



---

## Assessment of Economic Growth Impacts of the eCenters Project in Kyrgyzstan

The dot-ORG Digital Opportunity through Technology and Communication Alliance for  
ICT Access and Applications (dot-ORG)

---

**Submitted by**



---

Michael Best, Georgia Institute of Technology  
Beth Kolko, University of Washington  
Dhanaraj Thakur, Georgia Institute of Technology  
Medina Aitieva, American University of Central Asia

**Submitted to**



Michael Tetelman, Director, dot-ORG

July 2007

# **Assessment of Economic Growth Impacts of the eCenters Project in Kyrgyzstan**

Michael L. Best  
Sam Nunn School of International Affairs &  
School of Interactive Computing  
Georgia Institute of Technology  
mikeb@cc.gatech.edu

Beth Kolko  
Department of Technical Communication  
University of Washington  
bkolko@u.washington.edu

Dhanaraj Thakur  
School of Public Policy  
Georgia Institute of Technology  
dthakur@gatech.edu

Medina Aitieva  
Department of Sociology  
American University of Central Asia  
Aitieva\_m@mail.auca.kg

## Table of Contents

1.	Executive Summary .....	4
2.	Background – The eCenters project in Kyrgyzstan .....	9
3.	Scope and purpose of Evaluation.....	12
4.	Methodology .....	12
4.1	Approach and techniques .....	12
4.2	Sampling .....	13
4.3	Methodological challenges and observations .....	15
5.	Findings.....	16
5.1	User profile and demand for eCenter services .....	16
5.2	Using and Accessing the Internet.....	22
5.3	Economic Impacts.....	24
5.3.1	Job opportunities.....	25
5.3.2	New and existing businesses .....	26
5.3.3	eCenter jobs .....	27
5.4	Impact of Stipends.....	29
5.4.1	Internet coupons.....	30
5.4.2	Training courses.....	31
5.5	Other issues and impacts of the eCenter project .....	32
6.	Recommendations.....	34
6.1	Sustainability and Replicability of the eCenter model .....	34
6.2	Improving the impact of the eCenters .....	37
7.	Appendices .....	40
7.1	Brief profiles of the eCenters.....	40
7.1.1	Ivanovka.....	40
7.1.2	Talas .....	41
7.1.3	Karakol .....	42
7.1.4	Bosteri .....	43
7.1.5	Naryn .....	44
7.1.6	Osh/Karasuu .....	45
7.1.7	Nookat.....	46
7.2	Coupon users by center (January 2006 – January 2007).....	47
7.3	Curriculum of eCenter training courses .....	48

## List of Tables:

Table 1 – Targeted and Actual sample size of user surveys by eCenter .....	14
Table 2 – Other surveys and profiles completed at each eCenter .....	15
Table 3 – Summary of user characteristics .....	17
Table 4 – Employment status of users by eCenter.....	17
Table 5 – Ethnicity of users by eCenter (%) .....	18
Table 6 – Ranking of services in terms of current share of revenue for each eCenter ...	21
Table 7 – Competing computer centers and population sizes .....	25
Table 8 – Staff strength at each center .....	28

## List of Figures:

Figure 1 Impact diagram of project on centers and wider community. ....	4
Figure 2 Recent IT Growth in Kyrgyzstan (Source: ITU World Telecommunications Indicators 2005).....	9
Figure 3 Map of eCenter locations.....	11
Figure 4 – Users of eCenter by sector of employment .....	18
Figure 5 – Percentage of all eCenter users who use each service .....	20
Figure 6 – Common online activities for eCenter users .....	23
Figure 7 –Internet traffic per eCenter by month (MB) .....	24
Figure 8 – Number of Internet coupons issued eCenters per month .....	31
Figure 9 –Number of training coupons issued per month by eCenter.....	32

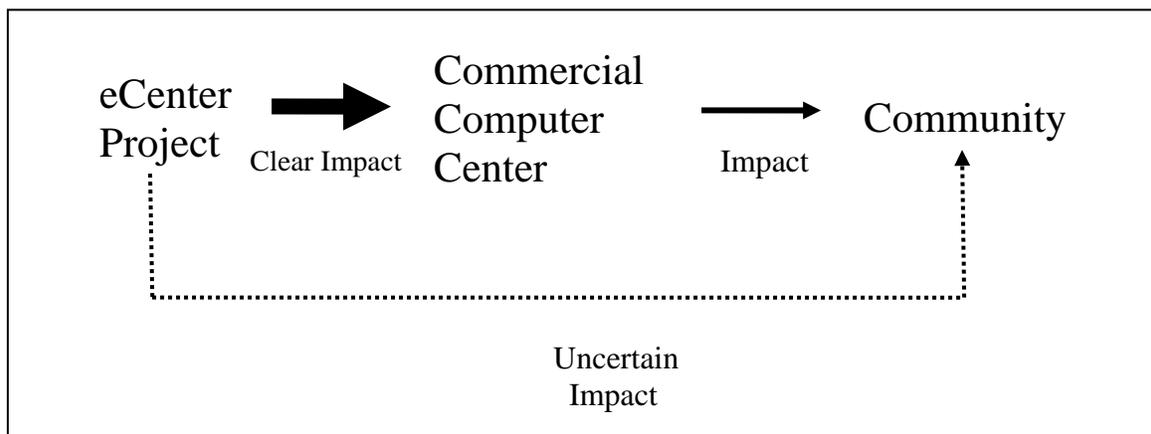
## 1. Executive Summary

This report presents the final results of an evaluation of the eCenter project in Kyrgyzstan. The eCenter project was implemented by AED and funded through USAID's dot-ORG program. The project ran from July 2005 to September 2006 with a total budget of US\$390,000. During this time a group of seven existing commercial computer centers, situated across the country, converted to "eCenters" most notably by implementing an innovative computer training and Internet browsing subsidy program.

*We find that the eCenter program had clear and often substantial impacts on the participating commercial computer centers; all of them reported enhanced customer numbers and revenues and increased capacities. We also find that all of the participating computer centers have had social and economic development impacts upon their communities primarily through provision of necessary business and communication services. This is particularly true for those centers situated in the smaller towns. We were not, however, able to expose an unassailable link between the principal component of the eCenter project, to wit the coupon subsidy program, and these social and economic development impacts identified within the community. These findings are diagrammed in Figure 1 below. We note that these results are necessarily provisional as the project has operated for only one year, or less, at each of the centers and our study was conducted in this immediate timeframe and without occasion for the potential impacts to mature.*

This evaluation has sought to address questions related to the efficacy of the coupon program, the economic impact of the eCenters and the potential for scalability in Kyrgyzstan and replicability within the region and elsewhere. In carrying out the evaluation, the research team employed a combination of quantitative and qualitative methods including a wide ranging user survey, case studies of local businesses and interviews with the staff and managers of the eCenters. The evaluation was completed over the three month period from March to June 2007.

**Figure 1 Impact diagram of project on centers and wider community.**



The eCenter project provided "eCoupons" for subsidized computer courses and Internet access designed to create or expand the market of an already established commercial computer business. Thus while the owners provided the physical infrastructure for each

eCenter, the project helped them to access the local market for provision of training and Internet services. It is this merger between public goals of increasing ICT access and literacy, and the ultimate impacts on the community this can have, and private goals of increasing profit and market share that stands out as one of the innovative features of the eCenters project.

In addition the program envisioned a highly innovative, even bold, land grant initiative where suitable land for investment in office space and technological parks could be linked to each eCenter. It was envisioned that such investment would be supported by the success of the eCenters. This aspect of the project, however, did not achieve its expected outcomes.

Overall, the main findings of the report are that the eCenters had a significant impact in improving ICT access in small catchment areas with limited competitors. In areas with many competitors, the coupon program assisted greatly in increasing the usage of the commercial computer center. The computer centers also had an impact economically through job creation and by providing services to new and existing businesses. However, there is no definitive link between the coupon program and these specific economic impacts. In general, the economic impacts of the project came from the computer centers as a whole and not necessarily the coupon program. The main benefit of the coupon program was therefore to increase the user base of the eCenters and this in turn meant that the centers were able to "take-off" and remain or become financially sustainable. This is in fact one of the major features of the project as it is perceived by other stakeholders within the ICT sector in Kyrgyzstan.

Long term sustainability hinges on an efficient targeting of beneficiaries of the program (i.e. those who have little or no experience with ICTs) in order to maximize impact. Unfortunately, the targeting and distribution strategies for the coupon program were not consistent across the eCenters. Thus while in the short term the eCenter could sensibly utilize an arbitrary distribution scheme for the coupons, the long-term viability of the program would benefit from more accurate targeting that creates a larger customer base and widens the impact of the program.

Specifically, the evaluation arrived at the following findings:

#### eCenter user profile and service demand

Overall the majority (57%) of those users surveyed (and by extension the majority of program participants) were women and the average age of all users was 21. Approximately 32% of users had at least a bachelor degree and almost a third were students. A little over a third of all users were employed mostly in the services sector. Also, the majority of the users were Kyrgyz although this varied some according to region.

By analyzing the frequency with which respondents said they used the different services of the eCenters, we were able to identify three archetypical users: super-, minimal-, and new-users. We found that the new-users are most interested in the Internet coupons, online course papers, phone cards, and FAX services using these all, on average, once a day. The super-users, however, report frequent use of nearly all of the twenty-four surveyed services except for instant messaging. The most frequent application the super-users report employing is Skype for voice communication. And, finally, the minimal-users do not report engaging any service with real frequency; for them the most common service they use is Microsoft Office and second most common is game playing but these still with rarity. As expected, new-users and super-users visit the center much more than the minimal-level

users. Super-users are also the principal beneficiary of the coupon program though it is not clear whether the coupon program encouraged them to *become* super-users or they were *already* demonstrating these stereotyped usage patterns and this made them well positioned to avail of the program.

Among all types of users, the Internet was described as the service most frequently used at the eCenters. However, it was one of the few services ubiquitously provided by all of the centers which could naturally enhance average usage across the centers. From the managers' point of view, the services that brought in the most revenue varied across the eCenters. These ranged from Internet service, computer literacy courses, IP telephone, typing and the sale of mobile phone credit.

As the most frequently used service, the Internet was considered important by many users as a means of keeping in touch with friends and family abroad particularly where regular post mail services are infrequent. Other important uses of the Internet included reading news, doing school related work/research, downloading music and participating in chat rooms.

#### Economic impacts

Almost all of the computer center managers agree that their clientele increased (some very profoundly) after becoming an eCenter. In addition, according to the managers on average the transition to an eCenter increased their revenues by an estimated 57%. Thus it is clear that the program has had a significant economic impact on these participating centers. Another direct economic impact was the creation of new jobs within the centers themselves. Such jobs account for as many as 31 persons working across the seven eCenters. Furthermore, we found it likely in two locations that the presence of the eCenter generated interest and demand within the community which was met by the launching of new commercial computer centers locally. But, as if to have it both ways, we found two other communities where we suspect that the artificial competition on other local centers arising from the subsidized coupon program resulted in the closing of these centers that were not participating in the program.

In terms of a broader impact, the computer centers were critical in providing computer literacy courses in their communities. Based on the user survey more than 85% of all respondents claim that they have learned important job skills in these courses including basic computer literacy and Internet skills. Furthermore 15% of all users reported finding a job as a result of the skills and experiences gained by using the computer center. If we exclude those users not on the job market from the analysis than a full 19% of users potentially interested in finding a new job report having found one with some thanks to the eCenter.

A small proportion of users were also able to start a new business as a result of using the centers. In addition, we identified several persons whose existing businesses benefited from the centers. In general, these persons reported utilizing a variety of services including basic documentation services such as printing, photocopying and communication services such as IP telephone and email. Nearly all the business persons who participated in the case study exercises said that utilizing the services at their eCenter had directly benefited their business.

#### Impact of subsidies

At the end of December 2006, 1,941 persons had received subsidized computer literacy training and 8,593 five-hour Internet access coupons had been distributed. Internet coupons

were distributed to people in the training courses as well as people who came to the eCenter solely for Internet access.

For individual Internet users one of the immediate impacts of the coupon program has been access to new and important online activities. This could involve the use of the Internet in ways taken for granted by more experienced users, such as simply sending email. In fact direct communication with friends, family and associates is one of the major benefits cited by those who use the Internet as a result of the coupon program.

The participants of training courses were quick to inform us of the benefits of receiving the computer literacy training. While these courses were basic they meant a lot to the users many of whom had little or no prior experience with computers. For many users there was a sense of pride in completing the course. Approximately 61% of trainees who received coupons said that they would have paid for the service if there was no subsidy. This underlies the value with which these users place on the services and experience provided by the eCenters.

#### Recommendations

Based on the analysis presented in this evaluation, the following recommendations are suggested in order to further improve the impact of the eCenter model.

- Scalability – Project stakeholders have developed a potentially high-impact franchise version of the program which they hope to implement soon. This is designed to expand the eCenter concept and network across Kyrgyzstan and create a standardized body of services. In addition, it may be worthwhile to identify emergent ICT businesses in smaller towns and integrate them into the eCenter model even if they do not have the resources or infrastructure to participate fully in the franchise model. Commercial Internet centers in smaller towns and villages face a significant challenge in terms of a limited pre-existing user base and the necessity of convincing the local population of the utility of ICT-related services. The subsidized coupon programs, along with a mature targeted outreach activity, can help to recruit non-users into the center. The eCenter model in larger towns could be scaled in such a way as to scaffold businesses in smaller communities, whether through a similar coupon program, networking and train-the-trainer programs, or an Internet-center-in-a-box suite of recommended services (including typing, photocopying, SIM card service, etc.) that can help sustain a nascent business.
- Replicability – The rest of the region has similar patterns in terms of household ICT ownership, and roughly similar levels of Internet users (with the exception of Kazakhstan). However, one striking area of difference throughout the region is the tremendous variance in available ICT services between the capital cities and rural regions. The eCenter model, with its emphasis on serving users outside of the capital and in smaller population centers via a sustainable business model is clearly something that could meet the needs of other countries in the region. However, the factors which assisted in the implementation of the eCenter project in Kyrgyzstan must first be addressed. This includes the identification of suitable local business partners. In this case, the application processes through which business were identified could also be used elsewhere. Also important is the targeting and distribution mechanism. While not having a comprehensive targeting system turned out to be negligible on the final beneficiaries, this might not be the case in other countries. Therefore, the targeting and distribution mechanisms would have to be improved to ensure that any future project will be successful.

