Integrating Social Development and Financial Sustainability: The Challenges of Rural Computer Kiosks in Kerala

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Abstract—**This paper examines the social and political challenges related to the implementation of information and communication technology (ICT) kiosk projects for rural development in India. Specifically, the paper focuses on the Akshaya project, a franchise of rural computer-service kiosks, which was implemented in Kerala as a public-private sector collaboration. The Akshaya project has the twin goals of social development through increased access to computers for rural people and financial viability through market-driven entrepreneurship. Using interview and participant observation methods, we examine the challenges that state actors and entrepreneurs face in simultaneously addressing social and financial sustainability. The preliminary evidence suggests that there is a tension between these goals at a macro level (within the state) and a micro level (for entrepreneurs and potential consumers) that makes it difficult to run a financially self-sustaining ICT kiosk project that also meets social development goals. The paper demonstrates that the implementation of ICTs for development is not simply a technical process of delivering services to the poor, but is a highly political process that involves tradeoffs and prioritization of particular goals to attain sustainability. Branding this project is a challenge for the state and entrepreneurs due to consumer perceptions of what development is, with particular expectations of state provided services, versus what business is.**

Index Terms—**ICTs, Social Development, Rural Computer Kiosks, Kerala**

I. INTRODUCTION:

"Even though my center closed down, I was successful-

because many rural people got an awareness of computers-and that is good enough. Next time the project should be planned so that the government pays for the initial equipment. Then afterwards the entrepreneur can run the center. Otherwise he will be in debt."* – A male entrepreneur with a closed Akshaya center

"In this Akshaya project, it is half government and half entrepreneur. All entrepreneurs must have a business sense. All entrepreneurs must be business men- otherwise they cannot succeed. Sometimes, however, I give discounts for absolutely poor people." A financially successful female entrepreneur

These quotes highlight the tension between the social and market-oriented goals of the Akshaya project, a franchise of rural computer-service kiosks, which was implemented in Kerala, India, as a public-private sector collaboration. The Akshaya project strives both for social development for rural people (through access to information and computer literacy) and financial viability of the project (through market-driven entrepreneurship). This project is an example of one of many information and communications technology (ICT) projects that are being used to promote economic and social development in developing countries.

Groups as diverse as the United Nations, NGOs, governments, the World Bank, and multi-national corporations have provided financial and policy support to 'bridge the digital divide' in developing countries. ICTs, such as Internet-enabled computers and mobile phones, are being introduced, developed and produced in developing countries to address these issues (HP 2005; InfoDev 2002; InfoDev 2003; UNCTAD 2004). Even though their goals may be different, these various actors have converged on the idea that ICTs can support socio-economic development with health, e-governance, and agricultural applications for rural populations. One example of these projects is the provision of information and computer access through a model known as rural kiosks. Rural kiosks are computer kiosks in rural areas with one or more computers, generally owned and run by independent entrepreneurs. They provide a range of services to users at low cost since privately owned computer are often not

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affordable for the poor (WRI 2005). Rural kiosks are one of the fastest growing applications of ICTs in the developing world (Ibid). There are a number of kiosk projects in India, mainly run by entrepreneurs as part of a franchise. In this paper we ask: What are the challenges and trade-offs involved in the implementation of these kiosk projects and what – if any are their implications for development?

India presents a good case study of these ICT debates since there is much optimism in the country that these technologies can be used as a tool to serve the 'masses'. By some estimates, there are as many as 150 rural PC-kiosk projects across India. Such projects could provide the first computing experience for as many as 700 million people in India (Toyama 2004). Despite the publicity and resources allocated to these kiosk projects, little research has been conducted to understand the social and political challenges involved in the implementation process. In this paper, our approach to understanding kiosks focuses on the strategies of kiosk entrepreneurs, state strategies and the relations between these. We examine some of these challenges, especially those arising from the simultaneous pursuit of social and financial goals, through the Akshaya project.

This paper presents our preliminary research findings on the dilemmas and tradeoffs faced by state actors as well as entrepreneurs, and draws some conclusions that may be relevant to ICT projects more generally. We suggest that there is a tension inherent between the goals of social development and financial sustainability at a macro level (within the state and political parties) and a micro level (with entrepreneurs and potential consumers) making it difficult to run a financially solvent ICT kiosk that also meets development goals. These tensions seem to cut across sectors since if entrepreneurs cannot generate revenue because they're catering to social services for the poor, the state may have to finance them in order to continue the project. But if the state overemphasizes the requirement of financial self-sustainability, entrepreneurs may preferentially cater to a wealthier clientele with a different set of services.

The paper demonstrates that the implementation of ICTs for development is not simply a technical process of delivering services to the poor, but is a highly political process that involves tradeoffs and prioritization of particular goals to attain sustainability. We conclude that even in a place like Kerala, with its strong socialist principles, the state can veer towards a largely private-sector kiosk model for financial sustainability, similar to other ICT and 'development' models in India and globally. This model, however, driven by the entrepreneurs' need to break even, could potentially compromise the original goals of social development that motivated the state to establish the project.

