

## **The Internet in Brazil: From Digital Divide to Democracy?**

Ami Albernaz  
New York University  
May 3, 2002

## Note on Purpose and Methodology

This paper stems in large part from research I conducted in Brazil during the summer of 2001, with a grant from the Tinker Foundation. While in Brazil, I examined Internet projects that had recently begun in four major cities: Porto Alegre, Recife, Rio de Janeiro and São Paulo. I chose these projects because each is, in its own way, aiming for “digital inclusion,” and attempting to improve the quality of life/social and economic conditions within their communities. Each of the projects, with the exception of Recife’s, centers around the implantation of community Internet centers, or *telecenters*, in low-income areas. At the centers, residents can access the Internet and/or take computer courses free of charge or for very low cost. Recife’s project, meanwhile, is a revitalization of the poor waterfront area via the establishment of a zone for information technology companies-some of which are spawned from the strong computer science department of the local university.

I spoke with those involved in planning and implementing the projects, and, when possible, with the people living in the communities that the projects were designed to serve. Because most of the projects were just beginning (indeed, two telecenters were inaugurated during the time I was in Brazil), I have tried to follow their progress through their websites, news articles which have been written about them, and through continuing contacts with some of those involved with the projects, whom I had met in Brazil. While each of the projects appears to be promising, it is perhaps still too early to evaluate their success-or indeed, to even know what should be considered as criteria for their success. Some of the projects’ components, which had been planned last summer, have been implemented only within the past few months. They are indeed still in very early stages.

While in Brazil, I also visited the headquarters and three computer schools established by CDI (the Committee for the Democratization of Information Technology), one of the oldest and perhaps the best-known of Brazil’s technology-related non-governmental organizations (NGOs). CDI, which since 1993 has been establishing computer skills schools in favelas and other low-income communities, is now integrating itself in some of the new telecenters and even in Recife’s project. This exemplifies one of the most impressive features of the drive to spread technology access throughout Brazil: entities working with each other, rather than competing. (Similarly, those working with the telecenter projects hold frequent meetings to exchange ideas and experiences.)

Finally, I consider in my paper the potential of the Internet to increase the visibility of the work of Brazilian NGOs. Since these groups are working toward improving conditions for Brazilians in ways that the government is not (and are therefore acting toward the

inclusion of all citizens in the well-being of the society), it is worth considering how the Internet is helping them to extend their outreach. It is only very recently that some NGOs are receiving computers and Internet access, mainly through the efforts of other NGOs that center on using information technology as a social tool. The opportunities that the Internet offers NGOs—in making their work known, and in exchanging information with other groups in Brazil and throughout the world—are somewhat revolutionary. (Of course, this is a bit difficult to appreciate here, where organizations have long been creating websites. )

What attracted me to the aforementioned aspects of Internet adoption in Brazil is that the potential for information technology to help along social and economic change is great. As I discuss in the following section, the problems of widespread and profound poverty in Brazil, and the lack of decent healthcare and education for many, make more urgent the need to employ all tools possible in finding solutions. Information technology poses fascinating possibilities, and those who have initiated efforts such as telecenter projects or Recife's revitalization have shown remarkable creativity. For these reasons, studying projects aimed at helping along social and economic change was and is more exciting to me than other aspects of Internet adoption (e-commerce, for example). In fact, the many technology companies which are hoping to capture a piece of Brazil's huge market would do well to learn the lessons which have already been learned by those who hope to use the Internet as a tool toward a more just and beneficial distribution of the country's wealth. As one researcher in Rio de Janeiro told me, Brazil's challenge will be making technology match the country's social reality.

# Table of Contents

## Introduction 5

### Part I: The Internet in Brazil

|                     |   |
|---------------------|---|
| History             | 6 |
| “Digital Inclusion” | 8 |
| Universalization    | 9 |

### Part II: The Internet as a Catalyst for Change 11

#### Telecenter Projects:

|  |    |
|--|----|
| São Paulo: Using the Web to Expand Citizenry | 12 |
| Porto Alegre: The Linux Experience           | 15 |
| Rio de Janeiro: Favelas Online               | 16 |

|  |    |
|--|----|
| A City of the New Economy: Recife’s Digital Port | 18 |
|--|----|

|                            |    |
|----------------------------|----|
| CDI: The Pioneering Effort | 24 |
|----------------------------|----|

### Part III: NGOs and the Internet 26

## Conclusion 28

## Notes 31

## Bibliography 32

## Introduction

With 170 million people, Brazil is Latin America's most populous country and home to more than half of the region's Internet users. At the same time, of the world's 10 largest economies, only China has a greater digital divide, when one considers the percentage of the population that uses the Internet and the prevalence of infrastructure necessary for Internet access.<sup>1</sup> Depending on which statistics you believe, only four to seven percent of Brazilians are online.<sup>2</sup> While the percentage is higher in major cities such as São Paulo, where the country's information technology sector is concentrated, the picture is starkly different in remote areas, where the majority of residents have never touched a computer. A great part of these remote areas are still without telephone lines, which have traditionally enabled Internet access. Today, the rate is 23 lines for every 100 inhabitants—doubling the figure from just a few years ago.<sup>3</sup> Yet even where the infrastructure is in place, the cost of a computer and an Internet Service Provider (ISP) still render access out of reach for many Brazilians, given the country's median income level. Since the deregulation of the telecommunications sector, the cost of access has been falling—to around \$10 per month today, down from \$40 in 1998.<sup>4</sup> Free ISPs such as the popular *Internet Gratis* (iG) have also emerged; however, the quality of service with such providers tends to be unreliable (i.e., attempts to connect to the Internet often fail). Additionally, in Brazil as in many other countries, users incur charges from telephone companies based on the amount of time a connection is open (and a phone line is in use). Hence, Brazilians who surf the Internet an hour a day—not a long time for many U.S. surfers--can expect high phone bills at the end of the month.

Naturally, it is mainly upper and upper-middle class Brazilians who are represented among the country's Internet users. A survey by Sun Microsystems and Organizações Globo (Brazil's largest media group) found that among the four to seven percent of the population who are online, 80 percent are defined as belonging to the upper class; 16 percent from the middle, and four percent from the lower classes.<sup>5</sup> In addressing this gap, a variety of initiatives have been announced, some with great fanfare. Among these are the introduction of the “micro popular,” for which the cost of 500 *reais* (US\$210) can be financed by a loan which is repaid over the course of three years.<sup>6</sup> The Brazilian government is an ardent supporter of such initiatives, for they promote the idea of “digital inclusion” that has become a sort of catch phrase for the new millennium among developing countries, and a pledge that a country is doing its best to disseminate the accouterments of modernity. Such measures also increase the viability of e-commerce ventures—investment from which the Brazilian government wants<sup>7</sup>.

Meanwhile, many NGOs, some local governments and some private companies have taken up the cause of Internet access as a civic right. The Internet, as a means of communicating and acquiring information, should be accessible to all. Beyond this notion of access to information technology as a fundamental right, many people see the Internet as having the potential—and therefore, an obligation—to alleviate the problems of faulty healthcare, education, hygiene, etc. resulting from poverty. In fact, those who pioneered the use of the Internet in Brazil envisioned that it would be used to these ends.

## **PART I: THE INTERNET IN BRAZIL**

### **History**

The Internet, in its current incarnation, has a relatively short history in Brazil, having been opened by law to public use only in 1995. Yet its story prior to then is an interesting one, linked to the socially progressive movements of the period. Before 1995, the Internet in Brazil was used mainly for information exchange among academic institutions and NGOs. Among these was the independent research institute IBASE (Brazilian Institute for Social and Economic Analysis), established by social scientists who had lived in exile during the military dictatorship of the 1960s and '70s with the goal of democratizing social and economic information in the regime's waning years. In 1989, IBASE created a basic email and electronic conferencing service called AlterNex to make possible the sharing of information among progressive non-governmental organizations throughout the Brazil. The following year, the same group helped to launch the Association for Progressive Communications (APC), a worldwide network of NGOs which was then able to share information electronically. Among APC's undertakings was transmitting via Internet the proceedings of United Nations conferences (1992's Earth Summit in Rio De Janeiro, 1993's Human Rights Conference in Vienna, 1994's Population and Development Conference in Cairo) to APC-member countries. Today, APC serves some 40,000 users in 140 countries, and offers concrete suggestions for NGO leaders to use the Internet's potential as an organizing tool, while AlterNex serves as a hub for over 130 bulletin board systems throughout Brazil (mainly the country's interior), pertaining to work carried out by non-profits.

