the interest of KSITM. These were, however, subsequently negotiated. During preliminary discussions with departments it became evident that even integrating all governments' services at the point of delivery looked difficult. Departments/agencies were initially not prepared to engage in such a project. Based on a direct intervention by the Chief Minister of the state, it was mandated that departments should cooperate with this venture. Departments that offer certificates and entitlements argued that for providing their set of services over an ICT integrated front-end, their back-end operations need to be streamlined and made available on an ICT platform. They argued that in the absence of ICT based back-end, it would be difficult for any services to be offered in the front-end. This argument continues till date in the state. In 1999, there was very little relevant digital content on government schemes or sectors like education, healthcare, etc. that was available for the people in Malayalam (local language).

The project, thus, had to be launched by providing provisions for payments to government departments/agencies. These departments/agencies also raised the same issues as the departments offering entitlements and certificates. The e-Seva project in Andhra Pradesh, which was the reference project, had transaction data transferred online between the centres and the participating departments. Based on negotiations between the departments and KSITM, mediated by the Chief Minister, it was decided that FRIENDS would be launched as an integrated ICT front-end payment centre. Unlike the e-Seva project, transaction data would be provided to participating departments/agencies in an offline mode either as softcopies or hardcopies as per the requirements of the participating departments/agencies.

The role played by the political leadership (Chief Minister) was critical. The political leadership was aware of the potential electoral benefits of this improved service delivery and the project was launched in the capital district just before the state assembly elections (APDIP, 2003). ICT was seen as a good ally for political parties during that time. Andhra Pradesh chief minister (Mr Chandrababu Naidu) was hailed as one of the most progressive Chief Ministers in the country, on account of his active encouragement of ICT (Sahay *et al.*, 2009).

While the institutions of ICT and NPM gave legitimacy and force for the project to be launched, it was the concept of integration that helped conceive the very concept of FRIENDS project. The focal actor (KSITM) thus locked the others into place by interposing itself and defining the linkages between the others [FRIENDS project became the recognised obligatory passage point]. In the process KSITM ensured that the alternate strategy of computerised department counters would not happen.

Enrollment

Whereas the interessement phase is concerned with isolating the actors, the enrolment phase is about aligning the interests of the actors. The interests of the institutions, state government and the ICT policy were closely aligned to the interests of KSITM. The centre was started and coordinated under KSITM. It undertook a series of steps as part of enrolling the departments/agencies. The primary concern for departments was whether the new centralised mechanism would lead to reduction in their staff numbers. A decision was taken by KSITM to employ staff from participating departments as Service Officers for manning the counters at FRIENDS centres. Irrespective of the designations in their parent organisation, every employee of FRIENDS is referred to as a Service Officer. This was important because these employees came from different hierarchical department structures and would have found it difficult to work in a less hierarchical and newly established centre.

Citizens could approach any counter in FRIENDS and make payments to government departments/agencies irrespective of the department/agency alliance of the Service Officer. Service Officers continued to be employed by the participating departments

and drew their salary and other benefits from their parent department/agencies. This arrangement helped in reassuring departments/agencies that jobs or their power would not be curtailed.

Many of the rules and procedures framed by departments/agencies caused major constraints in the implementation of the project (Kiran, 2002a). We have already discussed how government, in spite of being seen as a single entity – black-boxed, is but a dynamic heterogeneous network of actors including departments/agencies. State government has consolidated budget and fund and departments operate based on their budgetary allocation. When citizens remit payments at department counters, the money goes into the consolidated fund of the state and the department has no access to this fund directly. Citizens remitting payments at any one counter of FRIENDS would in the process be making payments to the consolidated fund. The departments did not allow such payments to reach the consolidated fund directly through FRIENDS. They insisted that their share should reach the fund through their accounts the day after the actual transaction, in spite of the fact that this would not make their financial position any better. Considering the stiff resistance from department/agencies, KSITM instead of changing the procedure adopted steps in compliance with the requirements of the departments/agencies. Self-help groups of women from below the poverty line which comprised *Kudumbasree*¹⁷⁰ units, were employed by FRIENDS for ensuring these payments as well as delivery of transaction data to the participating departments/agencies for updating the details in department registers.

During the initial stages, there were deliberate attempts by employees of participating departments to make errors in entry from FRIENDS data set on to their registers, not entering data, etc. leading to disconnection of utility service of citizens who made their payments at FRIENDS centres (Kiran, 2002a). This was undertaken with a view to scuttling the project. KSITM got the political leadership to once again intervene resulting in a government order to the effect that a receipt from FRIENDS centres would be treated as equivalent to a receipt from the participating department/agency (Kiran, 2002a).