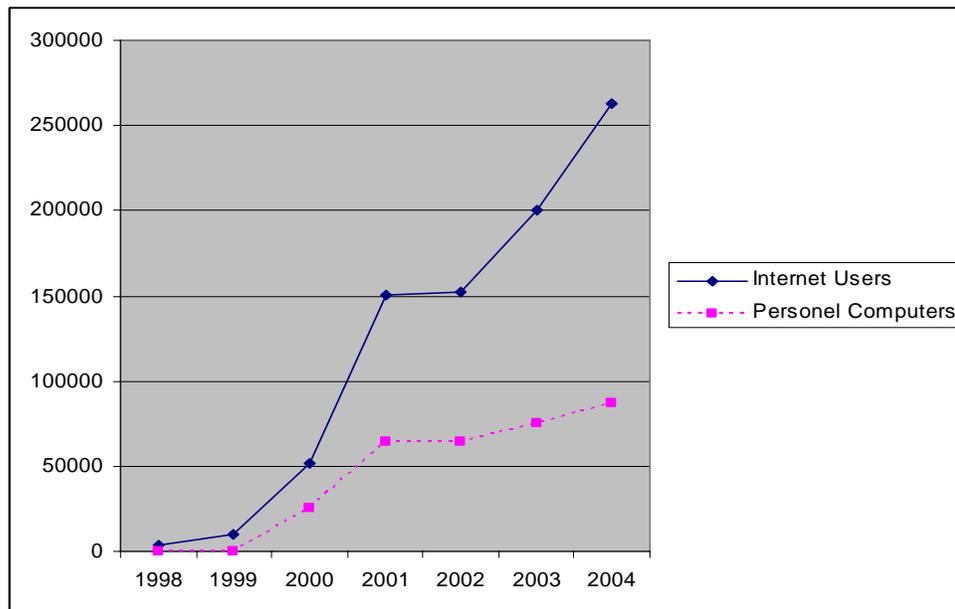
- Greater networking among the eCenters – Although the eCenters are in effect private businesses, the advantage of discussing common problems can benefit them all. Greater collaboration might lead to the replication of the more innovative business endeavors across different regions and even collaboration in their implementation. In addition, collaboration that results in a shared and documented set of best practices can increase the efficiency of individual centers by reducing turnaround time when equipment fails. It can also result in shared business practices like repurposable marketing materials, effective advertising strategies to reach deeply into the community, and even shared resources for expensive and infrequently used equipment or specialized training for skill sets.
- Partnerships with other organizations - Although no significant partnerships have been developed between the eCenters and other similar initiatives, there are instances of collaboration taking place at the local level. One example of this is in Nookat where the eCenter provides computer literacy training for people from a nearby village that received computer equipment through the ARIS project. This could perhaps be done on a wider scale, particularly through the development of satellite centers (i.e. the ARIS resource centers) through which the eCenter could conduct its computer literacy and other courses. This would likely involve some revenue sharing scheme between the two centers.
- Service diversity – Sustainability seems to hinge on the provision of a diversity of services as evinced by the larger and more successful (in terms of numbers of customers and plans to expand operations) eCenters. This perhaps reflects the general demand for a variety of ICT services and not just Internet access. By including all these services in one place, the business can create a “one stop shop” for the customer as well as leverage economies of scale to lower costs.
- eCenter operations – The eCenters should consider extending their operating hours so that they have more evening availability for potential users. This could open up a potential user base that is restricted during regular working hours. Extending hours can also provide the basis for offering alternative services at different times of the day (such as gaming or movie viewing) that might otherwise interfere with the core training activities of some centers. In other words, it is possible for centers to accommodate and meet the needs of diverse subsets of the local population. Also, most eCenters did not have an accurate system for keeping track of each user’s time on the Internet. Often this was done by staff checking logs or making notes of time spent at the computer. The implication here is that the eCenter manager did not always have the most accurate information for making decisions related to his Internet business. Also, having an accurate billing system will improve the cost-effectiveness of the service. There are several software packages that could be implemented across all the eCenters which could make this process more effective and accurate.

## 2. Background – The eCenters project in Kyrgyzstan

Kyrgyzstan has managed to make several improvements to the social and economic lives of its citizens since the collapse of the Soviet Union and gaining of its independence. This includes modest economic growth over the last ten years as well as a reduction in poverty levels. However, the economy remains dependent on certain key sectors such as gold mining and agriculture, both of which are now beginning to show signs of decline and loss of productivity. While these and other sectors have thus far contributed to economic growth in recent years, the poverty rate continues to be a major concern. The national estimate of people living below the poverty line was 39%<sup>1</sup> overall in 2003 with larger percentages in rural areas. Thus, the sustainability of long-term development lies in part on greater diversification of the economy and sustained growth in rural areas<sup>2</sup>.

Within this context, the eCenters project was launched in Kyrgyzstan in July 2005. It was funded through the USAID dot-ORG program as a Last Mile Initiative (LMI) which seeks to promote greater access to information and communication technologies (ICTs) particularly in rural and underserved areas. By promoting greater access to these technologies the LMI program aims to improve productivity in traditional agricultural areas and to support SME's as well as non-traditional sectors. This is particularly relevant in Kyrgyzstan where Internet users (someone who goes online at least once or twice per week) and PC owners are estimated to be around 30 and 19 per 1000 inhabitants respectively<sup>3</sup> and where the economy is concentrated in a few sectors (see Figure 2 for some broader historical IT trends).

**Figure 2 Recent IT Growth in Kyrgyzstan (Source: ITU World Telecommunications Indicators 2005).**



<sup>1</sup> UNDP (2005). Kyrgyzstan at a new stage of development, United Nations Development Program - Kyrgyzstan.

<sup>2</sup> Ibid.

<sup>3</sup> IBRD (2006). Information and Communications for Development - Global Trends and Policies. Washington DC, The World Bank.

The eCenter project's immediate goal, then, was to enhance and network a collection of computer centers across the country and link these centers to local economic development. Specifically, the centers sought to improve local access to ICTs, stimulate local business creation, improve computer skills, and increase opportunities in non-traditional employment training and job creation among the local population. Rather than establishing new computer centers, which has been the standard approach of similar donor-driven projects, the eCenter program instead identified existing local computer facilities and enhanced them with additional programs. These programs endeavored to increase the impact of the public commercial computer facilities on local business and economic development and enhance the reach of the center to a wider range of local citizens.

The project was implemented by the Academy for Educational Development (AED) under a contract with USAID. The local implementing partner in Kyrgyzstan was the Civil Initiative on Internet Policy (CIIP)<sup>4</sup>, a Kyrgyz non-governmental organization that focuses on the promotion of civil society interests in the development of national ICT policy, facilitating both coordination among local ICT stakeholders and the implementation and monitoring of ICT related projects. Much of the project design, including the coupon program and a land grant concept was developed by OpenWorld, a US based consultancy that also worked as one of the project partners.

The project ran from July 2005 to September 2006 with a total budget of US\$390,000. During this time, a group of seven eCenters were implemented across the country (Figure 3). Five of these were part of the initial project launch in July 2005 and are located in:

- Karakol
- Bosteri
- Naryn
- Nookat
- Karasuu<sup>5</sup>

Two<sup>6</sup> more were added in June 2006 based on project savings accrued during the implementation of the initial five centers:

- Ivanovka
- Talas

Each of the eCenters provides a variety of fee-based services including Internet access and email, printing, scanning, copying, faxing, digital media and IP-telephony. The exact suite of services offered varies from center to center. Each center also delivers a curriculum of computer literacy courses. Additionally, some centers offer accounting courses and one offers leadership training.

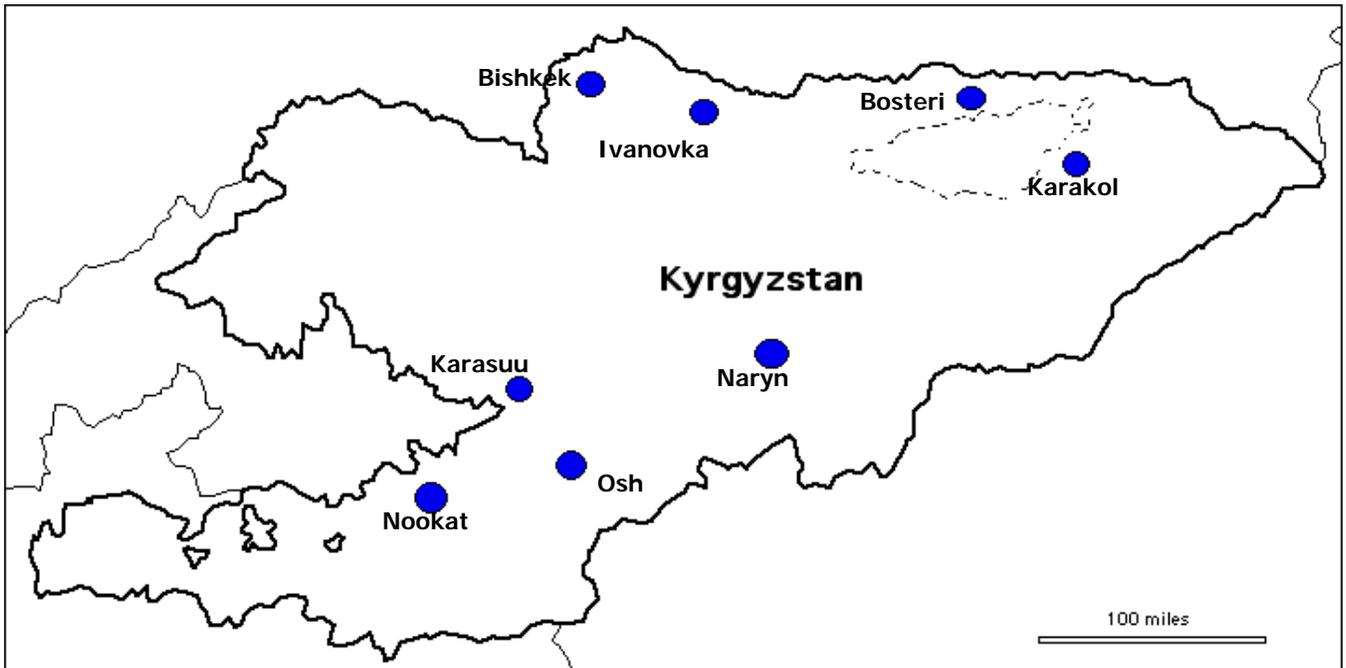
---

<sup>4</sup> See <http://www.gipi.kg/> for an overview of CIIP.

<sup>5</sup> The Karasuu eCenter moved to Osh city in April/May 2007. Given that the majority of the data collected for users of this center refers to the period prior to the move, it will be referred to as the Karasuu eCenter in this report.

<sup>6</sup> In addition to these two centers, attempts were made to establish another eCenter in Jalalabad. However efforts to acquire an Internet connection for the center failed and the plan was abandoned.

**Figure 3 Map of eCenter locations**



The main intervention of the eCenter program was composed of two parts. First, there were subsidies granted to the eCenters for the provision of computer literacy and accounting courses and for offering free or discounted Internet access to local community members. Second, there was a land grant program where suitable land for investment in office space and technological parks could be linked to each eCenter. It was envisioned that such investment would be supported by the success of the eCenters. This aspect of the project, however, did not achieve its expected outcomes and will receive only limited attention in this report (e.g. see Section 5.5).

The subsidies for computer literacy/accounting courses came in the form of reimbursements to the eCenter operator for the training costs of those who passed each course. In addition, Internet access was subsidized through the use of five-hour coupons that were distributed to users. The subsidy level on both the computer training courses and Internet coupons were reduced 20% each quarter; thus while the project paid for 100% of the cost of a training course in the first quarter, by the fourth quarter it was designed to pay only 20% of the cost and require the user to pay 80%. At the time of this research, subsidies are only being provided for users at the last two centers to join the program (Ivanovka and Talas). At the end of December 2006, 1,941 persons had received subsidized computer literacy training and 8,593 five-hour Internet access coupons had been distributed. Coupons were distributed to people in the training courses as well as people who came to the eCenter solely for Internet access.

As mentioned earlier, each eCenter was established as part of an existing local business. Suitable local business partners were selected through a competitive bidding process based on criteria such as related prior business experience, existing level of investment, relevant

telecom experience, and the potential for further expansion of programs. We found the selection of existing and generally successful commercial computer centers to form the eCenter network, as opposed to creating new centers, an important innovation of the program. Subsequent to a center's selection, CIIP provided technical support on the use of the subsidy program and delivered training to the business owners and their staff. The inputs from CIIP and expected outputs from the local businesses were formalized in contracts that ran for one year for each of the centers. In the case of the initial five centers this period was from December 2005 to December 2006. For Talas and Ivanovka, the contract period is June 2006 to June 2007.

Now, with the completion of most of the one-year contracts, CIIP has developed a franchise version program which they hope to implement. This is designed to expand the eCenter concept and network across Kyrgyzstan and create a standardized body of services. One of the advantages of the franchising network is that it will allow the eCenters to have a common business development program, integrate training and support, and bargain with suppliers as a group. Thus far all seven eCenter operators have expressed interest in the franchise network and CIIP is continuing with implementation activities.

### **3. Scope and purpose of Evaluation**

This report presents the results of an evaluation of the eCenter program conducted between March and June 2007. The evaluation period is from January 2006 to January 2007 which includes some four months when the initial centers had already completed their formal participation in the subsidy program. Thus, we have provided some analysis of the immediate post project period for these centers. In addition, we have included the newest two centers in this evaluation offering a more comprehensive assessment.