Innovative experiments using information technology also took place on the local level early on. One example is the Citizens' Network in Recife. Founded in 1993, it was

Brazil's first "freenet," and allowed citizens to access pricing surveys for Recife's supermarkets as well as public spending plans. Five public Internet terminals, most of which were housed in libraries, served as points of access and provided some computer training to poor children and school teachers. Some of the trainees went on to contribute to a website on Recife's history and culture.<sup>8</sup> (The Citizens' Network has since grown into a massive revitalization program called Porto Digital, which is the subject of a later section.)

Of course, the dynamics of the Internet in Brazil have changed since 1995, when the Internet Service Law opened the provider market to private companies. Today an Internet similar to ours in the U.S.—with news, shopping and chat rooms—is available for those who can afford it. Brazilian and international firms have been scrambling for a piece of Brazil's cyber pie that, although limited by the low percentage of Brazilians who are Internet users, is still by far the largest in Latin America, due to the size of Brazil's population. To attract information technology businesses and spread access, the Brazilian government has made a priority of developing an Internet backbone for the country. In 2000, \$11 billion of Brazilian and foreign money was spent on this, with telecommunications companies and Internet access providers vying for resulting business. Consequently, the number of Internet users exploded around this time—from 3.6 million in mid-1999 to 10.6 million less than two years later.<sup>9</sup>

Some social scientists and activists are afraid that in trying to attract business—and targeting the section of the population that can afford access—strategies for social organizing via the Internet will remain untapped. Some possible strategies, says Carlos Afonso, director of AlterNex and technical director of IBASE, include community radio broadcasting, which if conducted through the Internet, would free operators from the need for government licensing<sup>10</sup>. He also recommends building more hubs to spread information throughout the country (as AlterNex has done through its bulletin boards). As Afonso notes, universalization of access incentives might be overlooked, as there is little financial incentive to disseminate access to all Brazilians, regardless of income level.<sup>11</sup>

## **“Digital Inclusion”**

The low penetration of the Internet in Brazil has naturally led to the term “digital divide” being applied to the country. If the digital divide is a problem, the logical step would

be to attempt to correct it; in other words, to promote “digital inclusion.” Each of the many initiatives recently taken in Brazil toward this end must consider, at their outset, the questions of what exactly digital inclusion is. Is it Internet access in itself? Or does it imply something beyond that, something more along the lines of social and/or civic inclusion? The question is far from being merely academic, since clarifying this point while planning such a program will dictate how the program is structured, and will set out to achieve its ends.

The most common connotation of the term “digital inclusion” has seemed to be economic: with at least basic computer and Internet skills, it was believed, people living on society’s “margins” would be more likely to find work (or higher-paying work), helping to break the cycle of poverty. For nearly a decade, non-governmental organizations in Brazil and throughout the rest of Latin America (of which the Committee for Democracy in Information Technology, or CDI, is best known) have been establishing free or low-cost computer skills courses in impoverished areas. Although studies have shown that those who do find better jobs after completing these courses are rare<sup>12</sup>, the exposure to computers and the Internet that would not have been available to participants otherwise has been a major act of digital inclusion in itself. It has also clearly produced benefits that are more difficult to measure, such as increased self-esteem among participants (more on this will be discussed at the end of Part II). While current thinking behind digital inclusion projects has shifted away from the “computer school” model (although computer courses are still a significant component of many of these projects), new senses of economic conclusion are cornerstones of programs in Rio de Janeiro, where store owners in favelas are now able to buy supplies in bulk online; and Recife, where residents of a poor community are learning computer skills with the goal of gaining a job or internship in one of the high-tech companies that are setting up in the area.

The term “digital inclusion” has also been taken to imply social or civic participation. At a time when local and national governments throughout the world have websites through which citizens can communicate with representatives (possibly concerning issues that they have read about on the Internet) and even file taxes<sup>13</sup>, those without access have been excluded again (even if only by matter of convenience that the Internet affords). In Porto Alegre and São Paulo, telecenter projects that have started within the past two years have made citizen participation a crucial component. In São Paulo in particular, telecenters are just one part of a broader program that is encouraging people to take more active roles in their community, whether through collecting data on the community’s schools and health centers, or reporting on local happenings.

For initiatives such as those in São Paulo and Porto Alegre to be successful, concrete planning with clearly-articulated strategies are needed, as is reliable support from the local

government, NGOs and private enterprises<sup>14</sup> Without structure and a concrete agenda, a program is likely to falter, as noted by anthropologist Patrick Larvie, who studied the introduction of information technology in the favelas of Rio de Janeiro. “There is a false idea that if you put enough computers and poor people in a room together, the problem will be solved,” he said. Larvie’s research has shown that the most frequently-visited sites in these low-income communities (whose residents are using the Internet for the first time) pertain to sports, entertainment and pornography.<sup>15</sup> These results seem to point to the fact that if digital inclusion initiatives intend to affect a true social impact, computers and the Internet cannot be their only offerings. On the other hand, the opportunity to search for anything on the Internet—regardless of the subject it pertains to—*is* digital inclusion.

### **Universalization: The Fund for Universalization of Telecommunications Services (FUST)**

In addition to the initiatives taken in some major cities to democratize the Internet, some measures have been taken at the national level with the aim of spreading Internet access throughout Brazil. The most important of these is the Fund for the Universalization of Telecommunications Services, commonly known by its acronym, FUST. Initially proposed by the Workers’ Party in 1997, it was finally enacted at the beginning of 2001. All telecommunications companies are now obligated to give one percent of their revenues to the fund, which is overseen by Anatel (Brazil’s equivalent of the Federal Communications Commission) and the Ministry of Communications. Of the 1 million *reais* (or \$400,000) collected last year, Half of the total funds will go toward connecting schools to the Internet, while the other half will allow for free public Internet access in health centers (hospitals and clinics), cultural centers (including museums, libraries and NGOs) and centers which provide services for the handicapped. In addition to Internet access, the fund will also pay for the computers, printers and scanners.

The final goal is to connect some 13,000 schools (with seven million students), 10,000 cultural centers and NGOs, and 30,000 health centers. Each type of entity (school, cultural institution, health center) comprises a separate process under the rubric of FUST, each with its own selection processes (i.e., determining first *which* cultural and health centers will have access, and then which telecom companies will provide the access) and time line to implementation. Regarding schools, for instance, 60 percent of middle and high schools were to be connected by the end of last year (a goal which was not met), while all 13,000 schools were to have access by the end of this year. For NGOs and libraries, meanwhile, surveys have been distributed with the purpose of determining which entities would receive access.<sup>16</sup> While

this process was concluded in February of this year, the institutions which will receive access have not yet been announced. One objective is to make library resources available online, and thereby easier to access. Meanwhile, connecting health centers will be a more difficult and lengthy process, according to Carlos Afonso, a pioneer of the Brazilian Internet who is monitoring FUST's progress. Because patients will ultimately be able to access and print their medical records in the access centers, confidentiality considerations must be dealt with. When FUST was enacted last year, the target date having connected the entities, particularly all of the schools and cultural centers, was the end of 2002. While it is now clear that this goal will not be met-partly due to arguing over certain aspects of the fund's execution-the entities behind FUST promise that the widespread access envisioned will happen.

A parallel agreement between Anatel and Brazilian telephone companies-under which all of the country's municipalities having at least 50 residents will be equipped for high-quality access-would appear to bolster the chances for FUST's success. (No simple task, since out of an estimated 6,000 municipalities in Brazil, about 350 have Internet access now.) According to Carlos Afonso, one of the pioneers of the Internet in Brazil, competition will be part of the incentive for telephone companies to provide the needed infrastructure. While each company is to be assigned a section of the country in which it may operate, other companies may encroach on one's territory if it does not meet its obligation to its given area. While the original goal for this project was the end of 2002, at least two of the companies involved, Brasil Telecom and Embratel, have protested, saying that this time frame is unrealistic. Telecom company officials have also said they want access to the funds they contribute to FUST--presumably, the companies would apply these moneys to building the needed infrastructure; however, this has given rise to some opposition among those who argue that the companies have less incentive to act toward universalization than toward maximizing profits.

Another snag encountered by the FUST process came late last year, when Workers' Party legislators protested Anatel's ruling that the computers to be installed would operate solely on Microsoft's Windows. The protests were in line with the beliefs of some Brazilian Internet watchers, who have maintained that using Linux, alternatively, would be less expensive and, as an open software, come with the advantage of allowing users to learn more about the ways in which computers function. While Anatel's subsequent reversal of their decision (to allow Linux to be included as a platform) was widely cheered, it meant postponing the purchase of 1.25 billion *reais* (about \$540 million)-worth of computers and equipment. The buying process has not yet been re-started.