II. BACKGROUND:

India's IT industry is the fastest growing foreign exchange earner for the country (Technology 2003). The Indian software and services industry grew from $12.8 billion in 2003 to $17.2 billion in 2005 -- a 34% increase (DIT 2005). The IT industry is thought to be so successful because it developed in the late 1990's after India's economic reforms, so there was a 'bureaucracy free environment' for investors. This marked a shift from the era of state planning in industries and businesses to a new ideology of more local ownership and private initiatives (Nayar 1998). Following the development of India's national strategies for ICT, the government made a concerted effort to bring low-cost connectivity and ICT enabled services to the 'rural masses' (Pohjola 2002). ICTs are now associated with positive images that enable poor, rural people to leapfrog traditional 'development' problems such as poverty, illiteracy, hunger, disease and social inequalities, and to overcome the 'digital divide' (Arunachalam 2002; Eggleston 2002; Keniston 2002).

Kerala is a particularly interesting place to examine these ICT and development projects. Kerala is well known for the participation of the Communist Party in the state government, and sustained social mobilization tied to high levels of social development that are unparalleled in low-income societies (Parayil 1992; Rammohan 2000; Ratcliffe 1978). The state has been known, however, for its past economic sustainability problems, low levels of GDP compared to other states in India and persistent unemployment (Heller 1999; Rammohan 2000; Veron 2001). This history explains the state's two-pronged strategy for its technology project, that of combining the social goals of universal access with a more market driven agenda to achieve financial sustainability. This dual approach differs from other rural kiosk models in India, which in many cases take a largely market-oriented approach.

The Akshaya project was initiated in Kerala's Malappuram district as a pilot project that the government would eventually 'roll out' to the 13 other districts of the state. The Malappuram district consists of an area of 3550 sq km and a population of 3.63 million people. It has a per capita income of $344 (GOK 2005). Its levels of social development lag behind other districts in Kerala, in terms of educational levels and health. However, this has been improving in recent years. This district is unique to Kerala because it has the largest population of non-resident Indians (NRIs) and Muslims in the state, many of whom work in the Middle East as laborers. The district receives 17% of the total external remittances to Kerala (IIITB 2005). Therefore the Akshaya project envisioned that communication would be a large application in order to connect these populations with their relatives in the Gulf. Now that the project has been implemented in the Malappuram District, the 'roll out' period has officially started as of July 2005. The project is beginning entrepreneur selection in seven other districts in Kerala.

The Akshaya project had a grassroots beginning. It was developed as a result of a proposal from the Malappuram District local government requesting state government support to give at least one person in every family basic training in computers. This was based on the belief that ICTs could promote the local economy and assist individuals to attain jobs in Gulf countries. The Kerala IT Mission labels the aim of the Akshaya project as "IT dissemination to the masses." In this way it is seen as a development initiative with equity goals. It aims to bring the benefits of information technology to households and to provide access to computers. It also tries to increase the awareness of information technologies among citizens and of how these can influence their lives (www.akshaya.net). The implementation of these goals is through a state-private sector partnership. The Akshaya project calls itself a "project implemented by the IT Department, Government of Kerala, with participation of the private sector." With this label, the government emphasizes that the private sector are participants in a large-scale development project rather than just the owners of computer-kiosk businesses. But with this label come many assumptions and linkages to past social development programs that limit the state's ability to achieve the business goals of the project, as we will demonstrate below.

When Akshaya was first implemented in the Malappuram District, 630 centers were established by individual entrepreneurs to serve 1000 households each. At present, 435 centers remain and 430 have connectivity (Akshaya Project Office, pers comm.). The state committed to provide connectivity for free to the centers for 3 years and established what they call "one of the world's largest wireless Internet Protocol-based (IP) networks" (Pal 2005). The government's goal was eventually to create the first 100% e-literate state in India.[1] Thus the project began with a 6-month e-literacy phase, subsidized by the state, with the goal of training one member from each household in a basic computer course. During this period, the centers were supposed to focus only on e-literacy and the entrepreneurs engaged in door-to-door awareness campaigns and activities. The state selected the 'decision maker' of each household to attend the computer-training program. For each person who attended the e-literacy course at the Akshaya centers, the local government subsidized the costs of the user to the entrepreneur. After the first phase of the project, each center was supposed to use sound business strategies to achieve financial sustainability. The services at these centers were supposed to include the provision of government services such as birth and death certificates, electronic payment of bills, education training and access to information on health, agriculture, and legal issues.