The specific issues that this evaluation seeks to address are:

- Demand for eCenter services
- Access to the Internet
- Nature of Internet access
- Job opportunities and job skill development
- New businesses started
- Impact on existing businesses
- eCenters as a place of employment
- Impact of stipends
- Feasibility of land grants
- Sustainability
- Scalability (within Kyrgyzstan)
- Replicability (in other countries)
- Unanticipated impacts & other important issues not covered above

### **4. Methodology**

#### ***4.1 Approach and techniques***

The evaluation employed a combination of several quantitative and qualitative research methods each designed to illuminate one or more of the assessment areas defined within the scope of the evaluation. Site visits were made of all seven eCenters by a research team

comprised of both foreign and local consultants. In many cases, additional researchers who were familiar with the local language and geography were hired to assist the team in administering surveys. At each site the team made general observations of the operations of the eCenter, the conditions of the facilities, levels of activity, and so forth. In addition, five main research instruments were utilized at each site. They were:

- User surveys: This survey consisted of sixty-two questions exploring the ways users engaged with ICTs at the eCenters, the perceived economic impact of using the centers, and how the computer training and Internet coupons were used. The majority of the questions were closed ended with a few open-ended questions to capture opinions on issues related to the centers. On average these surveys took 15-20 minutes per subject to administer.
- User profiles: In addition to the surveys, some users were asked to answer an additional set of questions. These were mostly open-ended and sought to get a more in-depth understanding of how the user interacted with the eCenter, the role of ICTs in their daily lives and that of their families and friends, and a more detailed demographic profile. On average these questionnaires took 10-12 minutes to administer.
- Business case studies: These were developed from a series of mostly open-ended questions that focused on how the respondent used the eCenter to support their business and the nature of the businesses themselves. They included existing businesses as well as new ones started by users of the eCenters. On average this set of questions took 15 minutes to administer.
- Manager surveys: This consisted of a comprehensive set of questions that addressed issues related to the operation, demand, and impact of the eCenters. There were 77 questions in all and these were supplemented by traffic and usage logs collected from each center. The average time to complete the manager survey was approximately 90 minutes.
- Staff profiles: This consisted of approximately twenty questions that explored what the staff member did at the eCenter and their perceptions of its impact on users and themselves. In almost all cases, staff members were interviewed without their manager being present. This survey took about 15 minutes to complete.
- Interviews with related organizations and experts: In addition to these research instruments, several interviews or email communications were conducted with persons involved with project implementation or other related activities. The purpose was to gain a broader understanding of how the eCenter project had worked and how it complemented or contrasted with related development efforts in Kyrgyzstan. The organizations contacted included CIIP, AED, Open World, International Telecommunications Union, ARIS and the IFF.

Participation in the interviews was strictly voluntary and all subjects were taken through an informed consent protocol. Interviews were anonymous for all subjects except for the eCenter and related organizational managers where anonymity was not practically achievable.

## **4.2 Sampling**

User Surveys: The initial sampling approach designed for the user surveys employed a stratified random selection process, though ultimately this was augmented with stratified convenience and snowball sampling. To obtain an accurate sample size from the overall user

population, the standard central limit theorem equation was used<sup>7</sup>. The overall population size, in this case, was estimated as the number of Internet coupon users. The table in Appendix 7.3 gives the number of Internet coupon users per center over the period for which data was available (January 2006 – January 2007). This covers the entire contract period of the first five eCenters plus the month of January 2007. Because some individuals made use of multiple sets of coupons using this approach actually over counts the total population size. By over estimating the total population we arrive at a conservative over-sampling ensuring desired confidence levels. Given this approach, we approximate the total user population size at 9497 people and thus ensuring a confidence level of 95% requires a sample size of 369 users. In addition to sampling the appropriate number of users we also needed to ensure that our sampled subjects were representative of the population in whole across each center. To guarantee this we divided the sample size according to the proportion of users from each location. Table 1 below gives the targeted sample size, and actual number of subjects surveyed, for each eCenter; in all cases we were able to over-sample the population, save for Bosteri where circumstances made this impossible<sup>8</sup>.

To identify subjects from each of the centers, user contact lists were obtained from center staff. Users were then randomly selected from each list. In many cases, however, these lists were incomplete with missing contact information or incorrect contact details. To account for this difficulty, research teams substituted or augmented random sampling with subjects obtained by opportunistically sampling users at the eCenters during site visits. In addition, the researchers worked through the social network of users at each site in order to find both previous and current users of the eCenters. Thus user surveys were first collected using standard random sampling techniques when possible and then with a combination of convenience and snowball sampling.

Table 1 – Targeted and Actual sample size of user surveys by eCenter

ECenter	Targeted Sample Size	Actual number of collected user surveys
Naryn	70	79
Bosteri	50	40
Karakol	75	87
Karasuu	67	70
Nookat	66	72
Talas	22	27
Ivanovka	18	19
Total	369	394

User profiles: The research team selected users to complete a profile only after they had already completed a user survey and only if they seemed willing to offer more information, were verbose in their answers, and of course were willing to participate in this additional round of questions. The targeted number of user profiles (as stated within the SoW) was five to ten; however, we completed twenty such profiles.

Business case studies: Business respondents were identified by relying on local social networks and snowball sampling techniques. Researchers asked users, staff and the

<sup>7</sup>  $n = (N / (1 + N(e)^2))$  where n is sample size, N is population size, and e is confidence level.

<sup>8</sup> The eCenter in Bosteri has been closed since June 2007 and is scheduled to re-open in September 2007.

managers of each center if they knew of any specific users who operated or had started a business in the community. These persons were then approached and asked to participate in an interview. Similarly, those interviewed were also asked if they knew of other business owners who were users of the eCenter.

Staff profiles: At each site visit, the management was asked if we could meet as many staff as possible for a brief interview. In most cases all staff that were present on the day of the visit were interviewed with the staff survey instrument.

Manager surveys: At each site the owner and/or manager made themselves available for this survey. While participation was voluntary there was compliance at all sites. This instrument was the only part of the formal data collection that was not anonymous.

Table 2 details the total number of business case studies, user profiles, manager surveys and staff profiles completed at each location.

Table 2 – Other surveys and profiles completed at each eCenter

ECenter	Business case studies	User profiles	Staff profile	Manager surveys
Naryn	2	4	3	1
Bosteri	-	1	1	1
Karakol	-	-	3	1
Karasuu	3	6	1	1
Nookat	4	8	2	1
Talas	-	2	-	1
Ivanovka	-	-	2	1
<b>Total</b>	<b>9</b>	<b>20</b>	<b>12</b>	<b>7</b>

### **4.3 Methodological challenges and observations**

Apart from having to modify sampling methods to identify respondents for the user surveys, there were several other challenges encountered in the course of the evaluation. Language use varies across Kyrgyzstan and at differing times researchers were required to employ Russian, Kyrgyz or Uzbek. This posed particular challenges in the Uzbek speaking oblast of Osh since our core research staff spoke only Russian and Kyrgyz (and English). In this location we were required to employ a different set of Uzbek speaking researchers.

We also found that in general working with an active and open eCenter was much more productive in terms of data collection particularly since we relied on user snowball and convenience sampling. This became clear during the site visits to the Issy-Kul oblast where the Karakol eCenter was quite active whereas the Bosteri eCenter had been temporarily closed while the owner built a new facility (scheduled to re-open in September 2007). Similarly, there was a difference in the level of work completed while visiting the eCenter in Nookat (which had been in the same location for several years) and the eCenter in Osh city (which had moved from Karasuu just 6 weeks earlier). In this case, data collection relied heavily on partial user lists obtained from the manager and telephone surveying. Overall, in cases where the centers were not as active the research team had to conduct follow-up visits and telephone surveying with partial user lists in order to identify a full set of subjects.

In general, we found it very helpful when the eCenter manager was well integrated into the local community and could point to participants of eCenter programs that he (all managers were male) knew personally or at least knew indirectly. This was particularly useful for the profiles and business case studies. Finally, we found that the time of day for identifying users was important. Accordingly, the research team modified their approach to conduct surveys or interviews either in the evenings or afternoons depending on their location.

These challenges notwithstanding the research team managed to get more user surveys and profiles, business case studies, and other survey results than required or initially planned for.

## 5. Findings<sup>9</sup>

### 5.1 *User profile and demand for eCenter services*

#### Types of users at the eCenters

Apart from the eCenter in Osh (which only recently moved from Karasuu), all the centers are located in relatively small towns and this influences the composition and needs of the users. Table 3 below summarizes basic demographics of the users from each eCenter. We see that more women participated in the program than men in all sites except for Nookat where women only accounted for 33% of users. Nookat, located in the south of the country, has a conservative culture with stronger male domination and this might explain the low level of female participation.

Considering the entire sample population the average age was 21 and there was little variance in this figure across eCenters. Some of the older respondents even mentioned how they thought these newer technologies (Internet, email, etc.) are for the younger generation. In general older customers used more of the basic ICT services such as photocopying or printing and requested the assistance of younger persons or staff to assist them when using the Internet. Older users (above thirty years) were, however, just as likely to attend training courses. Given the young age of most users it was expected that the percentage of married users would be low. Nookat again stands out with a much higher percentage (39%) of married users and this too could be the result of a more traditional culture that encourages marrying at an earlier age.

In terms of education, 32% of all users have at least a bachelor degree (see Table 3 below). This follows the rather high national rate of university enrollment throughout the

#### Box 1 – User Profile – high school student

This is an 18 year old female student from Bosteri who received coupons to use the Internet at the eCenter there. She heard about the eCenter, and about the subsidized coupon program, from others at her school. The free use was what initially motivated her to visit the center. Now she says using the Internet is very important and has helped her with school work, for example in writing her research papers. Also she says “life without email would be pretty boring.” She comes from a household with eight other people, none of whom is experienced with the Internet or computers. Therefore she helps out her brothers and parents in understanding computers. In the future she would like to pursue more advanced courses on computers and the Internet at the eCenter.

<sup>9</sup> Unless stated otherwise, all findings reported here are significant at the 0.05 level or better.

country<sup>10</sup>. Ivanovka, Bosteri and to a lesser extent Talas have much lower proportions of users with at least a bachelors; but this is partly explained by the fact they also have the youngest group of users of all the eCenters.

A large portion of users are current students as can be seen in Table 4. This is explained in part by both the location of the eCenters (the Karakol and Naryn eCenters are both located near local universities) and the fact that they offer a combination of training and Internet access which is useful for some students. See Box 1 for an example of a typical student user.

Nookat and Karasuu are the exceptions here. Thus while most centers drew a large proportion of students, Nookat and Karasuu drew larger percentages of people in the workforce. Nookat, for example, has the highest proportion of users that are employed and most of these people are around 24 years old (3 years older than the overall average). Less than 1% said that they worked solely in the home (for instance as a home maker).

Table 3 – Summary of user characteristics

eCenter	Male %	Female %	Average age	Bachelors or higher %	Married %
<b>Karakol</b>	44	56	21	48	10
<b>Bosteri</b>	25	75	18	10	3
<b>Ivanovka</b>	53	47	18	5	0
<b>Talas</b>	33	67	23	15	19
<b>Nookat</b>	67	33	24	24	39
<b>Karasuu</b>	41	59	21	30	14
<b>Naryn</b>	31	69	24	47	25
<b>Total for all users</b>	43	57	21	32	19

Table 4 – Employment status of users by eCenter

eCenter	Employed %	Unemployed %	Student %
<b>Karakol</b>	44	15	40
<b>Bosteri</b>	10	60	30
<b>Ivanovka</b>	21	26	53
<b>Talas</b>	26	44	30
<b>Nookat</b>	58	35	1
<b>Karasuu</b>	24	39	9
<b>Naryn</b>	32	8	58
<b>Total for all users</b>	35	29	30

Figure 4 below illustrates the various sectors from which employed users come from. The majority of employed users are involved in small scale trade which characterizes much of the activity in the overall Kyrgyz economy. The next largest group is in education usually teachers and instructors at local universities or schools.

<sup>10</sup> In 2005 the gross tertiary enrollment rate was 41.4% - <http://devdata.worldbank.org/edstats/SummaryEducationProfiles/CountryData/GetShowData.asp?sCtry=KGZ,Kyrgyz%20Republic>

Finally, in Table 5 we see that the majority of all users are Kyrgyz (64%). Other major groups include Russian and Dungan (in Ivanovka), Uzbeks (in Nookat) and Tatars (in Karasuu). This of course relates to the specific demographic make-up of the areas in which these eCenters are located.

Figure 4 – Users of eCenter by sector of employment

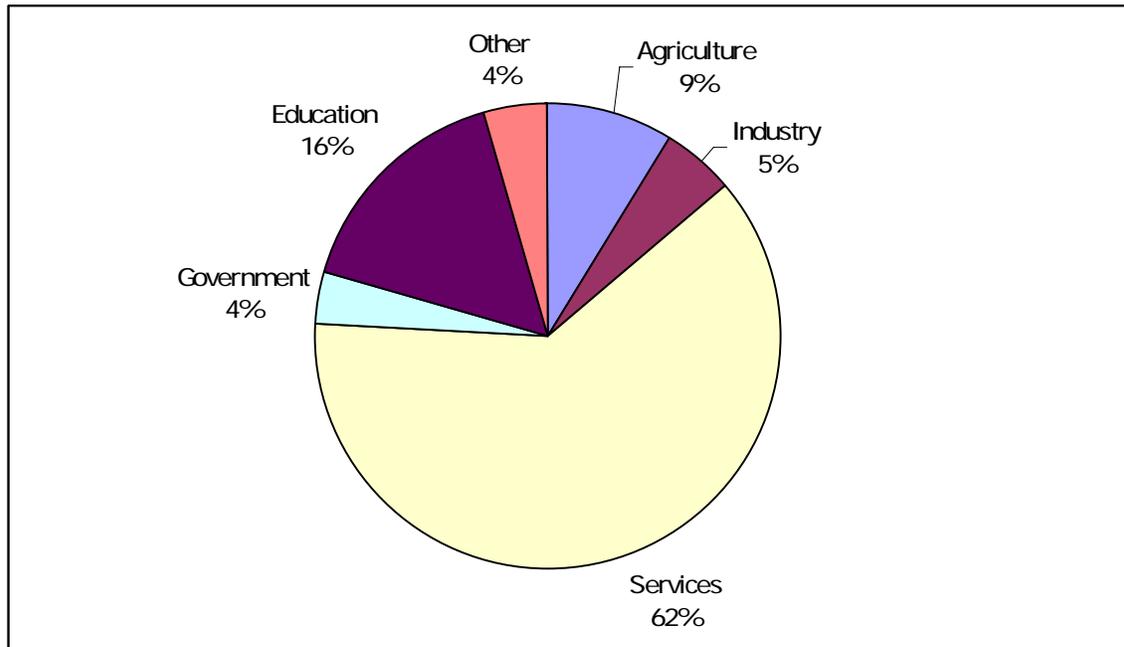


Table 5 – Ethnicity of users by eCenter (%)

	Kyrgyz	Russian	Uzbek	Dungan	Kazakh	Uigur	Tatar	Other
Karakol	53	23	3	2	2	1	8	7
Bosteri	83	15	3					0
Ivanovka	37	32		32				0
Talas	85	15						0
Nookat	43	1	54				1	0
Karasuu	51	16	19			1	13	0
Naryn	99	1						0
Total for all eCenters	64	12	14	2	1	1	4	2

We also surveyed users asking them how long they had been using computers and the Internet and how they rated themselves in their ICT skills. On average, users started using computers in 2003 and the Internet in 2005. The earliest reported use of a computer was 1988 while the earliest for the Internet was 1996. There is some variation in these dates between the sites with users in Karakol having started using computers, on average, in 2001 and users in Nookat starting in 2005. We asked the users to self-asses their skills with computers and the Internet. On a three point scale 32% of respondents identified as novice computer users, 61% as having intermediate skills and 7% as being an expert. Again, some

regional variation was detected with reported skills lowest at Bosteri where 73% stated they were novices and only 5% identified as experts compared to Nookat where only 8% identified as novices or Osh/Karasuu where a full 20% identified as expert.