Updates on FUST's progress, which had appeared sporadically in Brazilian media outlets, seem to have stopped as all attention is focused on the presidential election to be

held in October. With the process having already been set back, it is possible those in the current administration realize that charging ahead with the process at this point is unlikely to benefit them (or their party's candidate)<sup>17</sup>. As Felipe Bergen, a Brazilian software developer who is monitoring the FUST developments told me, it is possible that the process will not be resumed in earnest until the elections have passed.

Finally, a key question when considering FUST is that of teacher training. Silvio Meira, another of the pioneers of the Internet in Brazil, notes that providing schools with Internet access does not mean that teachers will be willing to use it. Although Anatel and the Ministry of Communications have proposed that some resources be allotted for teacher training, such a program has not yet been started, and according to Meira, the time allotted for it is insufficient. "Specialists agree that it takes 15 years to thoroughly implement an education policy," he said, "but the groundwork for an Internet society has not yet been laid in Brazil." Additionally, although Meira agrees with the concept of having Linux on the computers, he questions the real value it will have if teachers are not prepared to help students work with it.<sup>18</sup>

## **PART II: The Internet as a Catalyst for Change**

### **Telecenters**

The keyword for anyone involved in universalizing Internet access in Brazil (and in many developing countries) is *telecentros*, or in English, telecenters. Telecenters will flood Brazil by the end of next year, if the FUST initiative proceeds as expected. Already they are popping up with increasing frequency in larger cities, a trend that will continue independent of FUST. But what exactly is a telecenter? At its simplest incarnation, it is any space with computers and free (or very low-cost) Internet access, which anyone may use. Some are housed in libraries (and have already been open to the public for several years), while others are located in already-established community centers. The centers are staffed by community members and may offer computer skills courses. Within the last year, telecenter projects have opened in a few of Brazil's larger cities. The vision guiding these projects is one in which the centers are not only places for free access, but as instrumental in a new social democracy movement.

"The Internet is one more tool that we have to improve living conditions in poor communities," said Denise Paulsen of the Science and Technology Secretariat in Porto Alegre, where several telecenters are operating. "The most important thing is deciding on what to do with the technology and the telecenters, how they will be used to improve things."

Many of those involved in telecenters projects share Paulsen's opinion. Given the government's drive to build the centers everywhere in Brazil, finding the space and equipment for them are not the most critical issues. The challenge is figuring out what will be the centers' function in the communities where they are built, and harnessing the new technology's potential to combat poverty, drugs and social exclusion. To this end, planners of telecenter projects meet to share experiences and to discern which strategies work and which do not. They rightfully see this pooling of knowledge as more efficient than keeping the telecenter projects as isolated initiatives. Telecenters, therefore, have become a sort of movement, one which seems to have garnered too much support (from NGOs, the government, the private sector and their respective communities) to be turned back.

### **São Paulo: Using the Web to Expand Citizenry**

One of Brazil's oldest and most comprehensive telecenter projects can be found on the outskirts of São Paulo, in one of the poorest and notoriously most dangerous areas of the city. Sampa.org, which will celebrate its second anniversary in July, 2002, has become a model for other telecenter programs which have opened subsequently. The project combines the efforts of city government (under the leadership of the leftist Workers' Party), local NGOs and private companies (including Microsoft, Lexmark and the Internet service provider 3Com) to not only provide free Internet access and informatics courses but to reshape democracy at a very grassroots level. In July of 2000, it opened ten telecenters in Capão Redondo, a favela located far from the city center. Capão's telecenters are located in well-established community centers, including a human rights office, and two youth recreation centers. They are staffed by community members, some who worked in the centers before and others who were taken on as interns, who have been trained and receive a stipend. Sampa's telecenters have served some 10,000 people per month (1,000 in each) since the project began. While the majority of users are between 13 and 17 years of age, the centers attract residents of all ages (including the three percent who are over 60). The most common uses of the Internet are to send and check email, look for work, find sports scores, or for help with homework. While there are no restrictions on how the Internet is used in Sampa's telecenters, the project's coordinators hope to draw the users to the other key component of Sampa, its web portal. Through the portal, readers can find news from Capão Redondo as well as from non-profit groups working in the São Paulo area. They can also participate in the participatory budget process that began in the city in 2000, and obtain free

email accounts.

Two projects that are run within Sampa, called Bolsa Trabalho (Work Scholarship) and Começar de Novo (Begin Again), are means through which Sampa's coordinators hope to connect the telecenter with larger community involvement. The first is targeted toward students between the ages of 16 and 20, while participants in the second are aged 40 and older and unemployed for six months or longer. Both of the programs are six months in duration and provide training for work within the telecenters, as monitors or technical support staff; as community data collectors (on Capão's schools and hospitals, the data on which is presented to the city government); and as journalists, whose reports are posted in Sampa's online magazine (<http://www.agenciacapao.sampa.org/>). Participants earn a stipend for their work, prior to which they receive basic computer training, taught by students within the community or current telecenter monitors. For most of the participants, this course is the first time they have used a computer. For some, who are illiterate or semi-illiterate, working with the computers provides the chance to learn basic reading and writing. Following the computer skills course, each participant takes a course geared toward the specific function that he or she will be filling upon completing the training program. For example, those being trained as community journalists choose subjects they would like to write on (e.g., religion, health, education), and participate in discussions on the perceptions of Capão Redondo that are disseminated by the conventional media.

Sampa has also forged close ties with what has come to be known as the "hip-hop movement," the name given to the communities of hip-hop artists which are growing in number in poor areas of Brazil. Through working with Sampa, some of these artists have made clips of their songs available online (at <http://www.conceitosderua.sampa.org/>).

Telecenter staff members meet once or twice per month to discuss any problems they are encountering (with computers and other equipment, for example) as well as ideas for community-improvement projects involving the telecenters. (One example is the proposal of a project by Sampa coordinator Rodrigo Assumpção, which would be conducted in conjunction with a local development committee, with the goal of generating businesses and jobs within Capão Redondo.) The frequent meetings are important for keeping the project grounded, and for the telecenter staff members to remain connected to Sampa's goals.

While the telecenters in Capão Redondo are serving as Sampa's pilot program, the group is planning to eventually open 30 more centers in São Paulo—including 10 to serve homeless people in the center of the city. The successes that the Capão Redondo presence has had so far seems to bode well for the opening of the other planned centers. Assumpção

attributes this success to the project's being homegrown. For instance, the telecenters' locations in already-existing community centers, and the monitors coming from within the community. Jesolino Alves de Souza, an instructor in one of the centers, says this last factor has been key. "People are less afraid to use the computers when they are learning from people they know," he said. "They ask more questions. Some people have never used a mouse before, and they feel a little embarrassed the first few times. But after that, they feel much more comfortable."

Another component of Sampa's success is the diversity of its base of support—from private companies, as well as non-profit foundations, both Brazilian and foreign (including the American Chamber of Commerce) and local trade unions, in addition to its strong alliance with the local government. (Each of the telecenter programs I observed have garnered similarly large and diverse pools of support, although the extent of their ties with local government varies.) Ademir Castellari, a sociologist working with Sampa, acknowledges that the project will probably never become self-sustaining, but will continue to rely in part on government support. Sampa, in fact, has worked closely with City Hall in its own telecenters initiative, through which it has already inaugurated 12 telecenters of its own in other poor area of the city. The City Hall centers are staffed by a pool of volunteers which includes teachers, psychologists and engineers, all of whom are familiar with using the Internet and who pass on their skills to some 400 poor students each month. The City Hall's telecenter project is coupled with an e-government component, a website through which people may find local news, bus schedules, how to contact city officials, how to take part in the budget process. The city administration hopes to have implanted a total of 1,000 centers by the end of its mandate in 2004, primarily in poor and outlying areas of the city.

Assumpção, meanwhile, believes that Sampa's non-adherence to a strict "computer-school model" also bodes well for the project's success (although Sampa's telecenters do make courses available for those who want to take them). "In reality, people who work with computers don't learn from classes—they learn by sitting at a computer and playing with it," he says. "With some computer schools, the thought is to learn how to use a computer and that's it, when the important thing is what you *do* with the skills."

### **Porto Alegre: The Linux Experience**

Porto Alegre, capital of the southern state of Rio Grande do Sul, is known the world over for being seat to the World Social Forum. However, it is also well-known in the software world, for having hosted the Free Software Forum for the past two years (as it will

again in May of this year). Thus, it seems fitting that the city is emphasizing free software in the development of its telecenter program.