There are therefore two primary actors involved in the implementation of this project. The state's role has been to subsidize the e-literacy training, provide training for entrepreneurs for economic sustainability, facilitate loans for entrepreneurs, establish the network and connectivity, develop curricula, provide general marketing, and oversee logistics. The entrepreneurs' roles have been to leverage the e-literacy training phase in creating awareness and attracting customers, to provide services and maintain the financial sustainability of the business (www.akshaya.net). Consumers' perceptions of the state and of entrepreneurs, entrepreneurs' perceptions of the state, and the ways in which each group defines and prioritizes social development and financial sustainability have complicated the implementation of the Akshaya project.

METHODS:

In order to understand the factors influencing entrepreneur strategies and the users and non-users of the centers, we utilized a combination of open-ended interviews and participant observation. We approached the Akshaya case as a complex entity, containing multiple and possibly interlinked causal connections, in order to generate some preliminary hypotheses about the implementation of ICT for development (Ragin 1992.). We viewed our interviews as "speech events", a perspective that argues that the meanings of interview responses are jointly constructed by the interviewer and the respondent (Mishler 1986). We used systematic transcription procedures and coding for our analysis using the interview analysis software, Atlas ti. This method recognizes and takes seriously the diverse 'knowledges' of different actors, reflecting their positions and their social situations (Burawoy 1998). The strength of our approach is that it allows researchers to preserve contextual complexity, probe the underlying reasons behind people's behaviors, and uncover emergent phenomena. The weakness is an inability to assess large numbers of cases, or to reach statistically defensible generalizations. We believe that our case approach is a necessary complement to a variable oriented approach, especially if we wish to reveal complex causal conjunctures.

76 open-ended interviews were conducted in the Malappuram district. These included 65 interviews with households in the areas served by 3 Akshaya centers. The other 11 interviews were with local panchayat members and with entrepreneurs (2 local panchayat members, 1 municipal council member, 1 'failed' entrepreneur who eventually closed his center, 3 interviews each with a female and a male entrepreneur whose centers were doing well financially and 1 interview with a male entrepreneur who was having financial problems and was going to close his center).

The study centers were selected based on whether they were financially successful or weak and on whether they were located in rural or urban areas. The Akshaya office in Malappuram recommended a list of centers that fit these

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[1] Kerala is well known for having attained almost 100% literacy for its population. Note that the state is leveraging that same phrase in relation to its new drive for 100% e-literacy.

criteria. One center was in an urban area, run by a male entrepreneur and was considered a financial success. 27 interviews were conducted with households around that center. The second center was located in a rural area, run by a female, and considered a semi-profitable center. 27 interviews were conducted in that location as well. The third center was located in a peri-urban area, run by a male entrepreneur and was on the verge of closing down. 11 interviews were conducted in the areas surrounding that center. All interviews lasted between 40 minutes and one and a half hours. Furthermore, participant observation methods were used in centers, homes of entrepreneurs, and amongst kiosk users.

For the 65 interviews with households, we created a stratified non-random sample by speaking with both males and females and with individuals of different religions and income levels. 46% percent of the individuals interviewed were female and 56% were male. 57% of the sample was Muslim, 40% was Hindu, and 3% was Christian. Of the 65 households, 5% identified themselves as part of a high income class, 35% as part of a middle income class, 26% as a low income class, and 34% did not identify with any income class. We also spoke with individuals who were users of the centers, nonusers, and individuals who had participated only in the e-literacy phase. 34% of the households had used the Akshaya centers for some type of service. 26% of the households had attended the e-literacy training and 9% of the individuals interviewed paid their bills through the Akshaya e-pay service.

III. MACRO LEVEL TENSIONS

We now examine the tension inherent between the twin goals at a macro level within the state and its political parties. We highlight some features of the political environment that influence the state in integrating social development with financial success into its strategy for rural kiosks.

Challenge: Potential Political Criticism

At a macro level, the challenge for the state is to recruit private sector partners who can create financially sustainable and profitable kiosks, without being criticized for subsidizing private sector interests. This threat of criticism is rooted in the particular development and political trajectory Kerala has pursued in the past, with high levels of redistribution and state sponsored social policies for local people. Promoting a more entrepreneur driven model of success could result in the perception that the project doesn't address the development needs of the 'masses'. But without financially successful entrepreneurs, the project cannot go to scale without incurring huge and continuing costs for the state.

More generally, the Akshaya project is being implemented in an environment of ICT and Development that emphasizes financial sustainability. Over the last six years, financial sustainability as *proof* of success has taken hold in the

discourse of ICT projects in other parts of India (Toyama 2004). Many kiosk projects emphasize business principles for implementation, particularly cost recovery and viable business plans. Indeed, increasing the well-being of the poor and increasing the profits of the private sector are often conflated in this discourse (Prahalad 2004). The argument is that commercial opportunities could simultaneously benefit the rural poor and large companies. The language and goals surrounding rural kiosk projects in India now reflect such 'win-win' objectives. For example, a start-up venture called n-Logue Communications – one of the highly acclaimed kiosk projects in India – takes a purely private sector approach to ICT projects for development. n-Logue created a for-profit franchise-based model, with three levels of interdependent networks, to tap into the rural demand for connectivity in India (Markle 2001). The business aspect of the Akshaya project also incorporates these ideas of success with the simultaneous implementation of profit-making and social development goals. Internationally, too, the discourse of ICT and Development strongly encourages financial sustainability and an allegedly bureaucracy-free growth environment (Prahalad 2004).