Self-described non-expert Internet users report having started using the Internet on average in 2005 while experts started in 2003. Non-expert computer users started in 2003 on average while experts started in 2001. But otherwise years of use does not correlate with how often or how much the users have made use of the eCenter facilities, the coupon program, or how important the program seems to the user. This is particularly important because it speaks to the ability of the eCenters to reach new pockets of the local population with their programs.

### User archetypes

Each user was asked how often they used a set of 24 eCenter services from FAX machines to web design. They were instructed to rate their frequency of use on a six point scale from "several times a day" to "less than every few weeks" (of course they also could say "never"). The result is that for each user we have a vector of usage data-points positioning each individual among the basket of services on offer. We have then employed the k-means algorithm to cluster users based upon the frequency with which they used various services. K-means begins with a small set of clusters assigning each user to one cluster center in a way that minimizes the "distance" between the user and this center point. Then, iteratively, these cluster centers are refined (and as required users reassigned to different clusters) so as to globally minimize across all the users the distance to their cluster center. Some users, who are not found to fall sufficiently close to one or another cluster center, are dropped from the analysis.

Using k-means with three clusters we found that one third of the users fall into one of these clusters while the rest do not admit reliably to cluster membership. We then inspected closely what sort of user makes up these three clusters and what range of services they are using. We found three distinct user archetypes: There are *new-users* which make up 21% of those clustered, *minimal-users* that make up just 7%, and *super-users* that make up 72%. We found that the new-users are most interested in the Internet cards, course papers, phone cards, and FAXs using these all, on average, once a day. The super-users, however, report frequent use of nearly all of the twenty-four surveyed services except for instant messaging. The most frequent service the super-users report employing is Skype. And, finally, the minimal-users do not report engaging any service with real frequency; for them the most common service they use is Microsoft Office and second most common is game playing but in both cases the average respondent said they used these services only once or twice a week.

When we explore the different approaches to the center for each of the archetypes we find that new-users and super-users visit the center much more than the minimal-users. For instance 7.9% of new-users and 17% of super-users visit the center at least once a day whereas less than 1% of minimal-users visit with this frequency. We also find that super-users are the principal beneficiary of the coupon program. For example 57% of such users report having received coupons for the Internet at this center whereas only 6% and 1% of low-level and new-users have participated in the program. At least with respect to new-users, this can be explained by the fact that many of these individuals did not visit the center during the time period of the coupon program. Said another way, the new-user archetype may in fact be accounted mostly by new-users post the eCenter program.

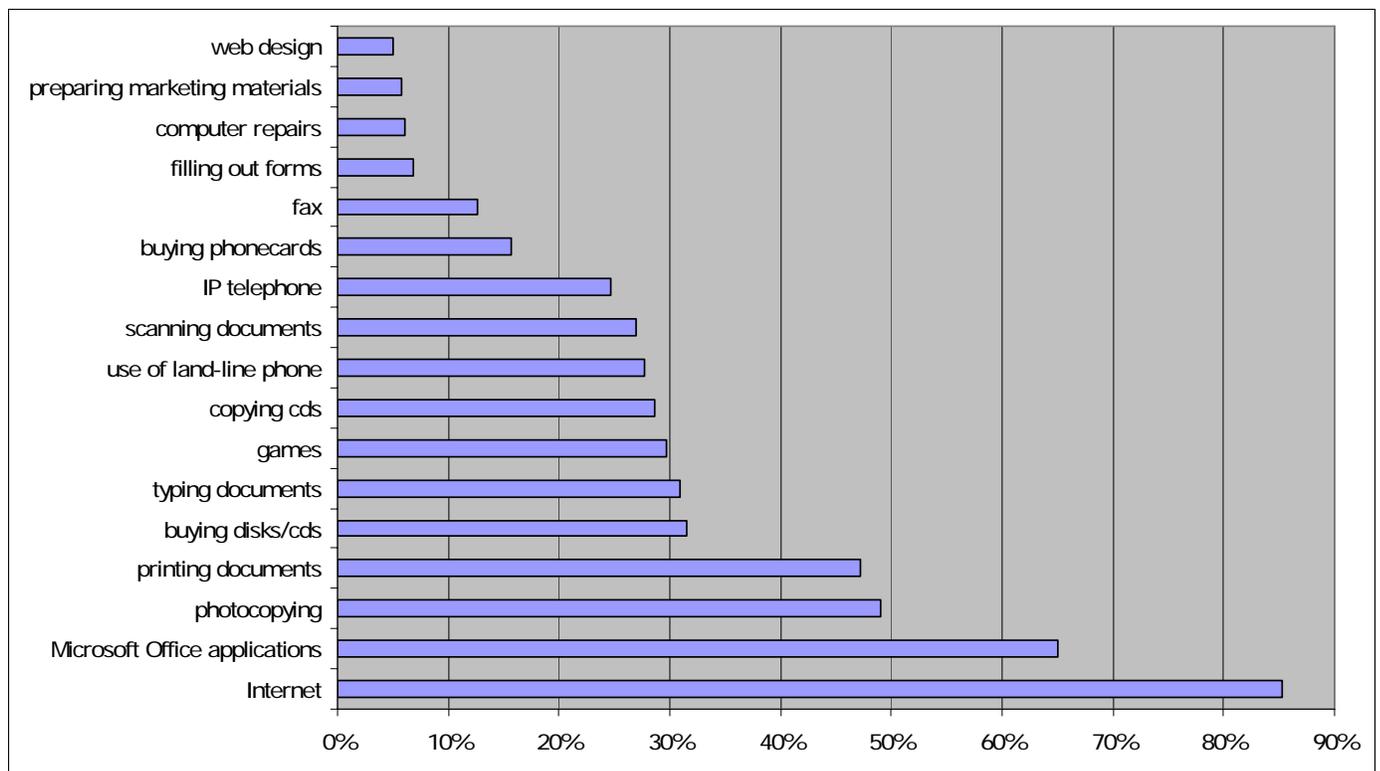
We wonder if our super-users were propelled to this level of activity in some part due to the coupon program or whether they were already a super user even before the coupon program was initiated. Indeed we find that the cluster type does help explain variation in whether a user says that they have learned to use computers at the eCenter (though not necessarily exclusively there). We find that 92% of new-users say they learned computer use at the center while only 13% of minimal-users and 56% of super-users. Thus we see that new-users, who are less active users of the coupon system, are more likely to report that they learned computer skills at the center. In addition we find that these three clusters report having learned to use computers in, on average, different years. New-users all report learning to use computers in 2007 except for one user reporting 1998 whereas the average year for super-users is 2004 and for minimal-users is 2003. This helps explain why they might not have reported the eCenter as a place that they learned computer skills; they would have learned these skills elsewhere and some years back.

In summary, super-users have had a relatively long tenure of computer use and have taken extraordinary advantage of the coupon programs. Whereas new-users are just that, relative neophytes to computers and the Internet who have learned what little they do know at the eCenter. Based on our available data we are not able to answer one critical question: exactly *why* did the new-users not take advantage of the coupon programs – did they come to late, never hear of the program, or simply have no interest in it.

Types of services used by eCenter customers

The service most used at the eCenters was the Internet (see Figure 5 below). For other services on Figure 4, outside of the Internet and basic Office applications, not all were offered at every eCenter and usage patterns varied from center to center based upon local needs. For example, in Nookat only 33% of customers used the printing services. Also although overall only 16% of users buy mobile phone credits at the eCenters, at Nookat (24%) and Karakol (30%) these groups are larger and this has become part of the business emphasis of the managers there.

Figure 5 – Percentage of all eCenter users who use each service



### Services and levels of revenue

Another issue that is indicative of demand is the level of revenue that different services bring in to the eCenters. Based on the responses from the managers we made a number of observations (see Table 6). Internet use is considered to be the main source of revenue at only Nookat and Bosteri. This could be the result of the individual demand for this particular service in these towns and not necessarily whether or not the center offers many or fewer other services in addition to Internet access. For example, Nookat offers twice as many services as Bosteri.

Table 6 – Ranking of services in terms of current share of revenue for each eCenter

ECenter	Greatest source of Revenue	2nd highest source of revenue	3rd highest source
Naryn	IP telephone	Games	Printing
Bosteri	Internet	Games	Printing/photocopy
Karakol	Typing	Internet	Training
Karasuu	Training	Internet	Printing
Nookat	Internet	IP telephone	-
Talas	Training	Internet	Typing
Ivanovka	Mobile phone credit	-	-

Instead of Internet use, the other eCenters described IP telephone, training courses, and sale of mobile phone credit or typing services as being their main source of revenue. Typing services was only identified as a top revenue source at Karakol which is a large center, offers many services, has many customers, and is situated in a larger community. Here the responses of both staff and managers indicated that the majority of users were interested in many of the other more basic ICT services provided by the center and not necessarily the Internet.

Training courses were considered the main source of income in Osh and Talas. Both offer a smaller number of total services compared with their counterparts and both have viewed training courses as a major source of revenue. This is reflected in their overall strategy for expansion. For example, both centers are interested in extending the range of computer related courses offered to include online courses (Osh) or accounting (Talas).

Typing and computer printing is considered to be the third highest revenue earner by at least four of the eCenters. Again this reflects the demand for the most basic ICT services. Also all three centers that sell mobile phone credit ranked this service in the top three sources of revenue and as the highest source of revenue for Ivanovka.

Overall we see that a range of services are identified as big money makers with variation across the centers driven by local requirements. In addition we note that the two principal components to the eCenter program, Internet coupons and training, figure as the most profitable service for most centers.

The managers of each center were also asked to comment on new services they would like to offer given trends in local demand. Some of the suggestions reflect services already offered by other centers such as selling mobile phone credit, IP telephony and offering accounting courses. However some new and interesting services were mentioned including offering government certified training courses. This is based on experience with the relevance and demand for the accounting courses. Tied to this is the expression of interest

in provision of courses online for satellite centers, perhaps situated in more rural villages. Other potential new services mentioned by the managers include web-site development and computer repair and spare parts. Finally two centers are planning on opening a DVD theatre (Talas and Ivanovka) in response to local demand for this service.

## ***5.2 Using and Accessing the Internet***

### Levels of access to the Internet

The introduction of the eCenters has improved overall access to the Internet in most communities in which they are located. This is obviously true where the eCenter is the first organization to offer Internet in a particular community, namely in Naryn and Karasuu (prior to its move to Osh). Subsequent to the opening of these centers several other businesses now offer Internet services in both towns including at least one in Naryn that was started by a graduate of the computer literacy training courses offered at that eCenter. Similarly, some eCenters while not the first Internet site are the only currently operational facility offering services to the general public. This is the case in Ivanovka, Bosteri and Nookat while in Talas there are two other Internet cafés (based on the responses of managers). In all of these towns the introduction of the center has vastly improved access to the Internet by making a local facility available to residents.

In terms of community business development (dealt primarily in Section 5.3) this demonstrates the Janus faced nature of the eCenter program. In two communities we believe that additional commercial computer centers were opened in some degree due to demand generated by the local eCenter. However, in a similar number of communities it is possible, though we were not able to confirm this conclusively, that pre-existing commercial computer centers were forced to close down due to distortions of the competitive landscape caused by the subsidy program.

As the second city in Kyrgyzstan, Osh has over 80 other Internet cafés (manager's estimate) and therefore it seems unlikely that the recent move of the eCenter there will significantly change Internet access for local residents.

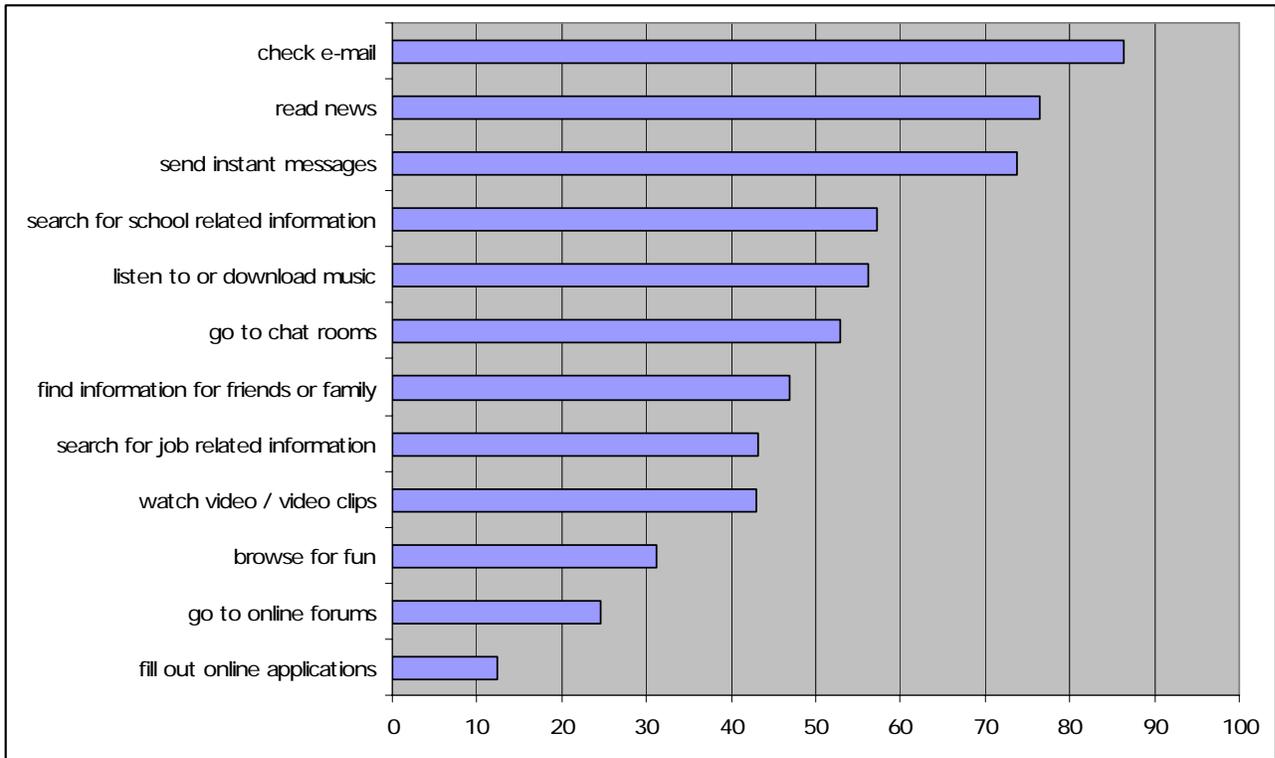
In addition to providing increased quality or availability of Internet access, the eCenters have also been an important place for users to gain Internet-related skills. When asked to self-report, 62% of eCenter users interviewed stated that they had learned to use the Internet at the center itself while only 20% specified learning to use the Internet in another cyber café. We do find a significant variation by site in this response rate. As might be expected we find 94% of respondents in Karasuu stating that they learned to use the Internet at the center while only 41% in Ivanovka make such a claim.