As in São Paulo, Porto Alegre has inaugurated telecenters in poor areas of the city, the first located in Chico Mendes Park, an area once notorious for drugs and violence (but since renovated and now a model of urban renewal). The telecenter serves around 500 residents, mainly adolescents. Trained monitors from the community—some as young as 14 years old—assist the new Internet users, who complete school work, check email and look for jobs. Yet the computers in this telecenter operate using Linux as well as Windows. Denise Paulsen of the Secretariat for Science and Technology, says that Linux software offers advantages that make sense in a program encouraging citizen empowerment. Because Linux's code is available to anyone using it, its users can customize the workings of their computers more easily than with Windows, providing users with more control over their experiences with them. Users can also resolve technical glitches more easily, so there is less need to rely on outside support. And, Linux generally costs less than Windows. Stocked with computers of both operating systems, Porto Alegre's telecenter offers its users the chance to become familiar with both. An introductory Linux course was held in early April at the second of Porto Alegre's telecenters to be inaugurated, Telecentro Vida.

Porto Alegre's new telecenter is not the only one using free software. The computers in Sao Paulo City Hall's telecenters are equipped with both the Linux and Windows operating systems. (It is interesting to consider the political link between the two cities: Sao Paulo is now run by the same political party--the Workers' Party--that has long ruled in Porto Alegre.) Instructors from the City Hall's telecenter are currently being trained to work with Linux; they will then pass on their knowledge to the center's users. The coordinators of the Porto Alegre and Sao Paulo initiatives see clear advantages to the users becoming familiar with the two systems. Thiago Guimarães, who works with the City Hall's project, says that in addition to Linux's advantages in terms of cost and capacity to be manipulated by users, those who are familiar with it now will have a head start, since the project coordinators expect free software to become more popular in years to come. (Indeed, some initiatives at the national level involve free software—the computers supplied for under FUST are to feature both Windows and Linux, for example, while the “micro popular” computer is available at a lower cost due partly to its operating on free software.)

As in Sao Paulo, the coordinators of the Porto Alegre project hope to move beyond these activities and use the Internet access to build something that will truly make a difference to the community. Eventually, this might include using the telecenters to connect users with the participatory budget process that has become a renown feature of Porto Alegre's governance, through which residents decide how a certain percentage of the

city's funds will be spent. However, as most of the telecenters' users are teenagers, more age-appropriate projects are under consideration are targeted more toward their "If the computers are used only for chat rooms and email, the telecenter can stagnate," said Claudia Regina da Silva, one of the teachers at the center. "What good is it to have youths in the centers, then return to the streets? We need to develop projects that will build self-esteem, and give them something to work toward."

Some of the ideas being discussed include an online photographic display of the community. According to da Silva, this would involve providing cameras and other equipment needed for the participants to take photos, develop them and post them online. Another project idea would center around a capoeira class currently held at the center. Students could use the Internet to research the history of capoeira, and to link with other groups around Brazil who practice it. Because the number of possibilities engendered by the new Internet connections is enormous, the center's coordinators hold frequent meetings to plan the steps they will take.

### **Rio de Janeiro: Favelas Online**

Information technology has come to two of Rio de Janeiro's largest *favelas* (shantytowns), and is bringing with it changes on many fronts, from the way business is conducted to making Internet access available to people who had never before touched a computer. Like the projects in Sao Paulo and Porto Alegre, Rio's includes the component of telecenters that provide low-cost (not free) Internet access, computer training, and the opportunity for residents to be trained to contribute to a web portal. However, the geography of Rio's favelas has resulted in a factor that sets this project apart from those in Sao Paulo and Porto Alegre. Because telephone lines have not yet arrived here, Internet access has come via radio waves.

Since last summer, Rocinha and Mare, Rio de Janeiro's two largest favelas, have received access through Taho, a Brazilian ISP which relies on Israeli military-developed, radio-wave technology. Each of the two favelas hosts a telecenter based on this technology, as part of a program called Viva Favela that is the product of Viva Rio, one of the city's largest NGOs.

Some of the telecenters' activities are similar to those in Sampa: residents of the community are trained as reporters for the project's web portal (although in Viva Favela, most of the reporters are teenagers); and computer training is available at the telecenters. (The classes are in high-demand, and have been over-subscribed.) One difference, meanwhile, in comparison to other telecenter programs is that those who use the Internet in Rocinha and

Mare must pay for access: one *real* per half hour (or about 40 cents). Oscar Valporto, a webmaster for Viva Favela's portal, said that paying the nominal fee allows users to feel they are contributing to the community's improvement.<sup>19</sup>

While the radio-wave access was installed free of charge in the new telecenters, it is available for purchase to homes and businesses in the favelas. Its cost places it out of the reach of most residents (after an installation fee of around R\$150, access per month is around \$40). Viva Rio receives one percent of the revenue from access sales. In conjunction with the new telecenter and Internet access system, residents of Rocinha will have the opportunity to buy computers at low cost (around R\$300) through credit lines provided by Viva Cred, an offshoot project of Viva Rio.

The introduction of Internet technology in the favelas is also changing the way that business is conducted in the favelas, as merchants are now able to buy goods wholesale through the Viva Favela portal. Since August 29 of last year, merchants in Rocinha and Mare have been able to make joint purchases at lower prices (generally 10 percent lower than they would be otherwise), and pass the savings to consumers. This is helping to reverse the trend of goods typically being more expensive in favelas, since most locations inside of them are difficult to access.

The merchandise-buying service is made possible by Mercado Eletronico, a business-to-business Internet company which works with small- and medium-sized firms. In spite of Rocinha and Mare being poor communities, they are attractive to firms like Mercado Eletronico because they are home to a vast number of small businesses in need of reliable suppliers. Because store owners in the favelas are more likely to pay cash for their supplies, there is not the same risk of default that might exist if credit were used. The credibility lent to the Viva Favela program by its funders—which include the Inter-American Development Bank, Rede Globo (Brazil's largest media group) and even the European Union—helps as well. Currently, over 3,000 merchants in Rocinha and Mare are said to be purchasing their goods through the portal.<sup>20</sup>

A final feature of the Viva Favela project which distinguishes it from other initiatives is that it recently spawned a community radio network. Launched in February, 2002, the network of 10 radio stations provides news reports which are supplied by Viva Favela's community correspondents, and the music of artists living in the favelas. The programming is live daily, between 8 a.m. and midnight. Interestingly, Radio Viva Favela—and the rest of the portal—have been receiving a substantial share of attention from abroad. An estimated 20 percent of the portal's hits come from outside of Brazil.

## **Learning from Mistakes**

Along with noting the successes experienced by the telecenter projects thus far, it is perhaps worth mentioning some of the lessons they have learned along the way. Some valuable insight came from Humberto Moreira, executive director of Telecentros Brasil, in a June, 2001 conference which brought together coordinators and volunteers in telecenters projects currently happening in Brazil.

Although Telecentros Brasil now appears to be on its way to being a successful program, it first had to endure some hardships. The project began in October, 2000 and is run by the Regency Foundation, a non-profit group based in England. The project grew out of Regency's prior meetings with the United Nations-affiliated Latin American Congress and a desire to create something practical and helpful for poor Brazilians. Yet in spite of the research that he and others from the Regency Foundation conducted before choosing an area and community organizations to house their first telecenters, Moreira said they did not realize how difficult it would be to choose a site that would remain viable. One of their two telecenters closed within months of opening.

Moreira said the project's original plan was for the centers to be self-sustaining from the time they opened. Users were charged R\$3 for access, and R\$30 for a two-month course in basic computer skills. Yet perhaps due to the chosen community organization's lack of prior experience in running a telecenter, it ran out of money. Moreira now acknowledges that the recipients need more support in the beginning, and his project now aims for each site to be self-sustaining after one year of operation. In exchange for financial support, the community centers which are chosen to host the telecenters must continue to demonstrate their interest and capability in running them.

Moreira says that while the experience was painful, it is in hindsight valuable for the lessons it can teach to other groups starting telecenter projects. Moreira now applies these lessons to Telecentro Brasil's other site, in São Paulo's largely impoverished eastern zone. This center has thus far been successful, which Moreira attributes partly to the strength and credibility that had already been established by the community center it is housed in. "It's much easier to work with an established community organization and the people there," he said.

Yet Moreira also admits that his group's relationship to the telecenter has changed with the lessons learned from the center that failed. "We started out by giving too much direction in how to run the telecenters," he said. "Now, we're more open to suggestions from the community. We emphasize that the center belongs to the community, and we ask them what they want to do with it."

Following the community's lead, the center now has computers available only for Internet access (in addition to computers used for classes and Internet access). Although the center still offers its series of beginner computer courses (according to a curriculum developed by the computer science program of a local university), Moreira said he's found it more sensible to allow the telecenter's users to decide what they want to learn with the computers. "There were some students in a class who would be using the computer for other things while certain skills were being taught," he said. "We decided go with that. If someone wants to email his girlfriend, that's fine. If someone wants to figure out a budget using Excel, that's fine, too."