¹⁷⁰ Please see <http://www.kudumbashree.org/>

This further helped in attracting more citizens to use FRIENDS centres for making payments. Evaluation study by Madon and Kiran (2002) revealed that FRIENDS was popular among citizens and that it had helped them save time and money. When the LDF government moved out in 2001 and the new UDF government took charge, FRIENDS centres were extended to all the other district headquarters. Such steps of extending the efforts undertaken by a previous government were exceptions rather than the rule. The continuation of policy across governments has happened practically only in the case of ICT.

The focal actor (KSITM) thus defined the roles that are to be played and the way in which others will relate to one another within these networks.

Mobilisation

Mobilisation refers to bringing together (moving) actors that were previously dispersed, and aligning them to the obligatory passage point. KSITM became the spokesperson for the other actors in the network. The state government and IT policy gave the status of representation to KSITM. Departments/agencies as far as payments were concerned were ready to accord representative status to KSITM. In doing so they also gave away their power to undertake individual department based counters. Thus KSITM was able to turn itself into being the spokesperson for the actors including integration.

A successful translation with some degree of stability was thus achieved resulting in FRIENDS centres becoming operational in all the district headquarters. FRIENDS became a “matter of fact” or a kind of immutable mobile. In the process the notion of integrated government services was considered feasible, citizen friendly and legitimate. It was also felt that extension of FRIENDS to district and sub district levels would ensure decentralised integrated service centres for all citizens.

Akshaya project as re-problematism

The corner stone of Kerala's governance reform rested on the notion of ICT based integrated services at the front-end. Initially, FRIENDS project was considered to be the ICT integrated services delivery front-end for government services. For reasons that we have discussed in the second chapter, FRIENDS could not serve this strategic intent of the state. KSITM was hence looking forward to an alternative mechanism to implement the concept. Akshaya project gave KSITM an opportunity in this regard. In line with the overall approach of the study, the following discussions are analysis led and the effort is to understand how Akshaya project evolved as a re-problematism of KSITM's interest in undertaking integrated and decentralised services. In doing this we trace how the notion of integration which was state level construct got acceptance at decentralised levels.

The initial conceptualisation of e-literacy project by Malappuram District panchayath was extended to the idea of the creation of decentralised ICT front-end centres that could deliver services in an integrated manner. It may be noted that the interest of state government, IT policy, and the institutional actors were aligned with the notion of integrated services delivery over front-end. We now trace how the other actors involved could also be mobilised and their interests aligned in undertaking the project. We have considered some of the actors involved in this phase and their interests in *Annexure 2* and will now consider the other actors involved in the Akshaya e-literacy phase.

Malappuram District Panchayath (MDP)

Detailed discussions on Malappuram and MDP are available in chapter 4. The decentralisation process was viewed as a great opportunity for the district. Given the historic social backwardness of the region, MDP initially concentrated on education and healthcare and subsequently on employment generation. Skill development was important for the people in the region, most of whom wanted to travel to the Middle East gulf countries for jobs. The Vice President of MDP was earlier employed in Saudi

Arabia and hence had some first-hand information about the difficulties that people from the region faced on reaching those countries. He personally believed that knowledge of computers and English language were essential for any person seeking a job in these countries. According to him:

“The unskilled labour market is not doing very well in these countries. Moreover people from Pakistan and Bangladesh are ready to work for very low salaries - so low, that people from our region will not benefit from being there. We need to be skilled in one profession or the other. It is equally important that everyone should learn English and be computer literate before reaching these countries. I know how difficult it is, otherwise”

Having undertaken what was referred to as a 100 percent literacy programme, MDP wanted to undertake a 100 per cent e-literacy programme in the district. The initiatives of MDP had full support from the then IT Minister of the state, who also hails from the region and belonged to the same political party. MDP was also exploring the possibility of establishing ICT based industries in the district. ICT was considered by MDP as a major thrust to the development of the district.

Grama Panchayaths

Grama¹⁷¹ Panchayaths (GPs) are democratically elected self-governing bodies at the sub-district level with elected representatives from different wards that constitute a *gramam*. There are 100 GPs in Malappuram district. Large majority of GPs (85%) were governed by the same political party (IUML¹⁷²) that was in power at MDP. The GPs were involved in local development activities including village level infrastructure creation, maintenance and coordination of agriculture, health and education activities of the village, and administering other social development schemes. Though projects to be implemented by the GPs were technically conceived during the Grama sabhas¹⁷³, they

¹⁷¹ Gramam means village, though village is defined as a different administrative unit in the state. However the words grama(m) or village will be synonymously used in this thesis.