### Using the Internet

The most common online activities for those who use the Internet at the eCenters are sending/receiving emails and instant messaging (see Figure 6 below). In general the communication function of the Internet is important as many users keep in touch with friends and family abroad particularly where regular post mail services are infrequent (see Box 2 – user profile from Nookat). Other important uses included reading news, doing school related work/research, downloading music and participating in chat rooms. From the managers' view, the most popular Internet activity was also the use of email. Additional activities include visiting religious websites and work for political/electoral purposes. We

note that the managers seem to have an imperfect lens onto the purposes put to the Internet as self-reported by the users.

Figure 6 – Common online activities for eCenter users



We note that some of these activities do require relatively fast Internet connections to be effectively used. With the exception of Karakol none of the eCenters have more than 128Kbps connections. Not surprisingly, when asked, only some 56% percent of Internet users at the eCenters say that they are satisfied with the speed of the connection. When the managers were asked a similar question they all expressed satisfaction with the Internet capacity (generally referring to it as “okay”) but half of them expressed dissatisfaction with the cost and pricing model. The eCenters all connected to the Internet via Kyrgyz Telecom (a stipulation of the program) and tariffs were based upon megabytes trafficked.

From Figure 7, we can see the average levels of Internet traffic at the eCenters from January 2006 to January 2007. As most of the eCenters started operations in mid-December 2005, this data covers nearly the

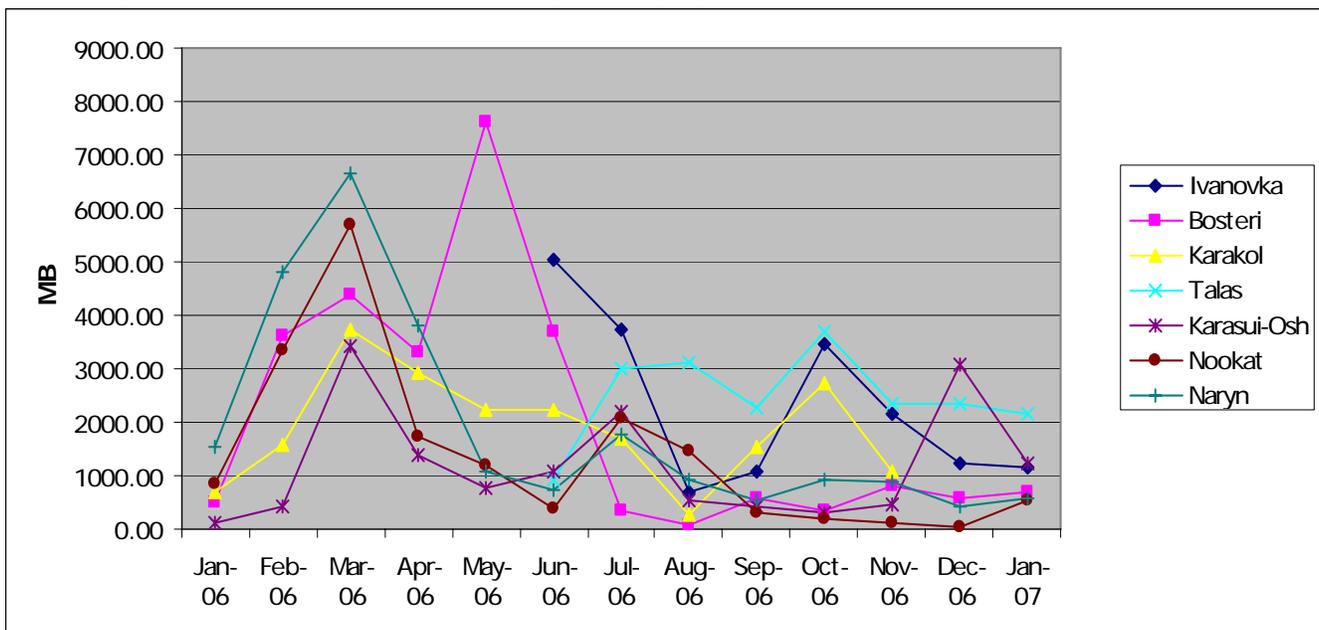
Box 2 – User Profile – Travel agent

This young man (20 years) works as a travel agent in Nookat. He received an Internet coupon at first but continues to use the center on a full fee basis as he finds the location to be convenient for him. With his brother in Russia, he regularly uses email to communicate with him and other friends and relatives abroad. They once needed a passport urgently for his brother and they were able to use the eCenter to get a passport picture via email. Using email at the eCenter is also useful for his work and without it he would much more often have to travel to the main city of Osh. His family (with the exception of his father) also uses the Internet at the eCenter for various purposes. His sister, for example, frequently visits several Islamic websites.

entire project period. Within the first three months of operation the average Internet traffic increased to almost 4800MB per eCenter per month. Thereafter it fell to an average of 1100MB per eCenter from August 2006 to January 2007.

One explanation for this initial spike is that there was a lag in the distribution of Internet coupons during those first three months. This could have been the result of efforts on the part of users and eCenter operators to get accustomed to the new system. In fact, Internet traffic in all the eCenters experienced an increase in March 2006. If we accumulate the first three months of coupons and assume they are expended all in the month of March this almost perfectly accounts for the spike in use. A similar peak in Internet traffic was again experienced at Bosteri (in isolation) during the months of May and June 2006. We suspect this occurred when the center received an additional tranche of Internet coupons.

Figure 7 –Internet traffic per eCenter by month (MB)



### 5.3 Economic Impacts

The eCenter program provided subsidized coupons for computer courses and Internet access to users of already established commercial computer centers. Thus the center owners provided the physical infrastructure for each eCenter and the project helped them to access, and ostensibly expand, the local market for training and Internet services. It is this merger between public goals of increasing ICT access and literacy and private goals of increasing profit and market share that stands out as one of the innovative features of the eCenters project. Almost all of the computer center managers agree that their clientele increased (some very profoundly) after becoming an eCenter. In addition, on average the transition to an eCenter increased their revenues by an estimated 57% (with a low of 15% reported at Karakol and a high of 100% reported at Talas). Thus it is clear that the program has had a significant economic impact on the participating commercial computer centers.

Competition from other local Internet and computer cafés can influence the reach and impact of the eCenters. For instance, by one estimate there are approximately ten commercial computer centers in Naryn some of which have opened in part because of the success of the Internet business at the eCenter. In fact, while the Internet used to be a major source of income at this center it is no longer so (see Table 6). Thus in one sense, the local community has benefited from the establishment of more internet cafés but the eCenter itself has suffered from the severe competition. In Nookat, the competition for Internet services had the opposite effect. Prior to the introduction of the eCenter there, there was one other business offering Internet services. This closed soon after the opening of the eCenter as it could not compete with the initial subsidies being provided for Internet access by the eCenter. That other business now operates as a café. Similar experiences are described in the previous section.

Table 7 below lists the estimated number of competitive competing internet cafés within each community and the total estimated catchment size for each eCenter. These figures help to sketch the overall competitive landscape. In trying to understand how this competitive context influences the impact of the center, we find that, as expected, if the manager identifies more competitors in the immediate community the users are more aware and more likely to have used other cyber cafés. If there are fewer centers in the catchment then users are more likely to have used the eCenter prior to the coupon program. In other words, when the level of competition was heavy the coupon program was more impactful in drawing in new users to the center.

Table 7 – Competing computer centers and population sizes

eCenter	Competing Internet Centers	Population Estimate(1999)
Karakol	10	64322
Bosteri	0	12000
Ivanovka	0	20000
Talas	2	32638
Nookat	0	30000
Karasuu (Osh)	0 (80)	19143
Naryn	10	40050

### 5.3.1 Job opportunities

One of the more immediate economic impacts of the eCenters has been to help users train for and secure jobs. Based on the user surveys, more than 85% of all respondents state that they have acquired important job skills from the eCenter. In addition we found users reporting that the completion of the computer literacy courses directly assisted them to meet necessary qualifications for a new job (usually clerical in nature). Approximately 15% of all users reported finding a job as a result of using the eCenter. Since many users were not on the job market (for instance most students) we found that 25% said that this question was not applicable to them. If we exclude those users not on the job market from the analysis than a full 19% of users potentially interested in finding a new job report having found one with some thanks to the eCenter.

In terms of those users who did find jobs, we find a number of properties all of statistical significance. They are more likely to be educated (59% had at least a bachelors) and male (60%). Approximately 50% of these persons have learned many related skills at the eCenter and are more likely to consider themselves to be computer/Internet experts. Persons in this group are more likely to spend their time at the eCenter doing work related activities. When they are online are more likely to browse for job related information and use online forums. Interestingly, the evidence does not point to any distinctive or increased use of the coupon program by this group implying that the real impact of the eCenters on their job prospects came from the entire center itself and not necessarily the special provisions of the eCenter program. Finally, in terms of the eCenters themselves, Karakol, Naryn and Karasuu have the greatest numbers of those who did find a job though in most cases these jobs involved leaving the community itself.

In summary, we find that users who found a job due to the training and activities at the center seemed to take the best advantage of the centers offerings and also seemed the most sophisticated and capable. They did not take unusual or enhanced advantage, however, of the coupon programs nor have impressions of these programs different from the population of users at large; the use and impressions of the eCenter program is not able to explain any of the variation between users who did or did not find jobs.

### ***5.3.2 New and existing businesses***

Of all users only 5% said that they were able to utilize either the facilities or courses at the eCenter to establish a new business. These were spread across all the eCenters with the exception of Talas and Ivanovka. It is likely that the development of a new business via the services of the eCenters will require some time and therefore the two most recent additions to the eCenter network have not had this type of impact yet. Most of the businesses were located in the services sector and a few specifically in the ICT sector.

Of those users who were able to start a new business, there were no significant differences in terms of gender nor levels of education. Also for coupon use, there was again relatively little difference between those that reported starting a new business and those that that did not. They were not necessarily in a higher income group either, for example they were no more likely to own a car than those who did not start a business. They were, however more likely to consider themselves computer and Internet experts. Box 3 gives an illustration of a new business that was started by a user at the eCenter in Karasuu.

A number of users reported that they were able to improve on their existing business through the use of eCenter services. Of those that reported this most were involved in the trade sector. In general, they would utilize a variety of offerings of the centers including basic documentation services such as printing, photocopying and also communication services such as IP

#### **Box 3 – New business Case Study**

This is a photo-copy business that was started by young man shortly after he graduated from the computer literacy course offered at the eCenter in Karasuu. The business is less than six months old but he considers it to be going well. Currently, he has no access to the Internet and used the eCenter to support both his business and personal needs in this regard. Overall the eCenter has improved the productivity of the photo-copying business particularly by providing access to services such as the Internet. Additionally, he would like to see the eCenter offer a video-editing service, something that he sees business potential in.

telephony and email. Also some users said that attending the computer literacy courses benefited their business. Indeed nearly all the business persons who participated in our case study exercises said that utilizing the services at their eCenter had directly benefited their business. Many also volunteered suggestions on new services or directions for expansion that the eCenters could take which would benefit their businesses even more. Box 4 below gives an example of a businessman who benefited from using the eCenter in Nookat.

Thus we find a meaningful impact of the eCenters to new and existing businesses but we were not able to discern a statistically significant relationship between whether a user reports finding a job starts a new business or enhances an existing with help from the center and whether that same user participated in the Internet coupon program or in eCenter training. Nor in this case does the frequency with which the user visited the center or any other measure related to the eCenter services on offer appear to make a difference. Finally, if we return to our archetypical clusters described above, we find (perhaps surprisingly) no variation between our new-, minimal-, and super-users and whether they report having found a job or started a new business due in part to the center.

#### **Box 4 – Existing Business Case Study**

This businessman from Nookat participated in a computer literacy course at the eCenter and now uses the center for email, the Internet and IP telephony. He states that he visits the eCenter on a daily basis. As a vegetable trader he has partners in Bishkek and Uzbekistan and communication with them is important for him. He now finds communication via email with his partners to be much more cost effective than using his cell phone or even an IP telephone. As a result his business has developed faster and is now more efficient. For example, in addition to communicating with his partners, he has also been able to learn about market prices and determine if a particular deal is profitable. While he comes from a small village 12km outside Nookat he has to come to the town everyday so it is still convenient for him to visit the eCenter. Ideally though, it would be better for him if similar centers were opened in more rural locations.

### **5.3.3 eCenter jobs**

Another direct economic impact of the eCenters is a result of the jobs created by the center itself. In most cases, the transition to an eCenter involved the hiring of more staff and given the lack of available skills in some of these communities, one resulting pattern was the hiring of staff who had recently completed the computer literacy courses themselves. In other cases, staff included persons who had just graduated from university. In one case, the staff member was still completing his bachelors in computer studies while working at the eCenter. The qualifications required, of course, depend on the nature of the position.

A center will typically have several staff (operators) including those who assist computer users, provide photocopying or printing, help with the IP telephone and other IT services as well as offer course training. Some eCenters also have other general staff such as accountants. Table 8 gives an overview of the staff strengths at each of the center.

In most cases, staff members who work with the Internet and computers were young and single. The staff for other services such as IP telephony, photocopying, and so forth have a much greater age range. Our surveys covered almost every staff member at the eCenters and in each case they were interested in improving their qualifications. Some suggestions included web-server management and web-design skills and in general more advanced computer training. One staff member said she wanted some training in psychological skills so that she could better understand and assist her customers who had diverse requests and capacities. Also almost all staff members said that they liked their job as it was helping them achieve their longer term career goals of working in the computer IT industry. See Box 5 for an example of one staff member from Osh.