At the same time, Moreira is wary of allowing too much freedom. Since the telecenters are a new experience, he said, the staff sometimes looks to Moreira and the other coordinators for suggestions, which until now have included community projects using the Internet and business and arts courses to be taught at the centers. A partnership with a national organization that supports small businesses and cooperatives will enable Telecentros Brasil to offer courses in marketing and accounting.

Telecentros Brasil is not alone in having had a disappointing experience. Last year, a telecenter that was part of a government initiative opened its doors with great fanfare—only to be abandoned and locked within six months. Coordinators agree that maintaining the centers is much more difficult than opening one. Today, Telecentros Brasil finds itself facing the same issues as similar projects: listening to and guiding their communities, and perhaps most difficult of all, figuring out the centers' places in improving conditions within their communities.

### **PORTO DIGITAL: Linking the Past and the Future in Recife**

The past and present have long co-existed in Recife, the capital of the northeastern state of Pernambuco. Ornate colonial buildings in the old city center stand as testaments to the wealth that came from its dominance in sugar production three centuries ago. Yet the peeling facades and the poor who approach visitors for spare coins or food evidence the decline that Recife later experienced. Now, in the wake of a revitalization plan that began fixing up some of the dilapidated buildings a few years ago, new life is being pumped into the heart of Recife—via technology.

Porto Digital, or digital port, is a joint effort of the state government, private enterprise and the Inter-American Development Bank (IDB) to transform Recife's waterfront into a high-tech corridor. A good part of the program's funding—somewhere in

the vicinity of \$13 million—comes from the privatization of the state's electricity company (CELPE). Long buildings that once warehoused sugar will now shelter incubators for IT firms; the former "Capitânia dos Portos" will, if all goes according to plan, be home to a high-tech "think tank" that will unite computer scientists, engineers and entrepreneurs (in the style of MIT's Media Lab.)

Twenty-six companies including Oracle, Motorola and Microsoft have already moved in or are in the process of moving into the area, with a total of 100, including Nokia and Siemens, projected for the end of this year. The new arrivals are expected to be a huge economic boon for Recife. According to the Pernambuco Institute of Planning, they should help to raise local companies' profits from \$72 million last year to \$223 million this year.

The project's founders, meanwhile, stress that it is not merely another Silicon Valley that is being planned. Rather, the aim is to capitalize on the resources the city already has. Start with the computer science program at the federal university in Recife. Although it is one of the best in Brazil, it loses about half of its graduates each year to larger cities, such as São Paulo, that have more job opportunities, or to companies like Microsoft, which comes to Recife every summer to recruit promising grads.

"We need to create challenges here in Recife so that people will want to stay," said Silvio Meira, a professor at the federal university and one of the creators of Porto Digital. "Either we create a world-class place, or graduates will keep leaving."

The way in which the project is creating challenges is through a university-based organization called CESAR, or Recife's Center for Advanced Studies and Systems. Meira, who also serves as CESAR's president, refers to the organization as an "enterprise factory." CESAR generates small companies whose purpose is to solve problems frequently encountered by businesses. One of the first CESAR-generated companies, called Radix, is the search engine for iG, Brazil's best-known free Internet service provider. For Porto Digital, the idea is that companies started by CESAR will open in the port area, and attract investment which will enable more businesses to open. The first CESAR company in the port area, Vanguard, opened in June. Others which have followed have included an online news service called NewsStorm.

Porto Digital is aiming not only to keep workers in Recife, but also to attract workers from outside of the city. A human capital fund accompanying the project would provide competitive salaries to those considering Recife. The project's founders are also hoping that the city's warm, mainly dry climate could work in its favor—as could its lack of congestion, relative to Rio and Sao Paulo. Porto Digital also presents its advantages of location to businesses, since wages in northeastern Brazil are around 30 percent lower than those in other

parts of the country. Additionally, while the general tax on companies' profits is five percent in Recife, those in the Porto Digital area will be capped at three percent.

Porto Digital also has a component of digital inclusion. On March 23 of this year, a computer skills program was inaugurated in Favela Pilar, a housing project serving some 300 poor families in the port area. The program is funded by Porto Digital's human capital fund and run by the Committee for the Democratization of Information Technology (CDI), which has established low-cost schools in other impoverished areas of Recife and throughout Brazil. Residents of the housing project are now offered CDI courses, which include basic Windows skills, English and programming languages. A hope is that eventually, those who complete the training might work in some of the businesses which will open in the port area. Porto Digital's steering committee has also submitted a proposal to the national telecommunications ministry (Anatel), through which 93 of Pernambuco's libraries could receive free Internet access through FUST.

In the conceiving of Porto Digital, its creators have tried to combine their own elements with those of already-existing technology clusters. "We're taking ideas from what's already been tested and proven," Marinho said. "We're not looking to re-invent the wheel." In the beginning, for example, Porto Digital will receive plenty of government support. Every *real* invested by the private sector will be matched by a *real* from the government. Yet the founders acknowledge that eventually, the project will need to be self-sustaining. "In order to be truly successful, the project needs to be able to run on its own," Meira said. "You can help it begin, but then you should be able to leave it alone and watch it grow."

### **An example for the rest of Pernambuco**

If successful, Porto Digital might well serve as a model for revitalizing the rest of Pernambuco state, which is among the most impoverished in Brazil.

Jose Carlos Calvacante, president of the state foundation for technology and support (FACEPE), said that state officials are trying to enrich the state and improve living conditions for its residents through science and technology, in a way exemplified by Porto Digital.

In Calvacante's vision for a more digital state, partnerships between universities and the private sector will be a driving force, as in Porto Digital. Calvacante acknowledges that the greatest challenge will be preparing the population for a more technically-oriented society. "We will not succeed if we don't train our population," he said. "We need to create something that comes from the state and from its people. Otherwise, it will fail."

Since all of Pernambuco's 184 municipalities are already linked to an Internet backbone, the challenge now facing Calvacante and leaders of social organizations throughout the state is finding how to use it to best serve the population. Many of the state's residents are illiterate, which will make the work more difficult. Calvacante calls for using the Internet creatively. Instead of focusing on computer skills training, for example, he says a more efficient use of information technology might be to teach the state's artisans and farmers to use the Internet to sell their goods, particularly in towns well known for their arts and crafts, or fruits and vegetables.

Just as in Porto Digital, Calvacante's vision for a more information-based Pernambuco state will be something with a distinctly home-grown feel. "We are trying to use our most unique advantages," he said. "We have traditions of samba, freva and arts and crafts. I get angry when I hear people say that Pernambuco is so poor. That's overlooking what we do have, and what is special to this region."

### **History of Innovation in Recife**

Long before Porto Digital was conceived, Recife had already established itself as an innovator in its use of the Internet.

This is not surprising, given that Recife is home to one of Brazil's top computer science university programs and is a major exporter of software. In 1993, it was in Recife that a project called the Citizens' Network was born. Through this project, residents could attain free access to the Internet and to a website with information about Recife, including public expenditures and pricing surveys for supermarkets and bookstores. It was perhaps Brazil's first "e-government" initiative. Residents could look to the website for information on the participatory budget, through which residents had a say over how a portion of city funds were spent. They could also write to the mayor, Jarvis Vasconcelos, who was the first in Brazil to have an email address. Besides this, residents could also contribute to the Recife website by posting information on the city's history and culture.

Free dial-up access was made possible through two telephone lines, which was no small feat in the Brazil of 1993. According to Citizens' Network creator Claudio Marinho (now the State Secretary for Science and Technology), many residents were still without telephone service, and telephone lines were going for \$3,000 a piece. "It's hard to imagine now how revolutionary this service was at the time," Marinho said. "But for Brazil then, it was extraordinary."

Along with the local education bureau, Marinho set up public Internet centers in school

libraries, where residents could access the network free of charge. In addition, five public access centers on the city's periphery and connected to the project's servers were opened, one of which featured software for use by handicapped and blind residents. Recife residents also had the option of accessing the network from their homes, by purchasing modems and obtaining a free copy of the Citizens' Network software. (Of course, the cost of a modem placed the option of private access out of the reach of many residents.)

Despite interest in the project-more than 600 residents took copies of the software-the Citizens' Network encountered resistance that kept it from moving forward. Marinho said the prospect of connecting all the city's schools to the Internet was discussed, but at that time, not enough people were ready for such a change. Marinho believes that Porto Digital will fare differently, given both the government and private funding it has already drawn, and that Brazilians are now more accustomed to living with information technology.