¹⁷² Indian Union Muslim League

¹⁷³ Forum of people in the village to discuss about matters relating to the development of the village.

required the consent of MDP and the state government¹⁷⁴. Many schemes were conceived by the state government or MDP and GPs were confined to identification of beneficiaries for such programmes and contextualising its implementation.

It may, however, be noted that GPs were not passive players but were important actors in the governance of the region. Even in cases where a scheme is developed by the state government or MDP, the GPs were at liberty to decide whether to undertake that particular project or use their available resources from the consolidated state fund for a different project. The GPs were interested in undertaking projects that generally catered to the immediate felt needs of the people in the village. Most of the members of the GPs were unaware of computers and its use. A good majority were, however, convinced about the possibilities and development implications of ICT. Given the growing nature of ICT industry and the mystical stories that surrounded computers, there was an aura created around computers. Comments from an elderly President of one of the GPs sums it up:

“I knew computers could solve the problems of our place. When they were discussing about bring computers to our village, I was very excited. At last I would be fortunate enough to touch and feel that magical machine...”

None of the GPs had ever planned an ICT intervention on their own. Most GPs were hence very supportive of the project that would lead to e-literacy and integrated services delivery.

Entrepreneurs

Non-state actors, especially private actors have not played a significant¹⁷⁵ role in the delivery of governance services in the state. There were considerable debates regarding the possible ownership structure of the centres. KSITM pointed out that such a project required continuous locally driven innovation from the person manning the centre and

¹⁷⁴ This was one of the structural issues identified by the ARC.

¹⁷⁵ It is pertinent to note that the outlets of the Public Distribution System (PDS) are manned by local entrepreneurs in Kerala.

hence cannot be part of the state bureaucracy (which was considered as rule based and centrally driven). Moreover, the state did not have the financial capabilities to create and run these centres. The centres were not expected to have huge earnings during the initial years and hence it was felt that a single entrepreneur model would be more appropriate. It was also felt that it would be ideal to have this entrepreneur from the local village. The expectation was that the entrepreneurs would be able to manage and successfully run the multipurpose telecentres, the way PDS outlets were managed by entrepreneurs.

The entrepreneurs who participated in the project were driven by various motives. Kuriyan *et al.* (2006) has classified them into three categories – the socially oriented, profit oriented and the socially and profit oriented entrepreneurs. Participating in an ICT initiative at that time had novelty and this added to the enthusiasm of the entrepreneurs. Many of them were also motivated because of the possibility to engage with the state and be perceived as a representative of the state. The multipurpose nature of the centres offered possibilities of multiple income streams – both from a range of e-governance as well as other activities. The scale of the project also meant that they could engage in collective bargaining, when required. Moreover, undertaking the literacy phase itself would ensure some upfront money and linkages with family members in the foot-print of the centre.

Significance of ICT and integration in actor behaviour

Significance and support for ICT in India during the late 1990s has already been discussed elsewhere in the thesis. Its linkages with development and governance were *undisputed*. In the context of Malappuram district, ICT was considered as the final answer to bridging development gaps and escaping from its historic backwardness. The notion of integration was perhaps very important from the point of view of the project than even the aura of ICT. If the institutional pressure of ICT alone were behind the creation of the project, these centres would have been conceptualised in an entirely different manner. E-literacy would have been attempted with the existing centres along with new training centres started across the district. The permanency of the centres to act as outreach post of integrated services was the most critical aspect that aligned the

interest of all the actors involved. Multipurpose telecentres were seen as ICT innovations that are ideal for addressing a range of development issues including unemployment, access to information, communication and access to a multitude of services.

The project catch phrase sums up the entrenched notion of integration – *Athirukallillatha Avasarangalilekku* (Unlimited Opportunities - later changed to Gateway of opportunities). The logo further captures this by showing the sign of infinity in a typical rural Kerala home.

The interventions from supra-national institutions like the Commonwealth Secretariat (through their letter of support initially) and ADB, other macro-level institutions and regional, national and international opinion makers provided further legitimacy to such a venture (Scott, 1995). The induction of the project as part of the Modernising Government Programme (MGP) gave it the required legitimacy at the state level. It also helped in formally aligning with the state e-governance strategy. NPM laden MGP found in this ICT intervention, possibilities of achieving integration, citizen centricity, decentralisation, outsourcing, transparency, efficiency, accountability and responsiveness.