Despite the importance of commercial viability, the project is also being implemented in a state with a long history of redistributive policies, an active civil society, and class based social movements. This history explains the importance given to an explicit social agenda in Kerala's ICT strategy. The state government is dominated by two alliances, the United Democratic Front (UDF) headed by the Indian National Congress and the Left Democratic Front (led by the Communist Party of India (Marxist) (CPI(M)). The state has a reputation for being 'leftist' in its policies, particularly in terms of social development. On all fronts, Kerala's human development indicators such as those for health care and education are much higher than other states in India[2] (Heller 1999). The state's high levels of social development have been linked to a long history of political mobilization and social movements. Development in Kerala was traditionally seen not as driven by market forces but by the mobilization of classes (Heller 1999).

Despite these advances, Kerala has had problems in terms of economic stagnation: the state faces high levels of unemployment, persistent poverty, and declining prices for its major commercial crops (Veron 2001). Kerala's economic stagnation has been highly debated, with some analysts attributing it to populist demands, overemphasis on welfare policies, and the misallocation of public sector investments (Ibid). This economic situation has been changing recently and according to the Economic Review presented in the State

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[2] Kerala's literacy rate is 91% compared to 65% for the Indian average. Its infant mortality rate is 14 deaths per 1000 live births compared to 68 deaths per 1000 live births for India UNDP. 2001. "Kerala Human Development Fact Sheet." UNDP..

Assembly, the economy grew by 9.2 per cent in 2004-05 (Hindu 2006). The annual growth rate for India was 6.9% for the same period (World Bank 2006). Since the late 1990's changes in Kerala's social and economic policies have been reshaping the state's development agenda, partly in response to India's recent neoliberal economic reforms and partly in response to its redistribution-without-growth image. Social development is now increasingly seen as compatible with more market-oriented goals (Heller 1996).

The politics of the Akshaya project between the Muslim League and Communist Party at the local level highlights the conflicts between redistribution and financial sustainability. The Muslim League under the leadership of the Congress Party is the dominant political force in Malappuram district. The Muslim League is also credited with beginning the Akshaya program. In May 2001, the Muslim League Leader, Shri P.K. Kunhalikutty became the minister in charge of information technology. During his leadership, the Malappuram district local government[3] formally approached the state government for implementation support for an ICT program in the district (iitB, 2005). However, the League's involvement in the project generated opposition from the CPI(M) supporting population and panchayat members in Malappuram. Our interview data indicate that the CPI (M) panchayat members have been opposed to the Akshaya project for a variety of reasons, including their (stated) belief that private entrepreneurs are the ones benefiting most from the project and not the 'masses of people.' We find that if the state promotes a more entrepreneur driven model of 'development', it invites political criticism from class-based movements and the CPI(M) that the project doesn't address the needs of the masses. In the words of one local CPI (M) leader,

"I support the project, but I oppose the type of implementation and style. I mean that financial benefits go to a few, particularly the entrepreneurs, like in the e-literacy training phase. I suggest that the entrepreneur selection and all Akshaya centers in each pancahayat should be more supportive of local people. Furthermore, the panchayat should own the Akshaya centers, not the entrepreneurs. I think that is a better way. I think that the implementation and use of IT brings inequality. I don't think that the technology itself brings inequalities- but the implementation does."

At the same time the Muslim League supporters of Akshaya blame the CPI(M) for some of the project's failures to date. They allege that the Communists are opposed to the project simply because the Muslim League initiated it. One accusation expressed by the Muslim League supporters was that the CPI (M) were anti-technology and were responsible for the financial problems and low levels of GDP in Kerala. One Muslim League supporter stated,

"Here in the paddy field, there came a tractor- and the communists (CPI(M)) were against that. Secondly, computers came here, then there were strikes and they were throwing stalls into the government offices. They thought this would bring unemployment problems. Technology would come and no one would get a job. At that time a large amount of unemployment problems were here and the fear was that if computers were implemented- then this would bring more unemployment. They are giving the people the wrong information."

However, the same Muslim League supporter pointed out that the benefits of such a program may not be reaching all groups and that that was a problem. *"The Akshaya program gets only benefits for local people. All people don't get complete benefits- only some people benefit."* Therefore, the sentiment that the 'masses' should be included in any development project is prevalent across political lines[4]. This sentiment makes the project's focus on entrepreneur enterprise development vulnerable to the criticism of not actually being a development project or ultimately helping the 'masses.'