Some of the free access centers opened during the time of the Citizens Network are still operational today, as is Recife's website, which now includes an area where residents can file tax forms online.

### **CDI: The Pioneering Effort**

A discussion of digital inclusion measures taken in Brazil would be conspicuously incomplete without mentioning the chain of computer schools under the name of CDI, or the Committee to Democratize Information Technology. CDI is still perhaps Brazil's best-known effort to bridge the digital divide, due to its being the first undertaking of its kind in Brazil and to its aggressive marketing by its founder, Rodrigo Baggio, in Brazil and abroad. Since its beginning in 1995, the program has opened some 311 schools (called "citizenship schools") in favelas and other poor communities throughout Brazil. Currently around 94,000 students are served. In some instances, CDI graduates have gone on to find internships with IT companies. The program has attracted support from heavyweights including Microsoft, Compaq and Siemens. Twenty-five schools CDI-inspired have opened abroad, in other Latin American countries as well as Japan and Korea. New York City might even get a school, which would serve primarily immigrants from Colombia in Queens.

The citizenship schools offer six-month basic and advanced courses which cover all of the programs in Microsoft Windows (Word, Excel, Power Point). Some schools also cater to students with particular needs: for example, basic reading and writing instruction (some students, upon entering the schools, do not have the literacy needed to use a computer); or to

a particular purpose (for instance, programming languages and English in Recife's waterfront area, where it is hoped that some graduates will work or intern in the IT companies that are opening there). In most citizenship schools, students pay a monthly fee of around R\$10 (US\$4)—half of which goes toward paying instructors and the rest toward maintaining the schools' computers and other equipment—though this is up to the individual school. According to Carlos André Ferreira, CDI's director of communications, the fee is symbolic: although CDI is heavily funded (by Microsoft, the American Chamber of Commerce, Siemens and the W. K. Kellogg Foundation, among other organizations), students are more likely to feel engaged in their learning when they give something for it, even something small. Communities wishing to host CDI schools must demonstrate that they have the resources to maintain them. Once approval is given, school administrators may decide on course schedules (according to the age and skill level of the students), and how much (or, even if) they will charge students per month.

Each community which hosts a citizenship school may also decide how it wishes to tailor the curriculum to the needs of the community. Instructors in one school located in an agricultural area of Pernambuco state taught students to graph egg production on the computers. Students in another school in an indigenous community decided to call the computer by a name derived from their language. The point is that the technology must be made relevant to the students' lives, or the students will lose interest. In some communities, according to one CDI instructor in Recife, this has meant building lessons around pregnancy or working with Excel to plan budgets.

The instructors in CDI schools are often former students, and are often very young—sometimes 14 or 15. Paulo Ferreira of CDI-Recife says this is advantageous, since students are likely to feel less inhibited in using computers for the first time when they are learning from peers. Another advantage, said one instructor and former student in Rio de Janeiro, is that it allows continued contact with computers after training has finished, since it is rare that people within CDI-site communities have computers at home.

For all the accolades CDI has received for its efforts worldwide--and the undeniable positive impacts it has had on its students--the program has also come under criticism. A study conducted in 1999 and 2000 of 45 citizenship schools near Rio de Janeiro found that many used old equipment, some of which did not function properly<sup>21</sup>. At the time of the study, only one of the schools surveyed had Internet access. One problem cited by many students who were surveyed was lack of time in which to use the computers. Most of the CDI schools did not (and quite possibly, due to limited resources in some communities, could not)

offer time outside of the 40-minute classes. Also, because in many schools two students share a computer, even less computer time is permitted each student.

Another interesting finding of the study was in respect to the matriculation fee. Although low, many people who live in the communities in which CDI schools are located lack the money needed to attend. Ana Quiroga, one of the researchers behind the study, noted that there is a socioeconomic hierarchy among those living in the favelas. Those near the bottom, she said, are preoccupied with survival, and attending a CDI school is a luxury.<sup>22</sup> Finally, some thinkers on the digital divide problem--particularly those involved with telecenters--believe the computer school model falls short as a solution. Although there have been success stories among CDI graduates, most of them, Quiroga noted, do not go on to computer-related jobs. Unless the graduates become instructors, they might have few opportunities to maintain the computer skills they learned.

Yet CDI enthusiasts and detractors would agree on some points: mainly, the schools provide a constructive alternative for people living in poor communities, in some of which drug trafficking is all too common. Quiroga said the schools are important in building self-esteem for young and old students alike, and providing new senses of possibility. These impacts are evident inside the CDI classrooms. At one school in the Rio de Janeiro favela São Carlos, 21-year-old Heloisa da Silva used Power Point to create a promotional flyer for her company, with which she records birthday and holiday parties (CDI helped fund a grant to further Heloisa's work). As other students in the classroom focused on their own creations, some expressed a desire to work with computers in the future, and said they considered becoming teachers in the citizenship schools to keep up their newly acquired skills. Going through the citizenship schools offers an indirect benefit, acknowledged by Quiroga and others--even if graduates do not go on to jobs in the computer field, they have acquired skills that are often asked of applicants for non-technical jobs. (Ferreira explained that in tight economic times, applicants are asked if they have computer skills--even if the job in consideration does not require them--as a way to separate applicants.)

The CDI model is being integrated, to varying extents, into many of the telecenters that are spreading throughout Brazil. Porto Alegre's recently-inaugurated center, for instance, will offer CDI courses. Other telecenters (in Sao Paulo and Rio) are offering courses similar to CDI's-- some package of basic and more advanced Windows skills. Meanwhile, one of CDI's main challenges is offering Internet access to more of its schools. To do this, the organization is striking deals with Internet service providers and telephone companies for low-cost access and reliable telephone lines for the schools. Due to the good name it has built for itself, it is likely that it will succeed.

## NGOs AND THE INTERNET

Brazil's non-governmental organizations (or Civil Society Organizations, to use the term that is currently en vogue) are a massive but dispersed bunch. By one estimate<sup>23</sup>, there are as many as 250,000 throughout the country. Because the very definition of NGO is vague, the number includes small church-affiliated groups and small political groups (political parties are even considered NGOs in Brazil). Some band and disband quickly, often due to a lack of monetary and/or human resources.

One group based in Rio de Janeiro is working to make Brazil's NGOs more visible and therefore, more effective resources. The Information Network for the Third Sector, or RITS, is aiming to organize information about non-governmental groups throughout Brazil, give them Internet space where they can describe their purpose and services they offer, and to help NGOs become more organized by providing them with technological tools. These tools include an intranet system, through which organizations can post documents and plan projects with other RITS-affiliated organizations; and a template through which organizations can create and post a bulletin board without needing to know HTML.

RITS has also given computers to NGOs throughout the country. Some of the recipient NGOs are in remote areas where telephones are hard to come by, much less computers. "For those of us who are used to using them, one computer is nothing," said Claudia da Paiva of RITS. "But for people who have never seen one before, the impact is enormous." Some of the recipients have even banded together to help each other adapt to the new tools, Da Paiva added.

Indeed, Brazilian NGOs are beginning to use technology in ways in which organizations in other countries have been doing for years. Yet to the Brazilian groups, the new opportunities offered by computers and the Internet are revolutionary. A coordinator of a women's group in Sao Paulo (that also received a computer from RITS) said that computers and the Internet have enabled her group to post electronic bulletin boards and notices for other organizations, and most importantly, to form links with like-minded groups. While this particular women's group has had Internet access for the past four years, the coordinator said it has just begun this year to use the advantages of the Net. The group recently formed a partnership with a local technology company, through which teenagers will be trained to maintain and post new content for the group's website, which was launched in August. The ability to post a homepage for the world to see-after having worked for years on a tiny scale-is something to be excited about.

Yet while some NGOs are reaping information technology's rewards, some prefer to do

without. Da Paiva and others working in the field attribute this to a lack of Internet culture in Brazil, or a distrust or lack of awareness of information technology. Indeed, most of Brazil's NGOs that currently have information posted online receive international funding. The enthusiasm for having a website seems not to have spread yet to many local groups.

In June of 2001, as part of an effort to learn how computers and the Internet have benefited or could benefit NGOs, RITS sent 2,500 surveys to organizations throughout Brazil. Only 125—five percent—of the groups responded. The survey had even included an item asking NGOs if they would want to be given Internet access; even this failed to generate enough interest for a response. Unless more interest is generated, some difficulty could be posed for the FUST initiative, given that NGOs are planned as hosts for many of its telecenters. Da Paiva says part of the problem is that in order to receive FUST resources, NGOs must change their legal status to OSCIP (Civil Society/Public Interest Organization), which many are reluctant to do since they would be held to higher standards of financial accountability by the government.<sup>24</sup> A fear of those working for universalization of access is that the centers could languish from neglect after being implanted, without sufficient interest and dedication. Organizations like RITS are trying to spread enough of the Internet culture to keep this from happening. Whether or not they succeed remains to be seen.