**Box 5 – Staff Profile – Osh**

This young man's position at the eCenter in Osh is as trainer for the computer literacy courses. He is in fact a computer engineer and is therefore more than qualified to conduct these courses. He started working with computers in high-school and then volunteered to provide computer support to a local NGO. Previous to his current job at the eCenter, he worked at a call-center in Moscow. He finds that although the computer courses are fairly basic, they can be very important especially where computer illiteracy exists. Currently, therefore, he does not see any new skill requirements on his part but hopefully in the future more advanced computer courses will be offered requiring his further training. In that light, he thinks it might be useful to offer technical/computer courses that can complement the curriculum of the local universities. Overall he likes the job as it is in line with his long term career goals.

Much of the published literature argues that increasing female staff strength will improve female usage at a computer center. In Table 8 we see that the overall number of females make up 29% of the employee base. Given that the majority of users were female (57%), this suggests that the eCenters were able to encourage the participation of female even with majority male staff. The outlier here is Nookat with no female staff and the lowest percentage of female users (refer to Table 3). As mentioned earlier, this is most probably the result of the conservative culture in the south that restricts the activities of some women in public spaces.

**Table 8 – Staff strength at each center**

eCenter	Number of Employees	Number Female
Karakol	7	4
Bosteri	4	1*
Ivanovka	6	1
Talas	3	1*
Nookat	4	0
Karasuu (Osh)	3	1
Naryn	4	1
Total	31	9

While we interviewed most every eCenter employee we spent a particularly long time with the center manger/owner. All were Kyrgyz except for one Russian. They all have advanced university training and, indeed, one is a medical doctor. Beyond this only two have formal

\* Estimated figure.

training in IT. Otherwise, they are mostly self-educated with regards to the computers and the Internet. All but one has a computer at home. In general a few of the managers are engaged in the technical management of the eCenters such as networking or configuration of PC's, but for the most part this is not the case. They all have invested considerable periods of their careers with the computer center, one even starting in 1985. As we mentioned above most all of them credit the eCenter program for a substantial proportion of the revenue at the center. However most of them (save the managers of Bosteri and Karakol) have the center as only one of their jobs and not necessarily their primary form of employment; so revenue at the center may not strongly influence their personal wealth.

#### **5.4 Impact of Stipends**

As mentioned earlier one of the main innovation of the eCenters project was the coupon program. The objective of this program is to allow persons in rural communities access to the Internet and computer literacy courses at free or discounted rates. The total number of persons receiving Internet or training coupons is detailed by month and eCenter in Appendix 7.2. Before looking at each program individually there are a few points to note. First, the implied targeting strategy of the coupon program was to include persons for whom access to the Internet and computer courses would not have otherwise been possible without the subsidy. However the way in which this was operationalized does not appear to be systematic or consistent across centers and they received no particular incentives to narrowly target users. Some centers seemed to offer coupons to whoever was easily available. Indeed, it seems that some eCenters were more concerned with distribution than targeting. One example of this is an Internet café owner in Karakol who said he received a training coupon for the computer literacy course. He was already exposed to more advanced computer courses but went anyways since it was free. Alternatively, in Naryn the intention was to target as wide an audience as possible. This was done through advertising in local media and actually did result in lines literally going out of the door of the eCenter. Finally, the targeting strategy can also be strategic. For example in Karasuu, training coupons were distributed to heads of schools who in turn distributed them to interested and promising students.

The eCenters were encouraged but not compelled to give one Internet coupon per user so as to increase the reach of the program. This suggestion, however, was not generally followed. For example in Nookat users were given one coupon per quarter since according to the manager there it was difficult to continually find new Internet users. Alternatively in Karasuu the strategy was one coupon per user. Thus both targeting and distribution seemed to be dependent on the individual managers and was the result of a compromise between program and private objectives.

The monitoring and evaluation of the coupon system seems to have been incomplete. While a software system was put in place to keep track of coupons, it seems limited in its application. Thus, for example, while CIIP could keep track of coupon numbers (because of reimbursements) it could not necessarily keep track of all coupon users.

The above notwithstanding, there can be no doubt that the coupon programs impacted the profitability and reach of the eCenters. Some of the managers estimated that 70-90% of their current customers would not have been there without having been part of the eCenter program. Also as mentioned earlier, on average the managers estimate that the eCenter program has raised their revenues by 57%. In addition, by encouraging the eCenter owners

to pursue a business in providing Internet access and computer training, many are now exploring new business opportunities in these areas thus continuing the objective of the project to advance access and training in ICTs through local businesses.

#### **5.4.1 Internet coupons**

For individual Internet users one of the immediate impacts of the coupon program has been access to new and important online resources. This could involve the use of the Internet in ways taken for granted by more experienced users, such as simply sending email. In fact communication is one of the major benefits cited by those who used the Internet as a result of the coupon program. See Box 6 below for an example of this type of user. In general the implication of having access to the Internet is part of the overall experience of using ICTs at the eCenter. This includes participating in the training program as well.

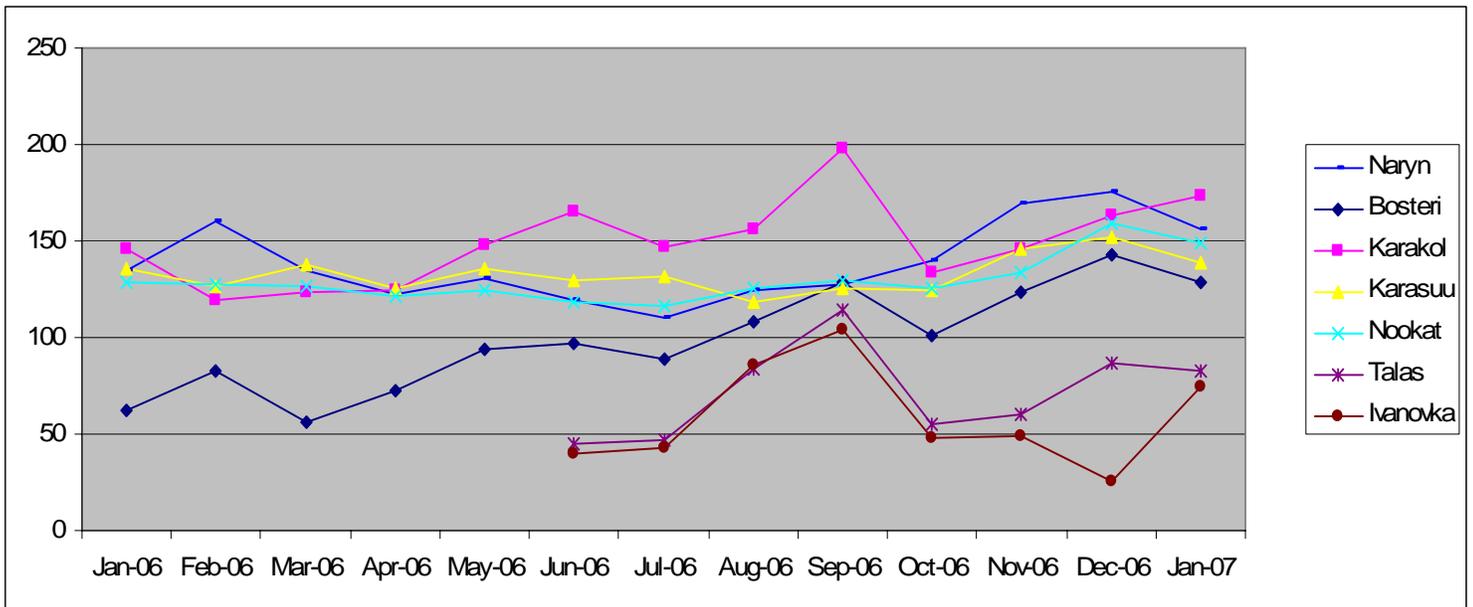
##### **Box 6 – User Profile – University Student**

This young lady from Naryn received Internet coupons from the eCenter and has been using it particularly to communicate with her sister who lives in France. Using the center is useful not only for communicating with friends but also for doing her university work. Otherwise she would have to sit in the local libraries and write out her papers. She now helps her fellow students in completing their coursework as well as assisting her parents in making copies of relevant documents. Overall she views the eCenter as being really important, especially since most of her family makes use of the services there as well.

Of those that received Internet coupons, approximate 51% were female and 40% were employed while the rest were either unemployed or were students. Also there was no discernable difference between those who got Internet coupons and those who did not in terms of their perceptions of the importance of the Internet to their jobs or schools. What was different was whether or not they had used the eCenter prior to receiving the coupon. 66% of those who received Internet coupons had used the eCenter before while only 33% of those who had received a coupon had used the eCenter before. This suggests that prior users were in a better position to learn about the program and participate and again raises questions as to center outreach for the program.

For the period January 2006 to January 2007 the number of Internet coupons distributed by the eCenters has been fairly constant (except for the late start of the two new sites, see Figure 8). For this period, the average distribution was 117 coupons at each eCenter per month.

Figure 8 – Number of Internet coupons issued eCenters per month



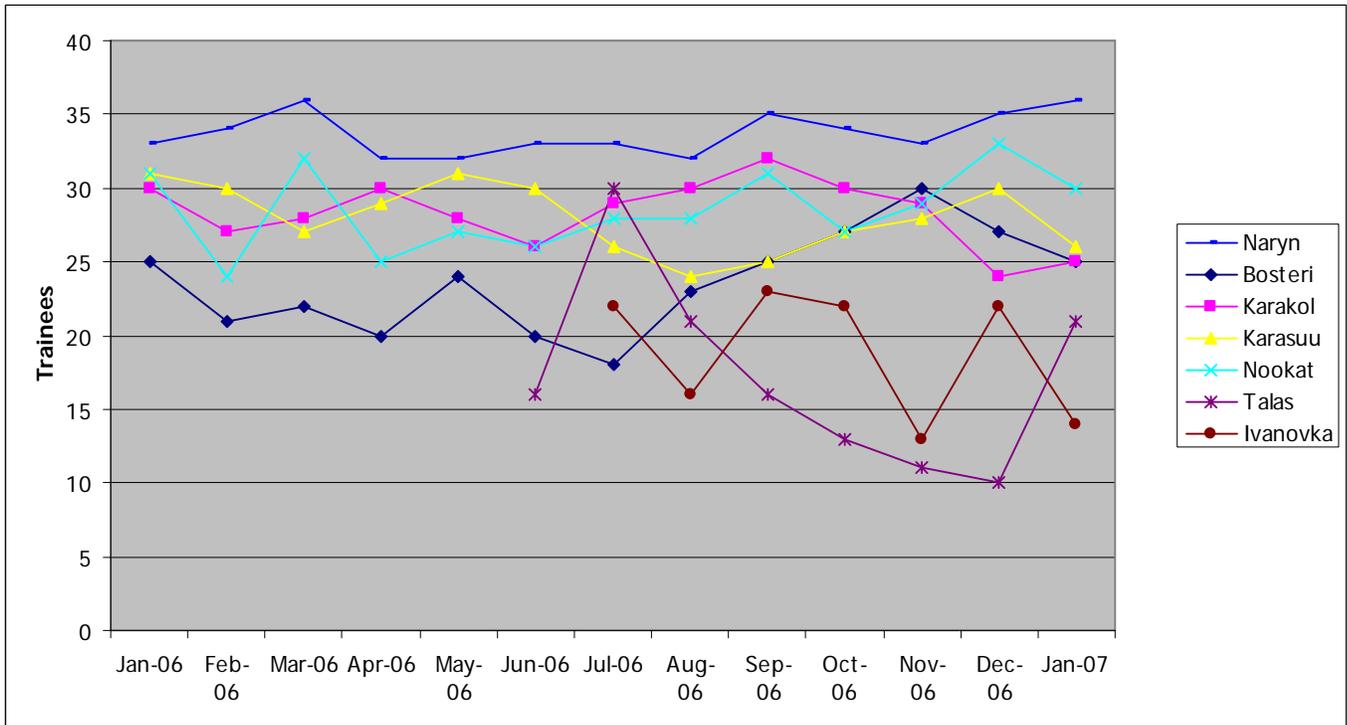
#### 5.4.2 Training courses

The number of participants in training courses at the eCenters was also fairly consistent between the centers during the life of the program. There was, on average, 26 trainees per month per eCenter (see Figure 9). Perhaps more than anything else, participants in training courses were quick to inform us of the benefits of receiving the computer literacy training. The courses were basic and allowed the centers to bring those with no understanding or experience with computers up to at least a foundational level of use. Also for many users there was a sense of pride in completing the course. Completion was contingent on passing an evaluation which tested their ability to use the computer and some of the Microsoft applications they had learnt. Most trainees were able to pass the test; the failure rate was approximately 10%.

In terms of the user profile, there were no discernable differences between those trainees who received coupons and those who did not. Approximately 61% of trainees who received coupons said that they would have paid for the service if there had been no subsidy; this demonstrates the value these users place on the services and experience provided by the eCenters. See Box 7 for an example of a trainee who received a coupon.

The computer literacy courses consisted of several modules: Windows, Microsoft Word, Microsoft Excel and using the Internet. (see curriculum in Appendix 7.3 for the details of each module). In addition to the computer literacy courses, three centers (Karakol, Karasuu and Nookat) also offered an accounting course based on government standards. Finally, Nookat implemented a three-day leadership course which was targeted at residents of nearby villages (mostly farmers) with trainers from Bishkek. They plan to continue offering this course.

Figure 9 –Number of training coupons issued per month by eCenter



**Box 7 – User Profile – Teacher**

This 35 year old teacher from Nookat works at a local secondary school. In August 2006 her school received some computers and around that time she had the opportunity to attend the computer literacy courses at the eCenter. She used to feel that computers were something impossible to learn and use but now she has confidence in her ability with them. She uses the center regularly and feels that this has improved her potential as a teacher. As a result she would like to see other teachers attend free-training at the eCenter. She also encourages her students to use the eCenter and in one case required them to go there to complete research online for some course papers that they were doing.

**5.5 Other issues and impacts of the eCenter project**

A further key innovation of the eCenter project was the land grants program. This was designed to attract investment in a technology park and local business development center on local plot of land donated by the government. In turn the eCenter would become a local source for IT based labor that could find employment at the technology park. The land grant program is clearly a very ambitious attempt at supporting local economic development and, so far, has not gained traction. We were not able to find sufficient local investor interest to support the idea and fear that this is one constraint. This was the case even though, in some cases (Karasuu/Karakol), agreements were secured from local administration groups for the

donation of appropriate land. It has been argued by Openworld that support could have been raised had suitable technical assistance been budgeted into the project; this assistance could have helped the municipalities and grant sites develop competitive tenders attractive to international investors. Moving from an eCenter to a technology park via a land grant is a big leap with many small steps along the way. These many steps may have increased the perception of risk among investors. Nonetheless, most of the managers themselves found the idea to be useful and expressed interest in seeing the project go forward. And Openworld states that they are preparing toolkits to help local stakeholders reach out to and partner with US investors. Even having one working example would serve to attract some investor interest but, regrettably, this has yet to materialize.