In 2003, the overpowering institution of ICT was so profound that there were a large number of potential entrepreneurs competing (resulting often in political interventions) to get approval for running centres. The business prospects of providing multiple services (and hence multiple sources of income) and ICT's potential to portray the individual both as an agent of change in the local community as well as a "21st century man"¹⁷⁶ was more than tempting for the potential entrepreneurs. Entrepreneurs believed that by partnering with the government project, they could utilise the institutional trust that people have on the institution of state.

At the time of conceiving the project, the low-entrepreneurial ethos of public bureaucracy and its failure were being questioned across the world. The entrepreneur ownership model for the project was adopted on account of a number of reasons, a few

¹⁷⁶ Comments of Abdul Waheed, Nilambur

of which we have already considered. The announced rationale was that ICTs and hence telecentres have the potential to offer a range of services and that it would require the business acumen of entrepreneurs to realise this true potential and make the centres financially and socially successful. The notion of integration gave rise to the possibility of multiple services and thus multiple income streams from these services, a fundamental idea that fuelled the assumption that the project would have “*financial viability through market driven entrepreneurship*” (Ministry Of Information Technology, 2005).

The selection of entrepreneur-model of ownership cannot also be considered automatic in a context where actor behaviours were influenced by the institutional principles underlying NPM. The outsourcing of state activities and services through non-state actors had gained prominence within government. Undeniably the powerful association of ICT and integration as institutions gave substantial credibility and legitimacy to the concept of non-state actors providing government services, in a state where it was otherwise unthinkable.

Having understood the actors involved, we now attempt to understand the different dimensions associated with how the Akshaya project was conceived by analysing the translation process using the key concepts from the four moments of *translation*.

Moments of translation

Problematisation

KSITM was identified as the focal actor in this case. As discussed in the case study, MDP wanted to undertake a district wide e-literacy programme in 2002, with a view to provide basic computer skills to one person in every family in the district. The request for training was also prompted by the high rate of unemployment in the district as well as the perceived need to train the large proportion of people from the district migrating to the gulf countries. KSITM viewed e-literacy as only one dimension of the problem.

It raised questions such as:

- what would the large number of neo e-literates do with their new found skill and knowledge?
- where will they get further access to ICT based services?
- where would the appropriate content for them be created and disseminated?

In the process, KSITM saw an opportunity to recast its attempts to provide integrated services in a decentralised manner. On the one hand, its earlier attempts like Sevana and Keltron kiosks had failed and the more successful FRIENDS project was restrictive in terms of services offered as well as geographic outreach. In effect, KSITM broadened the scope of the initial problem presented by MDP, with a view to align the idea with its own interests. By bringing in the issues of skill development, access and content, KSITM defined this as the nature of the *real* problem. The notion of integration was thus entrenched into the problematisation of telecentres.

There were a number of processes influencing problematisation: the huge faith in ICT and its potential, enthusiasm and stories (usually anecdotes) about telecentre projects and its integrated service delivery attempts in other states/developing regions all over the world, support from multilateral agencies and national government, and positive feedback from the media. Telecentres were seen as an OPP that could align the interest of the identified actors in the network. The project was also based on the belief that socio-economic development could be improved in the district. It was also felt that given the history of social initiatives in the state, such a development initiative with mass participation involving decentralised governance institutions were the need of the hour.

Each of the actors had an interest in being part of the network. In continuation of the discussions in the earlier section of the chapter, we now consider the interests of the actors in undertaking the telecentre project. The following discussion does not cover the institutional actors as their interests have been discussed in detail over the course of the thesis.

- **KSITM:** The organisation had the mandate to conceive projects to operationalise the IT policy. There was a need for KSITM to extend Internet to all parts of the state and offer government services in an integrated manner over ICT platforms. Based on its experience with the *Thanal project*, KSITM was concerned about the lack of ICT delivery centres at the grassroots level and were exploring mechanisms for having ICT access centres within 2 - 5 kilometres from any citizen's residence. It was also exploring the possibility of extending FRIENDS project to sub-district/village level such that the new ICT front-ends could offer all government services in an integrated manner. Given the background of the resistance that it had to face from government departments and agencies in undertaking FRIENDS project, it was looking forward to these new access centres being managed by non-state actors. KSITM was also interested in undertaking a project in the northern part of the state, where not many ICT based activities had happened till that time. For KSITM such a high visibility front-end project was also critical to sustain the enthusiasm for ICT based projects across the state.
- **State Government:** The state government was interested in a project that will help in coordinating and offering government services over an integrated platform in a decentralised manner. The state government, however, did not want to confront the established bureaucracy and its structure on account of their power and significant political pressure. The backend ICT implementation in departments was also going slow. The state government was interested in a mechanism that would insulate the state on these two issues and still provide integrated services. Providing integrated services through non-state actors at the grass root level complemented the reforms programme. It was also felt that the network of telecentres could be used not only for disseminating information and providing services but also for collecting data for the government from the grassroots level. In fact this was pointed out as a major advantage of the project in MGP programme document (MGP, 2002). It was also felt that the project would ultimately help in downsizing the government and improving its efficiency of operations. By undertaking such a programme the state government also wanted to prove how the state has embraced the development potential of ICT.