## **CONCLUSION**

Within the next couple of years, Internet access will be extended to millions of Brazilians, if FUST proceeds according to plan. The greatest question will be how the Internet will be used, and if the technology will be harnessed toward transforming living conditions and creating a more equitable society. While different groups have tried to address the digital divide problem in different ways, they share a common, overriding philosophy: that information technology is not to be used in a vacuum, that it should be directed toward achieving larger social goals. The coordinators of the telecenters and information technology projects agree that in order for the technology to be meaningful, it must be relevant to people's lives, and build on the diverse resources their communities and cities already have—whether they are a university with a world-class computer science department and a warm, sunny climate, as in Recife; or a city government that is actively trying to increase citizen participation, and a vibrant hip-hop “movement,” as in São Paulo. Telecenter coordinators, meanwhile, are allowing communities more autonomy in deciding how to use the centers, and trying to foster a sense of ownership among the communities in regards to

the centers. Yet the coordinators are trying to balance this ownership with guidance, recognizing that concrete ideas are needed to transform the Internet into a tool that is truly helping the community. To this end, frequent meetings are an important part of the telecenter projects, bringing together participants' ideas and efforts, and setting goals.

It seems that enough initiatives are in motion so as not to repeat the pattern of information technology adoption in Brazil (and in other developing countries) during the 1990s, when pockets of growth and wealth emerged among a backdrop of continued poverty. Perhaps all entities involved, from private companies to NGOs to local and even national government realize that too much is at stake to allow the digital gap to grow unchecked. As Internet pioneer Silvio Meira pointed out, Brazil dominates the world in numbers of armored cars—a symbol of the rich protecting themselves against the many discontented poor. The joint efforts of city and national governments with groups like Sampa, Viva Favela and CDI are setting a different trend, connecting with communities and finding ways to use technology that are benefiting all who wish to become involved.

Although it is too early to know how these projects will fare, the signs are promising, from the IT companies and CDI-sponsored school opening their doors in Recife's port area to the community news agencies comprised of teenagers living in Rio's favelas, who are being trained to report on and post news that offers an alternative to the images of violence and despair that are conveyed by conventional media. At some point in the future, significant questions will need to be answered, including how the projects will measure their successes and keep moving forward. In regards to the projects in São Paulo and Porto Alegre, it remains to be seen if and how government support would change, if a different political party were to take over. For now, there are the numbers of how many community residents frequent the telecenters and computer classes (both are generally full), and the testimonies of telecenter users and monitors. In the future, however, the projects might need to prove their worth in different ways: for instance, internship and job training programs that further integrate the projects with their cities might need to be implemented, or other outreach initiatives that demonstrate the incorporation of the telecenters within their communities. Yet as the impact evaluation of Rio's CDI schools showed, one of the most important outcomes has been increased senses of competence and self-esteem among users, which is intangible. The matter of how to quantify the success of the projects will most likely be an important one within the next few years.

Time will also tell, of course, what becomes of the FUST initiative— if teachers will be trained, when and if the telecenters will be built, how they will be maintained. Perhaps, in this regard, the small-scale projects looked at in this paper could provide some guidance for the large-scale universalization plan. In this regard, the upcoming presidential elections

might play a part, as the current front-runner, Luiz Inacio (“Lula”) da Silva of the Workers’ Party, might be more apt than his opponents to work toward telecenter programs like those in São Paulo and Porto Alegre. Yet regardless of how it happens, the spread of Internet access to remote areas whose residents do not now have telephones or electricity, it is likely that some people will be distrustful and hesitant to accept the new technology. Overcoming distrust and fear of the new technology will require encouragement and concrete planning toward improving social and economic conditions.

As we wait and wonder, it is worth remembering that for Brazilians who have never before had Internet access, being able to look for work, post resumes or find homework help online are examples of digital inclusion. Yet in a country with the degree of inequality that Brazil has, access alone is not enough. Now is a crucial time to see that “digital inclusion” does include as many people as possible. We can hope that given the combined efforts of the government, private companies and communities, that there is too much momentum to turn back. Perhaps Brazil is truly on its way to finding the Internet's place in its society, as a tool to help along true social change.

**NOTES:**

<sup>1</sup> Educational ICT Pilot Initiatives: Brazil Country Report. Compiled by Sun Microsystems, Organizações Globo, and the Committee for Democracy in Information Technology (CDI) for the World Economic Forum, New York, 2002.

<sup>2</sup> To give a more concrete idea of this, the percentage of Internet users in the U.S. is around 53 percent, according to the United Nations Development Programme's Human Development Report, 2001.

<sup>3</sup> Educational ICT Pilot Initiatives: Brazil Country Report, World Economic Forum, 2002. It is also worth noting here that out of Brazil's 6,000+ municipalities, only 350 have Internet access, according to Carlos Afonso, pioneer of the Internet in Brazil.

<sup>4</sup> *Brazil Online: Demographics, Usage Patterns and e-Commerce Trends*. Report by e-Marketer, April 2001.

<sup>5</sup> Educational ICT Pilot Initiatives: Brazil Country Report, World Economic Forum, 2002.

<sup>6</sup> The "micro popular" is based on free software and a flash memory card instead of a hard drive. It has been written on in, among other publications, *Diario de Pernambuco* (Sol, Eduardo, "Micro popular chegará em Outubro," May 23, 2001.)

<sup>7</sup> Although the size of the Brazilian market is already considered large enough to warrant e-commerce ventures—despite of the small online population—because of Brazil's huge base population.

<sup>8</sup> More information on the Citizens' Network can be found online at <http://www.isoc.org/isoc/whatis/conferences/inet97>.

<sup>9</sup> According to Jupiter Media Metrix/IBOPE survey, 2001.

<sup>10</sup> In Rio de Janeiro, the NGO Viva Rio recently inaugurated a program called "Radio Viva Favela," which connects ten community radio stations via the web.

<sup>11</sup> Afonso, Carlos A. "Internet no Brasil: O Acesso para todos é possível?" Rio de Janeiro, July 2000.

<sup>12</sup> For example, Quiroga, Ana M. and Patrick Larvie, *Impact Evaluation of CDI* (for the Institute for Religious Studies), Rio de Janeiro, 2000.

<sup>13</sup> In fact, among participants in Sampa.org, one of the projects discussed later in the paper, printing out tax forms was among the most frequent requests.

<sup>14</sup> Significantly, both the city of São Paulo and the state of Rio Grande do Sul are run by the leftist Workers' Party, which has made increased civic participation a key part of their platform.

<sup>15</sup> Larvie discussed his findings on a Columbia University conference ("Digital Dilemmas: The Divide in Latin America") February 2, 2001.

<sup>16</sup> Among the criteria that are considered in determining which entities will be equipped for Internet access are the interest of the people working in them, and the level of resources to maintain computers and access (i.e., monitors, someone to resolve technical problems, etc.)

<sup>17</sup> According to Internet pioneer Silvio Meira, at the time that planning for FUST was in full force, presidential aspirations might have played an important role, as the ministers of education, culture and health—the three areas benefiting from the fund—all were considering a run for president.

<sup>18</sup> Meira, Silvio. "Futuro: Previsoes que funcionam," in *no.* (online), December 28, 2001.

<sup>19</sup> I wondered if, however, the R\$1 charge, though nominal, would deter the poorer residents of the favelas from using the telecenters. I have posed this question to a couple of people working with the program, and have not received an answer.

<sup>20</sup> This figure from *Gazeta Mercantil*, August 23, 2001. I have tried to verify this number through Viva Favela—and to speak to merchants using the online service—but thus far have been unsuccessful.

<sup>21</sup> The study referred to here is Quiroga, Ana M. and Patrick Larvie, *Impact Evaluation of CDI* (for the Institute for Religious Studies), Rio de Janeiro, 2000.

<sup>22</sup> There is a youth foundation in Rio—Fundação Adolescente—that runs free computer schools for students who cannot pay a monthly fee.

<sup>23</sup> This figure from the Information Network for the Third Sector (RITS).

<sup>24</sup> The law concerning OSCIPs was enacted in 1999. OSCIPs are essentially NGOs which consent to higher degrees of transparency and are rewarded with greater credibility (and are therefore better candidates for funding).

## BIBLIOGRAPHY

Afonso, Carlos A. "Internet no Brasil: O Acesso para Todos e Possível?" Report for RITS (Rede de Informacoes para o Terceiro Setor). Rio de Janeiro, July 2000.