Thus the state and entrepreneurs must deal with the politics and pressures behind the state's public-private strategy. They have had to try to integrate social development that caters to local interests and principles of entrepreneurship and business success. Because the strategy for telecenters is a public private partnership, its implementation requires a delicate balance in a state like Kerala where there is active participation by the population and by civil society. This strategy of private-public partnerships is therefore politically charged. On the one hand there is pressure from political leaders as well as civil society to address equity and social goals in bringing ICTs to the rural population. On the other hand, the market-oriented regime in which ICTs have flourished and the state's financial difficulties influence the state into emphasizing profitability.

Finally, the state's branding of the Akshaya project as a development project as well as a business has been a challenge. A history of state-led development makes it difficult to recruit entrepreneurs who can understand and carry out both the social and financial goals of the state. Specifically, entrepreneurs as well as consumers perceive state provided 'development' services as free or subsidized, for the poor, and of low quality. This makes it difficult for the state to provide access for all while convincing the better off that the quality of that access is high. The tension at the state and macro level has parallels at the micro level with entrepreneurs as well as consumers, which we now examine.

IV. MICRO LEVEL TENSIONS: ENTREPRENEURS

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[3] This local government body is called the *Panchayat*.

[4] The politicization of a development project like Akshaya cannot be attributed to any one party. Several Muslim League and CPI (M) supporters indicated that in Kerala, it does not matter what type of project is initiated -- if one party starts it, the other will be against it. Therefore there must be some component in any initiative, they say, which benefits everyone.

At a micro level, the tension between social development and financial sustainability exists because entrepreneurs who emphasize the social development goals of the project, such as e-literacy, may not be financially successful and may continue to expect government subsidies. The more business-oriented entrepreneurs address the commercial goals of the project by targeting those customers that will help them generate a profit. Specifically, since the people in need of development services are often distinct from the people who can help a kiosk financially, entrepreneurs face branding challenges to attract both groups of people. On the one hand, they must recover their costs, which requires selling to wealthier clients who expect a state-of-the-art facility with high-end services. On the other hand, kiosk operators are also being asked to serve the poor, who expect the state to provide free or subsidized development services.

In addressing the dual goals of the Akshaya project, entrepreneurs thus face a trade off between social development and financial sustainability. This can lead to a variety of development and financial outcomes. We categorize these entrepreneurs into three broad types: socially-driven, business-driven and balance-driven, and discuss below some illustrative examples of these types.

A. Socially-driven Entrepreneurs

Because Akshaya is a government initiated 'development' program in collaboration with the private sector, some of the entrepreneurs who were selected by the state were more committed to the social development aspects than to running a business. These socially-driven entrepreneurs tended to focus on providing universal access or services for the people in rural areas. These entrepreneurs were, in general, not financially successful, nor did they implement business-oriented strategies. One socially-driven entrepreneur, whom we call Moosa[5], stated that he earned a profit ranging from $64/month to a loss of $60/month[6]. He had completed secondary school and had also done a diploma course in computer applications. He ran a center in a peri-urban area outside of a large town and had been running a computer center, which had 5 computers in that area for 9 years. He considered his business to be "*doing really badly*." His kiosk primarily offered educational services to his customers, such as basic computer courses.

A female entrepreneur indicated that because she thought Akshaya was a social welfare program, she decided to become an entrepreneur. She said,

"Because I had experience in social welfare activities before- I didn't face many difficulties with the Akshaya

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[5] All names have been changed to protect the identities of the respondents.

[6] This is based on an exchange rate of 40 Rs/$1. Operating expenses of a center typically include rent, phone, electricity, and staff salaries. Revenue per month generally comes from computer classes, browsing, e-pay, printing, and desktop publishing.

project. I started the Akshaya center to give services to the people. Akshaya is a good project- because all aged people, and about 75% of people in Malappuram district participated. It was a good thing. Many aged people got an opportunity to study computers. It was a good chance for them."

She emphasized that she was successful in creating a large-scale awareness about ICTs in her area during the e-literacy training phase, particularly with women. However, she had no prior experience with either business or computers and had not realized that she would have to incur so much debt and "*ruin her standing*" with the bank due to the interest accrued on the loan. Thus she wanted the government to pay for her losses and asserted, *"If the government could provide subsidies for our loans and waive the tariff for our electricity- we could get discounts. It would be more helpful for the success of entrepreneurs."* She eventually closed her center and is trying to sell her equipment to help her to pay for the loans.

More than one entrepreneur interviewed had expected that the government would be involved in all aspects of the running of the center, would provide subsidies throughout the project, would provide ideas, applications and customers; and if the entrepreneur was not doing well financially, would pay their debts. These entrepreneurs tended to be the less financially successful ones.