- **IT policy:** The policy promoted state wide availability of Internet and the use of ICT in all walks of life. It also required that government services be provided in an integrated manner to citizens. It believed in ICT as an enabler of the administrative activities of the state by being *efficient, citizen-centric* and *contributing to the standard of living of the people*. It considered telecentres as the decentralised delivery centres for all the services planned as per the policy document. It was also interested in consolidating the positive perceptions about ICT and integration created by the FRIENDS project.
- **MDP:** As discussed before, the district panchayath wanted to undertake a 100 per cent e-literacy programme. The district did not have an adequate number of ICT centres to undertake this task. There was a strong belief that ICT could enable development and make the district more ‘modern’. The district panchayath felt that a project of this nature would address issues of unemployment and the general backwardness of the district. Citizens of the district had to travel far and wide to avail government services. Availability of all government services within walking distance from anybody’s residence was an important incentive. Given the huge requirement for communication between gulf migrants and families, MDP considered that a project that extended Internet all over the district would bring in public support and appreciation for them. Whereas MDP intrinsically believed in the potential of ICT, they also felt that a project of this nature would also bring laurels and support for the political establishment.
- **Gram Panchayaths:** There was widespread belief in ICT and its role in development. The project was also seen as empowerment of the people in the village since it combined a plethora of development possibilities – employment opportunities, communication facilities, training opportunities and above all the availability of a range of e-governance services in the village. The over powering pressure of the institution of ICT and integration made most GPs decide in favour of the project without any serious debate. GPs feared being seen as retrograde by taking any alternate decision.

- **Entrepreneurs:** The multipurpose nature of telecentres meant that there were multiple income streams for the centres. Being seen as part of a state led ‘development’ project brought about a sense of legitimacy. The entrepreneurs expected that lot of material and other support would be provided by the government. While some were more revenue focussed, others saw in the project opportunities for social intervention. The legitimacy offered by the project for offering government services was also important. High up on the agenda for many entrepreneurs was the prospect of being perceived by the local population as being associated with the magical technology of ICT.
- **Citizens:** Coming from a region that was generally described as an underdeveloped region of the state, the project was seen by the general public as a major development opportunity. The enthusiasm for ICT and the possibility of the same coming to their villages was for many, nothing short of a dream come true. The citizens were interested in communication and availing the multitude of services including e-governance services near their residences. The concept of having a local person as the entrepreneur/intermediary and social entrepreneurship¹⁷⁷ was also appealing.

The problematisation provided the legitimacy for the telecentre project. The focal actors of the project set the goals for the project, and conceived the “5+8+5” strategy (discussed in the earlier chapter) for achieving sustainability (KSITM, 2005). Efforts were taken to constantly remind the entrepreneurs that they were responsible for the financial sustainability of the centres.

¹⁷⁷ According to Akshaya documents (KSITM, 2005:16) “The concept of social entrepreneurship was brought in here, because of two reasons; one ICT for Development in the rural areas is a new concept, people have not started using ICT in their lives, except for the fact that some services like railway reservation are used without realizing it as an intervention by Technology. But to prompt the people to use Internet instead of telephone calls or online payment system to pay their bills is not an easy job, because of the hesitation to use technology. A social entrepreneur, who is a native of that place, commands some social esteem, is well versed in social activities, badly in need of a job, ready to experiment, would be able to define the information, communication, and education needs of the common people around him, and to convert the need to a service with the help of government. Entrepreneur in Akshaya is clearly understood the fact that service delivery through his centre is an essential component for creating his business and maintaining the customer base”

It is important that concerns of different actors are preserved with a view to offer added value as well as aid alignment. Figure A3.1 illustrates the schema outlined by Latour (1987) and employed by Sahay *et al.* (2007) that demonstrates a strategy of detour used to portray that the solution to your problem simultaneously solves the other actors' problem as well.