- Afonso, Carlos A. "Internet para Todos: Tão Perto e Tão Longe." In *Noticias e Opiniões* (online), February 12, 2001.
- Afonso, Carlos A. "Internet: Quem Governa a Infra-Estrutura?" Report for the Friedrich Ebert Foundation. Rio de Janeiro: February, 2001.
- Afonso, Carlos A. (coord.) "Internet Access and Effective Use by Third Sector Organizations in Brazil." Report for the International Development Research Centre (Ottawa, Canada), June 30, 2001.
- Assumpção, Rodrigo Ortiz D'Avila. *Alem da Inclusão Digital: O Projeto sampa.org*. Dissertation for the University of São Paulo (2001). Available online at <http://www.sampa.org>.
- Belejack, Barbara. "Cyberculture Comes to the Americas." In *NACLA Report on the Americas*, November/December, 1996.
- "Brazil: Internet Development for Whom?" A Stanford University study, December 6, 1999, available online at <http://www.stanford.edu/~muse/brazil/>
- Brazil Online: Demographics, Usage Patterns and e-Commerce Trends*. Report by e-Marketer, April 2001.
- Feijo, Leonardo. "Rocinha Ganha Internet Revolucionária." In *Globo*, June 13, 2001.
- German, Christiano. *O Caminho do Brasil para a Era da Informacao*. Recife: Universidade Federal de Pernambuco, 2000.
- Livro Verde* (Report on Information Technology in Brazil). Sociedade da Informação no Brasil, September, 2000.
- Marinho, Claudio. "The Citizens' Network of the Municipality of Recife, Brazil." Paper presented at the Internet Society 1997 conference, available online at <http://www.isoc.org/isoc/whatis/conferences/inet97>.
- Meira, Silvio. "Futuro: Previsões que Funcionam." In *Noticias e Opiniões* (online), December 28, 2001.
- Meira, Silvio. "Universalização de Acesso a Internet: O Tamanho da Solução." In *Noticias e Opinoes* (online), March 16, 2001.
- Meira, Silvio. "Universalização de Acesso: Mais um Capitulo." In *Noticias e Opinoes* (online), December 14, 2001.
- "Merchants in Rio Shantytown to get Online Access for their Business." Reuters article, August 30, 2001. Available online through Lexis-Nexis database.
- "Não Basta Formar Apertadores de Teclas." Interview with Walter Pinheiro (Congressional leader of Workers Party), February, 2002. Available online through <http://www.sampa.org.br>.
- Oliveira, Edmundo M. "Pernambuco em Viagem de Volta para o Futuro." In *O Estado de São Paulo*, December 2, 2001.

Pimenta, Angela. *El Dorado in Cyberspace: How the Internet is Changing Latin America* Masters project for Columbia University, New York: 2000.

Quiroga, Ana M. and Patrick Larvie, "Impact Evaluation of CDI." Report for the Institute for Religious Studies), Rio de Janeiro, 2000.

Rebêlo, Paulo. "Reinventing Recife as Tech Harbor," in *Wired* (online), January 18, 2002.

Rohter, Larry. "As Brazil Market Grows, So Does the Free Access Dispute." In *New York Times*, p. H4, September 20, 2000.

Other Websites:

Anatel: <http://www.anatel.gov.br>

CDI (Committee for Democracy in Information Technology): <http://www.cdi.org.br>

RITS (Information Network for the Third Sector): <http://www.rits.org.br>

## ACKNOWLEDGEMENTS

Thanks to those whom I interviewed, to those who showed me around and especially those who fed me, gave me shelter and guidance around the cities I visited in Brazil:

Recife: Paula Fontenelle, Claudio Marinho, Secretary for Science, Technology and the Environment; Cristiano Andrade, Porto Digital, Jose Carlos Calvacante, FACEPE; Silvio Meira, CESAR, Porto Digital; Simon Hancock, BBC; CDI-Recife.

Rio de Janeiro: Antonio Lamas and the Lamas family; Carlos Afonso and Claudia Paiva, RITS; Graciela Baroni Selaimen, RETS; Carlos Andre Ferreira, CDI; Oscar Valporto, Viva Favela; Ana Maria Quiroga; CDI-São Carlos.

Sao Paulo: Ademir Castellari, Mauricio Falavigna, Rodrigo Assumpção, Sampa.org; Pascoal Marmon, Junior and Fernando Arcobello.

Porto Alegre: Denise Paulsen, Ministry of Science and Technology; Ilton Freitas, PROCEMPA; Telecentro Chico Mendes.

Many thanks also to Barbara Belejack, Mario Murillo and George Yudice.

---

<sup>1</sup> Educational ICT Pilot Initiatives: Brazil Country Report. Compiled by Sun Microsystems, Organizações Globo, and the Committee for Democracy in Information Technology (CDI) for the World Economic Forum, New York, 2002.

<sup>2</sup> To give a more concrete idea of this, the percentage of Internet users in the U.S. is around 53 percent, according to the United Nations Development Programme's Human Development Report, 2001.

<sup>3</sup> Educational ICT Pilot Initiatives: Brazil Country Report, World Economic Forum, 2002. It is also worth noting here that out of Brazil's 6,000+ municipalities, only 350 have Internet access, according to Carlos Afonso, pioneer of the Internet in Brazil.

<sup>4</sup> *Brazil Online: Demographics, Usage Patterns and e-Commerce Trends*. Report by e-Marketer, April 2001.

<sup>5</sup> Educational ICT Pilot Initiatives: Brazil Country Report, World Economic Forum, 2002.

<sup>6</sup> The "micro popular" is based on free software and a flash memory card instead of a hard drive. It has been written on in, among other publications, *Diario de Pernambuco* (Sol, Eduardo, "Micro popular chegará em Outubro," May 23, 2001.)

<sup>7</sup> Although the size of the Brazilian market is already considered large enough to warrant e-commerce ventures—despite of the small online population—because of Brazil's huge base population.

<sup>8</sup> More information on the Citizens' Network can be found online at <http://www.isoc.org/isoc/whatis/conferences/inet97>.

<sup>9</sup> According to Jupiter Media Metrix/IBOPE survey, 2001.

<sup>10</sup> In Rio de Janeiro, the NGO Viva Rio recently inaugurated a program called "Radio Viva Favela," which connects ten community radio stations via the web.

<sup>11</sup> Afonso, Carlos A. "Internet no Brasil: O Acesso para todos é possível?" Rio de Janeiro, July 2000.

<sup>12</sup> For example, Quiroga, Ana M. and Patrick Larvie, *Impact Evaluation of CDI* (for the Institute for Religious Studies), Rio de Janeiro, 2000.

<sup>13</sup> In fact, among participants in Sampa.org, one of the projects discussed later in the paper, printing out tax forms was among the most frequent requests.

<sup>14</sup> Significantly, both the city of São Paulo and the state of Rio Grande do Sul are run by the leftist Workers' Party, which has made increased civic participation a key part of their platform.

<sup>15</sup> Larvie discussed his findings on a Columbia University conference ("Digital Dilemmas: The Divide in Latin America") February 2, 2001.

---

<sup>16</sup> Among the criteria that are considered in determining which entities will be equipped for Internet access are the interest of the people working in them, and the level of resources to maintain computers and access (i.e., monitors, someone to resolve technical problems, etc.)

<sup>17</sup> According to Internet pioneer Silvio Meira, at the time that planning for FUST was in full force, presidential aspirations might have played an important role, as the ministers of education, culture and health—the three areas benefiting from the fund—all were considering a run for president.

<sup>18</sup> Meira, Silvio. “Futuro: Previsoes que funcionam,” in *no.* (online), December 28, 2001.

<sup>19</sup> I wondered if, however, the R\$1 charge, though nominal, would deter the poorer residents of the favelas from using the telecenters. I have posed this question to a couple of people working with the program, and have not received an answer.

<sup>20</sup> This figure from *Gazeta Mercantil*, August 23, 2001. I have tried to verify this number through *Viva Favela*—and to speak to merchants using the online service—but thus far have been unsuccessful.

<sup>21</sup> The study referred to here is Quiroga, Ana M. and Patrick Larvie, *Impact Evaluation of CDI* (for the Institute for Religious Studies), Rio de Janeiro, 2000.

<sup>22</sup> There is a youth foundation in Rio—*Fundação Adolescente*—that runs free computer schools for students who cannot pay a monthly fee.

<sup>23</sup> This figure from the Information Network for the Third Sector (RITS).

<sup>24</sup> The law concerning OSCIPs was enacted in 1999. OSCIPs are essentially NGOs which consent to higher degrees of transparency and are rewarded with greater credibility (and are therefore better candidates for funding).