B. Business-driven Entrepreneurs

The business-driven entrepreneurs tried to make their telecenters profitable. They accepted users from any class of society, but tended to target those that will help them generate a profit. One such entrepreneur, named Ram stated that his average profit was between $190- $310 per month. (His kiosk, however, is not his only source of income). There are 605 households in his area and he conducted the e-literacy training for 501 of them. Ram has a bachelor's degree in commerce, a postgraduate diploma in computers, and a teacher training course certificate. His center is located in a medium sized town area. His services included basic and high-level computer education courses and certificates, browsing, and government bill payment.

Ram indicated that, in general, the Akshaya brand was not his main revenue earner and he did not cater to the rural poor. The largest group of people who attended the e-literacy training course in his area was below 15 years of age (153 people). This was followed by 141 people in the age group of 15-20 and 126 people between the ages of 20 and 35. Very few individuals above the age of 35 attended his e-literacy training course. He generally thought that the e-literacy training process was a good idea because it was the first time many of the people had seen a computer, and, although they were a bit afraid, he was happy to provide social services for everyone. About 150 people from the e-literacy training course came directly afterwards to do a continuing "Akshaya course" for $10. This is a course that the state developed in the local

language that further teaches people the basics of computers. He admits, however, that not that many of those people are attending his center now. They were mostly students, rather than housewives or older people. He thinks that more people didn't come for the continuing $10 course because the price was much higher compared to the first e-literacy course, which was almost free. Thus most of the people could not afford to come back. But he was happy with the way that he could use Akshaya to leverage his business at some level, with students. Most of his students had a middle class background and were in the process of completing their education, and taking basic and advanced computer courses, or higher degrees. Ram said,

"What does it mean that I am running an Akshaya center? It just means I offer one Akshaya course since the e-literacy period is over. Most of the students come for the private courses, however, not Akshaya courses. Askshaya just means that I do some data entry work, computerization of panchayat-giving birth certificate and death certificates for the government. The aged and other people just take the e-literacy course and then say they will never use a computer again. Most don't use computers."

He indicated that Akshaya's services were a very minor part in his business and did not bring in much revenue. Essentially this entrepreneur does not see Akshaya as a development project, but as a minimal way to assist his business.

C. Balance-Driven Entrepreneur

The balance-driven entrepreneurs tried to combine the two goals of social development and financial sustainability. They may have provided subsidies to the poorest users but tried to maximize their profits from higher-class users. One such entrepreneur, Henna, stated that her average profit from the kiosk was $60-$140/month. She is 28 years old, was married at the age of 15 and has three young children. She has completed her 10th standard education. Since then she has taken a few computer courses. Her center trained 364 men and 418 women out of a total of 925 households in her service area. She offered business services, photocopying, basic computer education courses, bill payment for government services, and desktop publishing.

Henna saw the Akshaya initiative as more of a partnership with the government and had fewer expectations that the government would be responsible for the business side of the project. Henna expected the government to provide some assistance but said she needed to use her own business skills to attract customers. She attracted lower income customers such as auto rickshaw drivers and electricians to help them with their businesses, as well as middle class students to take courses on computer programming. She stated that the reason was able to attract so many different types of people was by acting like a "government help desk." She asserted,
"People want a mediator instead of directly dealing with the government. There are long lines for remitting power bills. In many families with only ladies in the home, they cannot reach the office and they have to deal with a big line and waste time to pay electricity and water bill. Nowadays, people think this is a government help desk. Most newspapers and radio says it is a government place and offers government services. Once they come here they ask a question about a government procedure and I help them to search for whatever they need by Internet. If I can't get the information from the Internet, I call the government offices and get information from them. Most people will come back the next time and will pay for these services."

Henna also has previous experience with business, the IT industry, and good communication skills. She talked about her success in attracting a variety of customers and being financially profitable and stated,
"Some entrepreneurs have not much experience with the IT field. But I already had an understanding of the IT industry. Also communications and interacting with the public are important skills for being an entrepreneur. I see all kinds of people and I know what they are like and what they want. I know many people in this area. Not before Akshaya- but after Akshaya I now know so many people and I have good communications with them."

The Henna case illustrates that business strategies, computer experience and the ability to communicate are important skills in attracting and keeping a wide range of customers. Her case is one of an entrepreneur who balances social development and business viability, but our interviews so far suggest that this is may be the exception rather than the rule with this rural kiosk project. Even she feels some of the tensions, particularly with the politics surrounding the project. She indicated, *"A panchayat member had to sign off on our (entrepreneur's) work but he said he would not sign it[7]. He said to me-- 'There is no water connection- no house, no value and at this time you want people to study computer literacy? I can not sign this."* This quote again highlights the politics surrounding the project and the belief that entrepreneurs are not addressing the needs of the people.