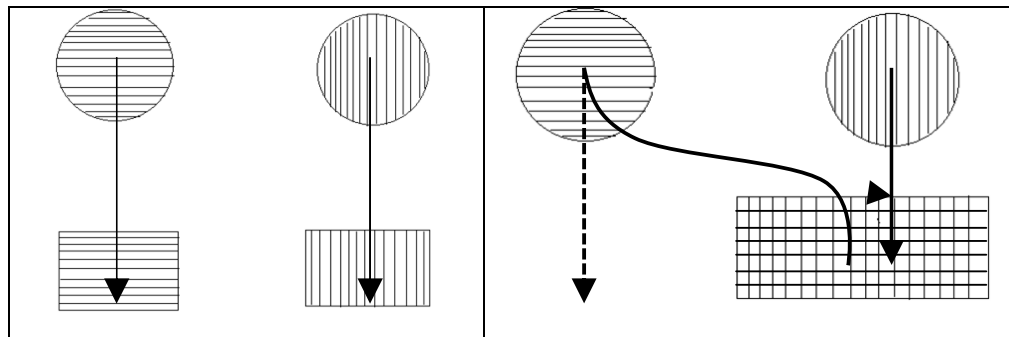


Figure A3.1 Detour strategy (adapted from Latour, 1987: 120 and Sahay *et al.*, 2007:9)

The solution as initially intended (here – rectangle with horizontal stripes) by the actor on the left (circle, horizontal stripes) is replaced eventually by a solution to the right that simultaneously serves the concerns of both actors (circles). MDP wanted to primarily undertake e-literacy as a development strategy and KSITM wanted to create integrated services delivery centres in a decentralised manner. The resultant solution tried to address both these concerns. We explore over the other moments of translation, how further negotiations between them and with other actors happened.

From an ANT perspective, we find that the focal actor (KSITM) made itself indispensable to the other actors by defining the nature of the problem and forcing others to accept a way forward [*the telecentre project*].

Interessement

KSITM had inscribed its vision of the project into their project plan. However, these goals were subsequently negotiated. While the institution of ICT gave legitimacy to the project, integration led to the ascribed multipurpose nature of telecentres. Together, the interactions of the allied institutions of ICT, NPM and integration played a major role in

the conceptualisation of the project. Local practices like redistributive way of governance and trust on the institution of government also shaped the project the way it did. The project plan with the concepts as well as the financial implications was discussed by KSITM officially with the Government as well as with MGP. It is important to note that departments/ agencies were not involved at this stage of the project and hence their opposition was not visible. The project document was also circulated to MDP and GPs. They were requested to have formal discussions and indicate their stand regarding the project. Many rounds of discussions were held between KSITM, MDP and GPs. E-literacy component of the project was specifically pointed out at this stage and local bodies were requested to fund and thereby own-up this activity.

MDP as well as majority of GPs initially and all GP in a few weeks formally decided to go ahead with the project and committed to bearing the cost implications for the e-literacy phase. The tone of discussions in MDP and GPs was not one of heated debates, but one of *submission* to the institutions of ICT and integration. KSITM had deputed a few of its officers to attend GP meetings to clarify matters related to the project. What they found during the discussions was that ward members that constitute the GPs were excited about ICT and the prospect of multiple services. A minority of members (belonging to the left parties), cautioned that multinational companies might actually get a bigger advantage out of the venture. As one of the officers who attended the GP meetings informed me:

“Most of the meetings were brief and we never had to intervene during the formal process. Some of the members would clarify with us informally and did not want to show that they had little understanding about ICT. I felt as if ICT itself was sitting there and ordering these members – follow me”

The formal decisions taken by MDP and GPs were commitments from their side to the project. KSITM then used the formal mechanism in government to lock them as well as the state government and ICT policy into the project. Based on the decisions taken by MDP and GPs, the district administration forwarded a proposal for final sanction from the state government. The state government, based on the proposal and taking its

interest also into consideration issued a government order sanctioning the project and making KSITM the implementing agency for the project. Thus KSITM was able to formally get the state government, the ICT policy, MDP and GPs locked into a formal agreement. It may be noted that the ICT policy would have had an alternative to pursue Internet availability at government organisations (intermediary organisations) rather than at telecentres.