We found that knowledge sharing among eCenters was also limited. There was no significant network opportunities set-up by the project although this was part of the original design. In the end activities such as team building and further collaboration among managers could not be implemented because of limitations in the project budget. The managers and operators at the sites did report frequently talking to each other, either by voice or instant messaging. In some cases this was done on a daily basis but then usually restricted to managers in the same region. Managers also report speaking to their regional counterparts and to CIIP at least once a month. However, this is not done on a systematic basis. During the main period of the project the operators participated in an online chat group where they all could login and share issues and raise questions. This online chat facility was identified by the operators as a very effective support tool and we found it to be the most successful form of inter-center networking.

One indirect impact of the project is the name and reputation that it has built up among other ICT stakeholders in Kyrgyzstan. The eCenters are seen as financially sustainable and having an advantage in getting Internet connections to rural areas. In reality connections are limited by available infrastructure but there is an MOU in place between CIIP and Kyrgyz Telecom (KT) to assist in getting Internet connections for the eCenters.

A number of other ICT initiatives are in place in Kyrgyzstan and the eCenter program has had a positive influence on many of them. These other initiatives differ from the eCenter model generally in two ways. First, they usually involve the provision of grants to support their work and second their emphasis is usually on rural small villages. Linkages between the eCenter sites and some of these other programs have been explored. For example, the Information Future Foundation (IFF), a local non-profit, has about 40 centers across the country which provide ICT services to rural areas. These centers have been supported through a combination of donor funding and local grants. In some of these centers there is Internet access but most of them have no connectivity. The IFF is currently in a period of transition and is conducting an evaluation of all their centers to see what future direction they should take. Subsequent to this evaluation, their Board will consider whether or not to transfer some or all of these centers to CIIP to join the eCenter network. The IFF Board is attracted to the sustainability and financial independence which the eCenters have shown. In fact, some of the managers of the more active IFF centers have already expressed an interest in joining the eCenter franchise program.

Another area in which collaboration was explored was with the Community Development and Investment Agency of the Kyrgyz Republic (ARIS). This agency is supported by the World Bank, DFID and the government of Kyrgyzstan. One of the main projects run by ARIS is the Village Investment Project (VIP) which essentially follows the Bank's Social Investment Fund model where poor communities prioritize their local development problems and receive co-

funding to implement small projects that can solve some of these problems. Under the VIP some 440 resource centers have been established across the country which support community development through the provision of information resources and ICTs. Some of the resource centers have Internet access. Again the perception of the eCenters is that they are professionally managed and are financially sustainable with Internet connectivity. Therefore ARIS and CIIP have been in discussions to see how both organizations could benefit from collaboration. Apart from getting Internet connections for some of its centers, ARIS is interested in learning from the private sector managerial experience that the eCenters have leveraged particularly for achieving financial sustainability. Nothing significant has arisen from these discussions as yet other than the sharing of information between the two organizations. In addition ARIS has expressed interest in the franchise program for some of its centers and this is being explored.

One advantage of the eCenter project was that it was able to help secure Internet connections from Kyrgyz Telecom for the sites and in some cases obtain lower Internet connection rates. The extent that this translated to cheaper Internet costs for users is mixed however; for some eCenters the cost was more than other local competitors (eg. Karakol). Managers frequently complained that they were forced to use the centrally negotiated terms of connectivity from KT and not allowed to look for alternative local solutions. This complaint notwithstanding, lower overall costs are big attractions of the franchise model and some collectivization should allow for market and negotiation power. The expectation is that the franchise program can create other economies of scale particularly as the network of eCenters increases.

## **6. Recommendations**

### ***6.1 Sustainability and Replicability of the eCenter model***

#### Sustainability

The most successful aspects of the eCenter model as highlighted in this report include (i) the implementation of a subsidized coupon program with gradually reducing subsidy levels and (ii) the joining of the eCenter with an already extant and successful local business. The third significant component of the program, land grants, was not implemented.

One immediate impact of the coupon program was to stimulate the market for Internet access and computer training. Thereafter it was left to the local business partner (the eCenter) to exploit this new market potential. Overall this has added to the financial self-sustainability of the participating commercial computer centers.

Just how financially successful each business is varies, and this has implications for long-term sustainability. There are several factors that are relevant here. First there are differences in the level of entrepreneurship that exist at each eCenter. This is relevant to furthering the broad goals of the project as well as to adapting to new challenges and problems. The latter is important for any business and the eCenter model is after all predicated on the success of the eCenter as a business. Second, the local market conditions for each eCenter vary. The very existence of the eCenter can change these conditions by stimulating the market for Internet cafés. As a result some eCenters are able to enjoy a near monopoly status on the provision of ICT services in their town while others must continually find new ways to compete.

Finally sustainability also seems to hinge on the provision of a diversity of services as evinced by the larger and more successful eCenters such as Karakol and Nookat. This perhaps reflects the general demand for a variety of ICT services and not just Internet access. In fact, in most small towns and even in Bishkek there are several shops that offer different types of ICT related services such photocopying, telephone, Internet access, printing, typing, etc. By including all these services in one place, the business can create a “one stop shop” for the customer as well as leverage economies of scale to lower costs. This is exactly what eCenters such as the ones on Nookat and Karakol are doing.

Sustainability also depends on targeting the right people. While in the short term the eCenter could benefit from an opportunistic distribution of coupons to customers, the long-term sustainability of the program means that targeting those that need the coupons the most (i.e. those who have little or no experience with ICTs or more limited financial resources) can help create new and future customers. Thus, improving the sustainability of the project also means improving the targeting and distribution of coupons as well as the concomitant monitoring and evaluation system.

#### Scalability

To carry the project forward, CIIP has taken initial steps to establish a franchising program based on the eCenter model. As already noted, this appears to have the keen interest of all the eCenter managers as well as some outside the current network. Interest is encouraged thanks to the the successful “eCenter” brand name. All this augurs well for the scalability of the project in Kyrgyzstan, particularly if the new company to manage the franchise, Tegizcom, can realize some of the network benefits mentioned earlier.

One point to note here however, is whether the model can be scaled up in Kyrgyzstan outside of CIIP or Tegizcom. In other words, can another organization or network of ICT related centers adopt the eCenter model and make it work? In the first place there are not that many other organizations or networks that are involved in similar initiatives or have similar interests. The issue here is that many have come to associate the eCenter project (and its model) with CIIP and vice-versa. Thus, it might be difficult to implement it in another organization. Furthermore, some are of the view that it makes little sense to start a new eCenter network in Kyrgyzstan when CIIP has already developed experience and resources in this area. As a result, it seems that scalability of the project will most likely happen through Tegizcom and the new franchise program.

It may also be worthwhile to identify emergent ICT businesses in smaller towns and integrate them into the eCenter model even if they do not have the resources or infrastructure to fully participate in the franchise model. One of the lessons from the coupon distribution issue and variable ability of the eCenters to reach deeply into their communities and recruit the newest users is that careful attention to reaching non-users is required. Commercial Internet centers in smaller towns and villages face a significant challenge in terms of limited pre-existing user base and the necessity of convincing the local population of the utility of ICT-related services. The eCenter model in these larger towns could be scaled in such a way as to scaffold businesses in smaller communities, whether through a similar coupon program or an Internet-center-in-a-box suite of recommended services (including typing, photocopying, SIM card service, etc.) that can help sustain a nascent business.

#### Replicability

The extent to which the model can be replicated in other countries depends on some of the factors that assisted its implementation in Kyrgyzstan. These are of course not really unique to Kyrgyzstan with the exception perhaps of market conditions and the diffusion of ICTs. By this we mean the level of personal access and ownership of ICTs. It is low levels of diffusion of ICTs which makes the eCenters relevant and also potentially profitable.

The rest of the region has similar patterns in terms of household ICT ownership and roughly similar levels of Internet users (with the exception of Kazakhstan). However, one striking similarity throughout the region is the tremendous variance between the capital cities and regional areas in terms of ICT-related services and resources. The eCenter model, with its emphasis on serving users outside of the capital and in smaller population centers via a sustainable business model is clearly something that could meet the needs of other countries in the region.

However, the factors which assisted in the implementation of the eCenter project in Kyrgyzstan must first be addressed. This includes the identification of suitable local business partners. In this case, the application processes through which business were identified could also be used elsewhere. Also important is the targeting and distribution mechanism. While not having a comprehensive targeting system turned out to be negligible on the final beneficiaries, this might not be the case in other countries. Therefore, the targeting and distribution mechanisms would have to be improved to ensure that any future project will be successful.

Any consideration of replicability of the e-Center project throughout the region must take into account the way that national policies affect the viability of businesses in the sector. The ICT regulatory environment of Kyrgyzstan has contributed to the growth of ICT-related businesses, both prior to and during the establishment of the e-Center project.

Generally, Kyrgyzstan has an open ICT regulatory environment, and research has demonstrated that in the Central Asian region, the diverging policies towards the Internet are related to funding patterns. That is, Central Asian governments are equally repressive of their traditional media, but their policies differ with respect to the Internet based on the source of funding for ICT infrastructure development. A comparative analysis conducted by McGlinchey and Johnson demonstrates that when international aid organizations and NGOs provide financial and technical aid to governments for ICT infrastructure, the formal regulatory environment is more liberal<sup>11</sup>. Kyrgyzstan has benefited from this pattern, but implementing the e-Center project in other countries of the region would need to take into account the relative permissiveness towards electronic media and the extent of government control.

Kyrgyzstan has an ICT policy that was developed with advice from USAID. There are no explicit laws regulating Internet content or activity; on the contrary, its ICT laws are designed to facilitate the growth and usage of the Internet in Kyrgyzstan. There is a National Strategy on Information and Communication Technologies for Development in the Kyrgyz Republic that was approved in 2002, as well as a National ICT Action Plan, approved by the government in 2003.

---

<sup>11</sup> "Aiding the Internet in Central Asia". McGlinchey, E, and Johnson, E. *Democratization*. 14:2, 2007. 273-288.

There is concern about information security, but no specific laws exist to regulate content or activity in relation to this, although there is a potential new law in the works concerned with protecting personal information online. At one point the Kyrgyz government had expressed interest in tracking the IP addresses of chat and forum users so as to monitor on-line anti-government sentiment, but GIPI intervention sidetracked that initiative.

Generally, the Internet is less censored than in other central Asian countries but its growth is hampered by the monopoly held by the state telecommunications firm Kyrgyztelecom, which is deeply in debt to the World Bank and seeking to return to profitability. Reporters Without Borders call the situation “middling” versus neighboring states that are labeled “difficult” or “very serious”.

## ***6.2 Improving the impact of the eCenters***

### Networking among the eCenters

One major result of the project is the network of eCenters that it has created. However, this could have been better leveraged for the benefit of the centers. For example, although some training was provided for the managers, additional support could also be given to some of the staff. Given limited resources this could focus on more technical training as this was a common request from the staff members interviewed. Also, collaboration and information sharing across centers could be done on a more systematic or routine basis. Although the eCenters are in effect private businesses, the advantage of discussing common problems can benefit them all. Greater collaboration might lead to the replication of the more innovative business endeavors across different regions and even collaboration in their implementation. In addition, collaboration that results in a shared and documented set of best practices can increase the efficiency of individual centers by reducing turnaround time when equipment fails. It can also result in shared business practices like repurposable marketing materials, effective advertising strategies to reach deeply into the community, and even shared resources for expensive and infrequently used equipment or specialized training.

### External partnerships

Although no significant partnerships have been developed between the eCenters and other similar initiatives, there were instances of collaboration taking place at the local level. One example of this is in Nookat where the eCenter provides computer literacy training for people from a nearby village that received computer equipment through the ARIS project. This could perhaps be done on a wider scale, particularly through the development of satellite centers (i.e. the ARIS resource centers) through which the eCenter could conduct its computer literacy and other courses. This would likely involve some revenue sharing scheme between the two centers.

### eCenter operations

The eCenters should consider extending their operating hours so that they have more evening availability for potential users. This could open up a potential user base that is restricted during regular working hours. Commercial Internet centers in the region often have extended hours with pricing mechanisms that offer a flat fee for overnight or extended late-night hours use. Extending hours can also provide the basis for offering alternative services at different times of the day (such as gaming or movie viewing) that might otherwise interfere with the core training activities of some centers. In other words, it is

possible for centers to accommodate and meet the needs of diverse subsets of the local population.

Also, one staff member noted that his eCenter had an advantage over other Internet cafes in that they could provide a more productive atmosphere for their customers by having a separate area for computer games. This is something that could be explored in other eCenters, as in most cases there were multiple rooms available and often no separation of the type of activities done in each room.

#### Targeting and distribution of coupons

As mentioned earlier, the implicit goal of the project is to target users who could most benefit from access/training. It seems that, based on the project design and initial demand studies done in late 2005, the target group was the entire community itself. Given that most of these communities had little access/training in general this was adequate at the time. However, within some of the communities there are differences in levels of access to ICTs and expertise. Therefore, a more accurate targeting strategy could have been developed that would require more specific targets. This could perhaps be done through a simple application form for coupons that would pick up some important criteria for inclusion in the program. As pointed out earlier, there were few differences between those who received coupons and those who did not, implying that the lack of a more specific targeting strategy did not have a great influence on the distribution of coupons. However, if the program was to expand or if the coupons took on greater value then this could become a concern.

The lack of a more specific targeting strategy is perhaps the result of the compromise required to enable a private business to undertake socially oriented goals. Thus, the specific targeting and distribution was left up to the eCenters themselves. However, including a simple checkpoint in the coupon distribution process might not require a big change on the part of the eCenter. Also, it should be noted that this compromise results in a focus on small towns (or areas that have just a big enough market to make the center sustainable) at the expense of smaller rural villages.

#### More flexible model

The same suite of computer courses and curricula was offered at all seven eCenters. While there was an obvious advantage in developing a standard package for the centers, this can preclude some of the more diverse training needs of the various communities served by the project. Therefore additional modules could be developed to meet these other areas of demand. Some suggestions made by users include learning foreign languages (such as English or Russian), graphics design software (CorelDraw, Photoshop, etc.), web-design, and computer programming including JAVA. Many users also wanted to have follow-up courses to the basic computer literacy modules they completed. Having a broader set of courses that the eCenters could choose from could allow them to attract more customers and further improve ICT skills within their community. Similarly, the same type of Internet connection was mandated and installed at each eCenter (except for Karakol), while the level of Internet traffic varied widely across the centers as illustrated in Figure 7. It might therefore be useful to establish Internet connections that are more congruent to local demand at each eCenter. This would be particularly important for the future conversion and expansion to the franchise program.