D. Branding Tensions

By examining these three types of entrepreneurs, it becomes clear that Akshaya's implementation difficulties lie in trying to serve both the population who need basic assistance and the population who can contribute to making the kiosks profitable. These two groups seem distinct, since those customers who can help the rural kiosk achieve profitability tend to be better off, more educated, more experienced in computer use and interested in more advanced courses than those who participated in the e-literacy phase. Those who need social

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[7] Panchayat members had to sign off on the lists the entrepreneurs provided on the numbers of people who had attended the e-literacy program in order to sanction the funds entrepreneurs would receive for each person trained.

services may have learned the basics of computer use, yet often times cannot afford to continue using the centers or – importantly -- do not see relevant applications at the kiosks. The telecenters make most of their profits from offering intermediate to advanced computer programming courses. Thus entrepreneurs face branding challenges in trying to attract both segments of the consumer market. The more socially driven entrepreneurs brand their centers as Akshaya -- government initiated centers that can provide e-governance services, and that provided the subsidized e-literacy training.. Business driven entrepreneurs tend to brand their centers primarily as independent private centers that also provide Akshaya services (such as e-governance). For these entrepreneurs Akshaya is only a small part of their overall branding strategy and they market to an elite crowd in need of more advanced programming services. The balance-driven entrepreneurs try to leverage the role of the government, while not directly associating with it, by being the intermediary between consumers and the government as the 'mediator' or 'government help desk.' In this way, they are able to attract consumers from a range of backgrounds. These examples also indicate that it may be difficult for the state to recruit entrepreneurs with business experience who are also interested in the development goals of the kiosks.

During our interviews, an entrepreneur suggested that using the name 'Akshaya' and the affiliation with a government sponsored program can confuse customers. It can create an image that the entrepreneur's center is not a business, but rather a development project where low-income users receive subsidized or free services. Moosa, a social-driven entrepreneur, asserted that the Akshaya name was a detriment to his business and that after the introduction of Akshaya in his area, people started to associate his center with a free government program. He stated,

"First I had a monopoly on the area. Before Akshaya there were only 2 centers in the panchayat- after this project started, another Akshaya center was established nearby- very close to mine. Before Akshaya, people used to come to my center and pay $75 for a course[8]. Then Akshaya came and I gave almost free courses and the fees for the courses I provided were too low at $10. Then the people were not willing to pay that many fees again. And like that my whole business was gone and Akshaya wasn't successful. I am considering in terms of monetary benefits- my business not a success. Socially I think the project was good- and it was good for people and good for the area- but it is not good for the entrepreneur."

Moosa was arguing that before his center became part of the Akshaya franchise, it was considered a computer center where users had to pay high fees for courses. But post-Akshaya, people began to expect a variety of low cost or free services in his center. Thus this entrepreneur asserted that potentially

paying households associated the name "Akshaya" with a rural area based program serving poor people. He feared that if one relied on the Akshaya brand, then one's customers would be limited to the rural population who tend to be poor, and thus the kiosk would not be profitable.

Moosa concluded that, *"People are ready to pay a good amount of money to go to town to take courses. Two years ago, most people would have gone to courses in rural areas, but now that has changed a bit.[9] Because of Akshaya-studying a computer package in this area- vs. studying a computer package in a town is a huge difference and is like drinking water vs. a bottle of cola."*

Henna also raised the point that users associate town areas with better services and that that was beneficial for the success of her center. In her words,

"My center is located in town area. I mean this is a rural area, but my center is in the main town here. In a total rural area without any town element it is not possible to run a center. This is the main area in this rural area with shops and people consider this 'town' and reach here. There is a common concept in all people's minds- all things in towns are very good and high quality. Like with shopping and any jobs, people prefer to do it in town."

This illustrates that the tension between the social development and financial sustainability aspects of the project are also prevalent at the level of consumer perceptions. We will now examine these consumer-level tensions.

V. MICRO LEVEL TENSIONS: CONSUMERS

Our discussions with entrepreneurs as well as consumers indicated that middle-class consumers were skeptical of the state and of the quality of its services. Branding Akshaya is a problem for the state and entrepreneurs due to consumer perceptions of what development is (with particular expectations of state provided services) versus what business is (with regard to cost, type of users, and quality of center). Thus, given these perceptions, there tends to be a self-selection among consumers with the relatively better-off using privately run computer centers in urban areas (or what they perceive to be private) rather than the state-private sector kiosks.

In discussing the project with households, both users and nonusers indicated that the Akshaya project was a government program that offered free computer courses for the poor. Several households also expressed their belief that government programs benefit the most economically marginalized groups. Others saw Akshaya as purely a government sponsored

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[8] Changed value to dollars based on 40 Rs=$1

[9] Moosa meant that because there used to be a scarcity of computer courses available in general, people would have been willing to attend a course in a rural area two years ago. However, now with the prevalence of courses in town areas, people prefer to take courses in town.