One of the main factors of interest for entrepreneurs was that they could take part in a government project and thereby gain prestige and respect. The interest was attempted through entrepreneur training at the state capital and through a series of interactive sessions. Many entrepreneurs were initially concerned about the financial implications of participating in the project, but were ultimately convinced about the 5+8+5 model or the multipurpose nature and the possibility of multiple income streams. There was also a feeling that the committed e-literacy amount would in itself payback around 30 to 40 per cent of the initial investment. Finally KSITM was able to lock the entrepreneurs into the project at a function organised in the district where they signed a formal Memorandum of Understanding (MoU) with KSITM specifying their role and the expectation of services from them.

The e-literacy phase of the project was designed to interest all citizens and make them aware of the possibilities of the centres. KSITM took advantage of the media in order to facilitate citizen interest, as discussed in the previous chapter. A series of local and other promotional efforts including village level meetings further helped to spread the information. Though the centres were run by non-state actors, unlike most of the activities in the state, people were ready to accept the centres, given that the entrepreneur was from their immediate neighbourhood. KSITM also utilised “social animators¹⁷⁸”, who assisted in spreading the idea and explaining the advantages of the telecentres. It was also portrayed as a development project by the state government with participation from all tiers of local governments. E-literacy was depicted as a major entitlement given by the government to families in the district, akin to the PDS system in the state.

¹⁷⁸ Local volunteers interested in development interventions.

The focal actor (KSITM) locked the others into place by interposing itself and defining the linkages between the others [the telecentre project became the recognised obligatory point of passage between the global and local networks]

Enrollment

The interests of the institutions, state government and the ICT policy were closely aligned to the interests of KSITM. The larger state bureaucracy was not involved in the project during this phase and did not feel threatened. The state government wanted to ensure that the financial support of its side was restricted to the initial e-literacy phases. This is one of the reasons why the non-state actor concept was very appealing for the state. KSITM had taken up the responsibility of the sustainability of the centres through their 5+8+5 model based on the notion of integration. MDP was more interested in e-literacy rather than a continuing project. Like the literacy project that they had undertaken, MDP was more comfortable in achieving a specific target, announcing the same and bringing about a closure to the project. KSITM gave substantial publicity in various forms to showcase the project as being one initiated and driven by MDP. The project was considered by MDP as an opportunity to showcase itself and the district at national and international levels. Getting the President of India to inaugurate the event and giving MDP the limelight during the event were critical in enrolling them onto the project.

There were intense negotiations with the GPs. They wanted to have the right to entrepreneur and beneficiary selection. Since financial sustainability was promised by KSITM, the interests of the GPs could be aligned with KSITM's interests. Though the beneficiary selection was left to families, GPs were authorised to certify the number as well as identity of citizens undertaking e-literacy. E-literacy payment for centres was based on such certification. GPs also played a crucial role in entrepreneur selection.

The project came with the complexity of sustainability – social versus/and financial sustainability. Entrepreneurs were a heterogeneous group consisting of the socially oriented, profit-oriented and people who took the middle path. KSITM allowed centres to adjust according to local realities within the larger framework. Moreover, depending

on the location, KSITM allowed a reduction in the number of machines and other equipment against the initial plan. In certain cases it allowed the setting up of sub-centres during the e-literacy phase to take care of logistic issues. An agency of Government of India, STED was engaged for continuous entrepreneurship training. Block level meetings were conducted for monitoring and feedback.

The enrolment of the citizens was complex, given its heterogeneous nature. The requirements and motivations of pupils, farmers, unemployed, housewives and older citizens were all different. The notion of multipurpose nature and the institution of integration played an important role in enrolling citizens. Whereas employment based further training was the requirement of pupils and unemployed, farmers needed agricultural advisory services. Older citizens wanted to have an understanding about computers from a curiosity aspect, while housewives wanted to know what computers are so that they have an understanding of what their children were doing using computers. Communication services were also an important aspect. KSITM was using the enthusiasm that citizens had for ICT and its perceived possibilities for development and e-governance services. Different awareness strategies including street dramas were deployed to create and sustain the enthusiasm. At this stage in the project, e-literacy was the means to citizen enrollment.

The focal actor (KSITM) thus defined the role that are to be played and the way in which others will relate to one another within these networks.