#### Monitoring and evaluation

Finally, there was little ongoing monitoring and evaluation during the course of the project. Although there were quarterly reports, these essentially described project activities for each period. A more comprehensive approach to monitoring and evaluation during the project's implementation would have improved our understanding of its efficacy and impact on local communities and could allow for real-time learning and correction. For example, this could have included pre and post questionnaires for those who completed courses or could have meant ensuring that more accurate contact information was collected from users. Also, most eCenters did not have an accurate system for keeping track of each user's time on the Internet. Often this was done by staff checking logs or making notes of time spent at the computer. The implication here is that the eCenter manager did not always have the most accurate information for making decisions related to his Internet business. Also, having an accurate billing system will improve the cost-effectiveness of the service. There are several software packages that could be implemented across all the eCenters which could make this process more effective and accurate.

## 7. Appendices

### 7.1 *Brief profiles of the eCenters*

#### 7.1.1 *Ivanovka*

Date eCenter was started: June 2006

Date the original business was started: June 2005

Total staff (including manager): 6

Average number of visitors per day for:

- Internet - 50
- Training courses - 30
- Other services - 250

Services offered: Internet access, Scanner, printer, photocopy, CD/DVD burn, cell phone cards, ringtones

General description: This eCenter is housed in a building with about 3 rooms. One room was undergoing some renovations during the site visit and was re-opened shortly afterwards. It was previously a gaming center whose clientele was mostly young boys. Now it provides many more services and is the only center offering Internet access in Ivanovka. In all it has some 13 PC's with an ADSL connection. Most of the staff are kept busy with the sale of mobile phone credit and IP telephone calls. One additional service that many of their (particularly younger) customers are asking for is a DVD movie theater. This is part of plan of the current renovation and future expansion of the center. Furthermore, the movie center is expected to be profitable as there are no cinemas in the town. Ivanovka is one of the two recent businesses to become eCenters.



Outside view of the eCenter in Ivanovka



Some of the users at the eCenter in Ivanovka

### 7.1.2 Talas

Date eCenter was started: June 2005

Date the original business was started: :

Total staff (including manager): 3

Average number of visitors per day :

- Internet - 15
- Training courses - 25
- Other services - 10

Services offered: Internet, training, typing, printing

General description: This is also one of the more recent businesses to become an eCenter. It is also one of the smaller operations in among the centers. Currently it has about 7 PCs available to customers and it has an ADSL Internet connection from KT. In terms of Internet services it currently competes with two other businesses in the town. One of the more popular services that the center offers is computer literacy training and this has also been a major source of revenue. In fact, the manager is thinking of expanding the current offering to other include other courses such as accounting. In addition, they are thinking of offering a utilities payment system for customers. Overall, more staff are required to meet these expanding business needs.



Computer users at work, Talas



Graduates of the computer literacy course, Talas

### 7.1.3 Karakol

Date eCenter was started: December 2005

Date the original business was started: May 1998

Total staff: 7

Average number of visitors per day :

- Internet - 30
- Training courses - 10
- Other services - 1000

Services offered: Internet, typing service, training, printing, scanning, photocopy, lamination, intermediated search and research, photo printing, sales of PC's / PC accessories / office supply, sales of cell phones and mobile accessories, mobile pre-paid cards, equipment maintenance, ink cartridge refill.

General description: This center is not only one of the largest it is also one of the oldest businesses to have applied to become an eCenter. It is housed in a large building with different rooms for the various parts of its business. Many of these services also support each other as for example, the computer repair personnel also support the

PC's used by the eCenter customers. In all there are some 12 PCs used at the center with a DSL connection from KT. In addition, it is located just opposite one of the local universities in Karakol and very close to some of the others. Thus many of its customers are students. Some new services that they are thinking of adding include IP telephone and web-site development. Accordingly some modifications will have to be made of the existing building and this is being planned.



Computer users, Karakol



Stationary store inside the eCenter, Karakol

#### 7.1.4 Bosteri

Date eCenter was started:  
December 2005

Date the original business was started:

Total staff: 4

Average number of visitors per day :

- Internet – 10 to 20
- Training courses - 8
- Other services - 15

Services offered: Internet, gaming, photocopy, printing.

General description: This eCenter has been temporarily closed and shifted some of its operations to a near-by hotel so as to exploit the current summer tourist season in Issy-Kul. The plan is to move the center to a new building which can better accommodate its expanding business. The eCenter has acquired appropriate land for the development of a new building under a long term lease from the local government administration. In the mean time, the owner of the center is raising the necessary funding for the construction of the new building. In terms of future services, the owner is thinking of adding a computer parts and services store. It currently has around 12 PCs with an ADSL from KT.



Computer users, Bosteri



Graduate of computer literacy course, Bosteri

### 7.1.5 Naryn

Date eCenter was started:  
November 2005

Date the original business was  
started: March 2004

Total staff: 4

Average number of visitors per  
day :

- Internet - 4
- Training courses - 24
- Other services – 20-30

Services offered:  
Internet/computer access, printing,  
photocopying, IP telephone,  
colored printing, printing photos,  
games, scanning, laminating, copy  
CD's/DVD's, preparation of  
invitations/diplomas/brochures,  
computer training courses

General description: As one of the  
first Internet centers in Naryn, this  
eCenter originally had many  
customers for this part of its  
business. However recent  
competition has caused it to  
explore other areas such as  
mobile phone services. Currently it  
has around 12 PCs with a ADSL  
connection from KT that it shares  
with its landlord – the Special  
Economic Zone administration in  
Naryn. In fact, it is housed in the  
same building as the SEZ. They  
are also considering opening up a  
DVD salon.



Building in which eCenter is housed, Naryn



Computer users, Naryn

### 7.1.6 Osh/Karasuu

Date eCenter was started:  
January 2006

Date the original business was  
started: 1998

Total staff: 3

Average number of visitors per  
day :

- Internet - very few currently. There were around 10 to 15 in Karasuu
- Training courses - 35
- Other services - very few

Services offered: Internet, computer literacy courses, sys admin, computer graphics, typing services.

General description:

This eCenter was based in Karasuu up until April/May 2007 when it moved to Osh. Therefore it is still in the process of establishing itself in the new market. It is currently housed in a school in the center of Osh city. Currently it has about 14 PC's with an ADSL connection from KT. In terms of services they had offered IP telephone and printing in Karasuui and they intend to set up an IP center and printing center at the current location. The manager here has a background in computer education and is keen on emphasizing this aspect of the business.



Computer lab, Osh



School in which the eCenter is located, Osh

### 7.1.7 Nookat

Date eCenter was started:  
December 2005

Date the original business was  
started: November 2003

Total staff: 4

Average number of visitors per  
day :

- Internet - 20
- Training courses - 10
- Other services - 100

Services offered: Internet access  
scanning, typing, web-cam,  
copying files onto CDs,  
computer literacy courses,  
games, IP telephone, also  
mobile phone (sell credits and  
phones and accessories), re-fill  
printer ink cartridge service and  
consultations to customers  
interested in buying computers.

General description: Along with  
Karakol this is one of the larger  
eCenters. It has some 21 PC's which  
are connected to the Internet via a  
ADSL connection from KT. They are  
actively exploring expanding their  
training programs to include  
additional government certified  
courses as well as conducting  
courses in Russian (currently  
courses are in Kyrgyz). They are  
also exploring offering distance  
learning courses. As the only  
Internet center in Nookat, they  
enjoy a good reputation among the  
local community.



IP telephone booths, Nookat



Outside sign identifying eCenter and its services,  
Nookat

**7.2 Coupon users by center (January 2006 – January 2007)**

Internet access coupons distributed														
eCenters	Jan-06	Feb-06	Mar-06	Apr-06	May-06	Jun-06	Jul-06	Aug-06	Sep-06	Oct-06	Nov-06	Dec-06	Jan-07	Total
Naryn	135	160	135	122	131	119	110	124	128	140	169	176	156	<b>1805</b>
Bosteri	62	83	56	72	94	97	89	108	129	101	123	143	129	<b>1286</b>
Karakol	146	119	123	125	148	165	147	156	198	134	146	163	173	<b>1943</b>
Karasuu	136	127	138	126	136	130	132	118	126	124	146	152	139	<b>1730</b>
Nookat	129	128	127	121	124	118	116	126	130	126	134	159	149	<b>1687</b>
Talas						45	47	84	114	55	60	87	83	<b>575</b>
Ivanovka						40	43	86	104	48	49	26	75	<b>471</b>
<b>Total</b>	<b>608</b>	<b>617</b>	<b>579</b>	<b>566</b>	<b>633</b>	<b>714</b>	<b>684</b>	<b>802</b>	<b>929</b>	<b>728</b>	<b>827</b>	<b>906</b>	<b>904</b>	<b>9497</b>

Numbers of persons who have completed training courses															
eCenter	Jan-06	Feb-06	Mar-06	Apr-06	May-06	Jun-06	Jul-06	Aug-06	Sep-06	Oct-06	Nov-06	Dec-06	Jan-07	Accounting courses	Total
Naryn	33	34	36	32	32	33	33	32	35	34	33	35	36		<b>438</b>
Bosteri	25	21	22	20	24	20	18	23	25	27	30	27	25		<b>307</b>
Karakol	30	27	28	30	28	26	29	30	32	30	29	24	25	140	<b>508</b>
Karasuu	31	30	27	29	31	30	26	24	25	27	28	30	26	140	<b>504</b>
Nookat	31	24	32	25	27	26	28	28	31	27	29	33	30	140	<b>511</b>
Talas						16	30	21	16	13	11	10	21		<b>138</b>
Ivanovka							22	16	23	22	13	22	14		<b>132</b>
<b>Total</b>	<b>150</b>	<b>136</b>	<b>145</b>	<b>136</b>	<b>142</b>	<b>151</b>	<b>186</b>	<b>174</b>	<b>187</b>	<b>180</b>	<b>173</b>	<b>181</b>	<b>177</b>	<b>420</b>	<b>2538</b>

### 7.3 Curriculum of eCenter training courses

	Themes	Theory	Practice	Total hours
1	Operation system Windows XP <ul style="list-style-type: none"> <li>• Security issues when working with computers</li> <li>• Informatics, information, computer use</li> <li>• PC. Internal structure of computer. External and additional construction of PC.</li> <li>• Basic concepts (file, folder, desktop, task panels, icon, window)</li> <li>• Movement of windows</li> <li>• Changing window sizes</li> </ul>	1.5 hrs		1.5 hrs
2	<ul style="list-style-type: none"> <li>• Creating folders, moving, deleting and copying files and groups of files, working with a diskette and CDs</li> <li>• Reproduction and deleting of information</li> <li>• File and folder search. "Explore All" program, "My computer"</li> <li>• Main menu</li> <li>• Using the search system</li> <li>• Types of program</li> <li>• Uploading and deleting programs</li> </ul>	1.5 hrs	1.5 hrs	3 hrs
3	Word Program <ul style="list-style-type: none"> <li>• Structure of the Word program</li> <li>• Preparations</li> <li>• Data entry</li> <li>• Simple text spell-check, work with text, text entering rules</li> <li>• Getting acquainted with the program – learning to work with the keyboard, entering texts</li> </ul>	1.5 hrs	1.5 hrs	3 hrs
4	<ul style="list-style-type: none"> <li>• Spell-check and auto correct</li> <li>• Saving, opening, creating a new document</li> </ul>	1.5 hrs		1.5 hrs
5	<ul style="list-style-type: none"> <li>• Fonts</li> <li>• Numbering pages</li> <li>• Changing page parameters</li> <li>• Page preview</li> <li>• Printing a document</li> </ul>	1.5 hrs	1.5 hrs	3 hrs
6	<ul style="list-style-type: none"> <li>• Working with the toolbars</li> <li>• Copying, moving and deleting text</li> <li>• Creating and using style</li> <li>• Dividing text into columns</li> <li>• Autocorrect</li> <li>• Upper and lower indexes</li> <li>• Header and footer</li> <li>• Inserting symbols</li> </ul>	1.5 hrs	1.5 hrs	3 hrs
7	<ul style="list-style-type: none"> <li>• Creating borders, tables</li> <li>• Working with pictures (Paint)</li> <li>• Using toolbars (WordArt)</li> </ul>	1.5 hrs		1.5 hrs
8	Excel Program	1.5 hrs	1.5 hrs	3 hrs

	Themes	Theory	Practice	Total hours
	<ul style="list-style-type: none"> <li>• Intro to Excel, interface. General information about the program.</li> <li>• The structure of the program</li> <li>• Text entry and deleting</li> <li>• Formulas and functions, creating tables</li> <li>• Changing the table format</li> <li>• Header and footer</li> <li>• Creating cell color (to fill)</li> <li>• Creating tables</li> </ul>			
9	<ul style="list-style-type: none"> <li>• Creating number sequences</li> <li>• Creating formulas</li> <li>• Copying formulas</li> <li>• Using auto sum</li> <li>• Page number parameters</li> <li>• Page (print) preview</li> <li>• Printing a document</li> </ul>	1.5 hrs		1.5 hrs
10	<ul style="list-style-type: none"> <li>• Creating diagrams</li> <li>• Identifying and changing cell format</li> <li>• Working with folders/pages (enter, rename, delete, move, copy)</li> <li>• Information safety options</li> </ul>	1.5 hrs	1.5 hrs	3 hrs
11	<p>Internet and email</p> <ul style="list-style-type: none"> <li>• Local and global networks</li> <li>• Intro to Internet</li> <li>• Internet browsers, contemporary search systems</li> <li>• Basic Internet terminology</li> <li>• Internet connection</li> <li>• Ways of searching and viewing information</li> <li>• Internet exit</li> </ul>	1.5 hrs	1.5 hrs	3 hrs
12	<ul style="list-style-type: none"> <li>• Information search on Internet, downloading files, understanding of websites/portals</li> <li>• Email, opening an email account</li> </ul>	1.5 hrs	1.5 hrs	3 hrs
13	<ul style="list-style-type: none"> <li>• Working with email (send/receive, creating a new message)</li> <li>• Message reply</li> <li>• Working with messages (codify options, sorting, deleting, saving attachments)</li> <li>• Attachments</li> <li>• Sending a message</li> <li>• Receiving and sending a message using Inbox</li> <li>• Saving information on a computer</li> </ul>	1.5 hrs	1.5 hrs	3 hrs
		19.5 hrs	13.5 hrs	33 hrs