development project to create an awareness of computers. Those who saw it as a development project asserted that the government will pay for your fees to attend the course and that it is a great social project. It provides opportunities for all types of people. Several households indicated that these centers are more successful in rural areas because they cater to poor consumers. One woman stated, *"People are more likely to use Akshaya centers in rural areas. I think more people in town use computers. But rural area people are interested in computers. In rural areas, people would use Akshaya centers because the fees collected are low so village people can afford them."* Households indicated that in terms of cost, Akshaya centers are generally places where anyone can go to learn about computers because it has very low fees. In terms of types of users, Akshaya seemed to be thought of as a place for low-income people to learn about computers. Household perceptions of the quality of the centers varied. Some households expressed that these centers have poor quality instruction compared to private centers and that they only teach the basics of computers. Several households associated Akshaya with rural areas. They indicated that the certificate one receives after completing a computer course from centers in rural areas is not as valuable as certificates from urban centers. One student of this center, stated, *"Akshaya centers are in rural areas and are not good. The center has no value- and certificates issued (for advanced training) from these village centers have no value. Why I don't know."* In particular households indicated that since training certificates are essential credentials for employment, it is preferable to show employers certificates from computer schools in urban areas.

For example, these consumer perceptions influence the way entrepreneurs brand their centers. Ram's center is not branded with the Akshaya name as such. Instead, he uses two other brands of private courses to attract customers. On the wall outside of his center, he has three signboards hanging,, the Akshaya sign being one of them. One woman at Ram's center when asked about the Akshaya project stated, *"Akshaya is mostly for villages. It is for people who for the first time see computer centers in their areas. In town areas most of the people have knowledge about computers. But in rural areas, poor people are seeing for the first time computers at these centers."* Even though this student is actually a student at an Akshaya center in an urban area, she does not associate the center where she is taking a course with Akshaya.

The culture associated with Akshaya centers as that of helping low-income people can be detrimental to the profitability of the centers, because students who can afford to pay for continuing computer education may opt to go to private computer schools, or to those in town areas where they expect better quality courses. This phenomenon leads entrepreneurs like Ram to use names other than Akshaya to brand their centers.

VI. CONCLUSIONS

These preliminary findings suggest that the tension between social and financial goals is inherent at the state, entrepreneur and consumer levels, making it difficult to run a financially self-sustaining ICT kiosk project that also meets social development goals. If the state overemphasizes the agenda of financial sustainability, entrepreneurs may be forced to cater to the clientele who can bring them profits, and are willing to pay for high priced services. Furthermore, there is a risk of political criticism that the state is not addressing the needs of the masses and that it is just subsidizing the interests of private actors. If the state overemphasizes the social development aspect of the project and entrepreneurs cater to the development needs of the poor, then the state could well be forced to finance these entrepreneurs and provide ongoing support to the project.

Furthermore, these tensions are associated with the perceptions of the state and entrepreneurs held by consumers. The imagery associated with state-led development programs that of helping poor people with free and low quality services, is detrimental to the financial sustainability of the Akshaya kiosks. However, it is important to also recognize that the perception that Akshaya is associated with the state and a development project can be beneficial in social terms. It creates widespread awareness that this is a place where rural people can receive computer training and can receive a government issued certificate. Many rural households indicated that after the basic e-literacy training course, they heard that one could take an exam and get a government issued certificate for Akshaya. The value given to that government issued certificate for basic computer training is high among rural students. One rural student who participated in the e-literacy effort stated, *"The Akshaya project is very good. Knowledge of computers has many uses. People now see computers when they go to buy something. They need to know what a computer does."* However, what remains to be clarified is that this additional training comes at a cost and that the services are not free or subsidized after the e-literacy training phase.

Our research indicates that if both low-income and better off customers are to be served, one can draw lessons from the strategy of the balance-driven entrepreneurs of not being wedded to government brand, yet using it to leverage consumer interest by being a 'mediator' with the government. However, the service-with-sustainability model requires a delicate balance and achieving that balance in branding the project to consumers can be difficult. It may be all the more so in Kerala, given its history of state led development and perceptions of the state associated with this history. We find that despite substantial government support, it remains a challenge to make rural telecenters financially and also socially oriented. Thus, at present, the Akshaya project straddles both goals, yet is not fully achieving either in its implementation.

Although our study was restricted to Akshaya in Kerala, it seems possible that these findings are more general. The political tensions of combining welfare benefits with financial solvency are those faced by nations around the world. And, in many businesses, it is difficult to maintain a wide customer base that spans economic classes.

On the basis of our preliminary analysis, we suggest that there are two important questions that future research must address. One, under what conditions and for which reasons might the two-pronged Akshaya strategy perform better or worse than it does in Kerala? Given the widespread belief that financial and social sustainability are desirable and compatible for ICT-led development, more empirical research is needed to understand the enabling conditions for these dual goals. Second, and more provocatively, it is still unclear in what way 'social development' is being served by these kiosks. Despite several respondents' views that "awareness of computers" was a good thing, the step from awareness to development is not automatic. Research that can explain the pathways by which e-literacy and e-governance can be leveraged into meaningful development indicators is critical for the implementation and refinement of ICTs for development.

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