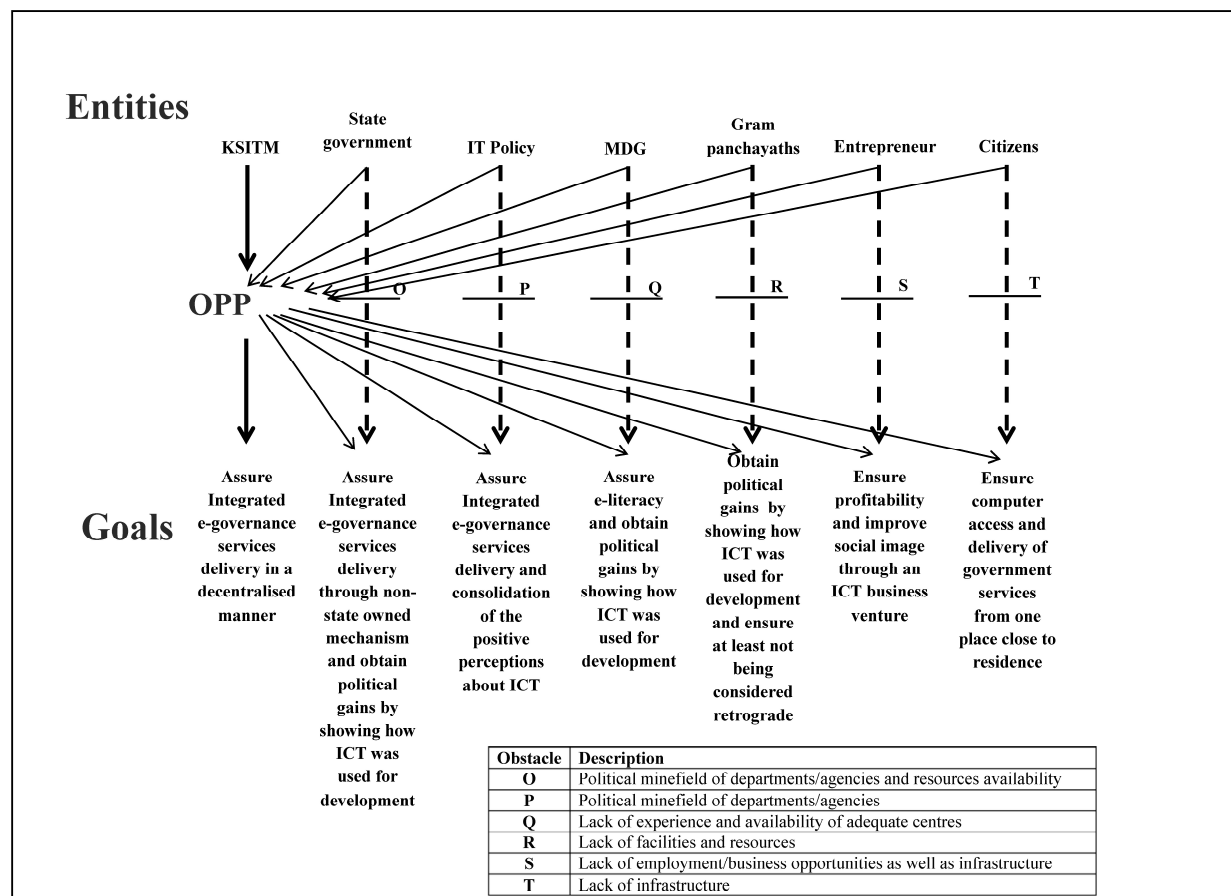


Figure A3.2 Translation in action (adapted from Callon, 1986)

Mobilisation

Mobilisation refers to bringing together (moving) actors that were previously dispersed, and aligning them to the new OPP (Please see fig A3.2 above). This is done through representatives, spokespersons for the parties involved. KSITM became the spokesperson for the other actors in the network at this stage of the project. The state government and IT policy gave the status of representation to KSITM. Whereas MDP was ready to own the project, they found it comfortable to have KSITM as their spokesperson as a matter of convenience and risk reduction. The GPs were, however, confronted with the complexity of the project and the nature of its constitution.

There were regular entrepreneur meetings at block levels, though there were no elected (or otherwise) representatives from among the entrepreneurs. In addition, informal meetings with KSITM also took place. KSITM continued to represent them during this phase of the project. There were no spokespersons for the citizens. Akshaya did have “goodwill ambassadors” who propagated the project goals, but were not representatives of the citizens. Due to the consensus achieved, the margin for manoeuvre had become very limited. Of course, this stable state could continue to be contested at any time. This happens during the next phase, as the project moves into the services phase. In the initial phase, the focal actor borrows the force of their passive agent allies and turns itself into their representatives or spokespersons.

A successful translation with some degree of stability was thus achieved resulting in the telecentre project and the e-literacy phase. Following the process of translation, the telecentre became a “matter of fact” or a kind of immutable mobile. There was an increasing enthusiasm that these centres would help in providing government services in an integrated manner. Thus the state level construct of integrated services delivery gained legitimacy at decentralised levels across the state.