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Confronting Inequality in the Information Society

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ISBN 978-85-99662-48-9

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Acknowledgments

This book could not have been written without the support and incentive of Jorge Wertheim and Maria Inês Bastos of UNESCO/Brazil, and their concern for the creation of new ways to overcome digital exclusion and democratize knowledge. Jean-François Soupizet shared with me his interest, understanding, and gauged enthusiasm regarding the Information Society. With John Wilkinson I engaged in a constant dialogue concerning various themes of this work. Roberto Grün, in one of our stimulating chats, helped me accept the idea of writing a book that departs from academic rituals of obsessive footnoting and to confront a subject that is still history in the making, forcing me to navigate between the pessimism of reason and the optimism of will. Tadao Takahashi, Sergio Góes, André Urani, Simón Schwartzman, Rubem Cesar Fernandes, Philippe Quéau, John Rose, Joseph Leigh, Peter Fry and Nilton Bonder were all important interlocutors and helped me to consolidate the ideas discussed in this book. The detailed quantitative data on the activities of Viva Rio were made available thanks to the European Commission financial support to the monitoring of Viva Rio's projects. To all of them and to the staff of Viva Rio for the time they dedicated to interviews. I am grateful for their contributions but take full responsibility for any possible errors.

Two exceptional assistants supported this work, Isadora Andrade Wilkinson and Julie Remold. On behalf of Julie, my doctoral student I thank my colleagues and the students in the graduate program in Sociology and Anthropology at the Federal University of Rio de Janeiro.

Introduction: Globalization as Democratic Utopia

The Globalization of Societies

Initially propelled by mercantilism and later by the industrial revolution, the processes of globalization have created empires and colonies, have brought millions to slavery, have destroyed indigenous people, and have denied basic living conditions to much of humankind. As late as the first half of the twentieth century, a substantial part of the periphery of the capitalist world was under colonial power and the majority of the global population lived in agrarian communities where there was only a vague resonance of the happenings in the rest of the world. At the time, in the cities, industrial workers fought for a place in their national political systems, the social space in which expectations were set and most information circulated. Until recently, awareness of global trends only existed for a small political, economic, and intellectual elite. It took five hundred years to reach the beginning of a new era: at the end of the twentieth century globalization began to permeate the consciousness of mankind worldwide.

An economistic view of history confuses **globalization processes** with the contemporary phenomenon of the **globalization of societies**. Globalization processes, the transformation of productive structures, market integration, the internationalization of finance and, in particular, the technological revolution in communications, make up the substratum which allows for the globalization of social life. This, however, constitutes a new political and cultural reality in which the different social actors - individuals, groups, institutions and enterprises- base their actions on information, expectations and desires inspired by global references.

In a gradual process expectations and values are changing through social and ideological conflicts, which expand the perception of belonging to a common world. As a result, it is today possible for any individual on the planet, regardless of their place of birth or social position, to legitimately dream of access to better living conditions. Their point of reference is the information they receive from every corner of the world. Globalization of societies is, above all, a process that creates an increasingly unified global space for expectations of equality and the development of a worldwide public opinion.

The globalization of societies produces the vision of a global utopia of a more egalitarian and democratic world. It is based on the transformation of hearts and minds towards the recognition that all of humanity has the right to benefit from the same basic material and cultural goods that today reach only a small part of the global population. The hope for a

world of abundance where all people enjoy similar levels of development and decent living conditions is common to all major contemporary ideologies irrespective of their ability to reaching this promise.

The World Economic forum in Davos and the World Social Forum in Porto Alegre are two aspects of the same process. As media symbols they are presented as antagonistic, but in spite of their differences they are fundamentally linked and both are products of globalization. The former is sustained by the power and prestige of the market model and of the corporate sector capacity to renew the economy. At the same time, it is unable to give satisfactory solutions to social, cultural, political, and moral problems generated by those changes prompted by globalization that cannot be reduced to marginal concerns of market inefficiency. The latter has effectively promoted the values of solidarity and the public interest as central themes in an international agenda. However, even though it has abandoned the **anti-**globalization discourse and now seeks an **other-**globalization, it has so far shown little capacity to create effective proposals that integrate technological progress with a humanistic view of history.

It is important to confront simplifications that ignore common values that are shared by the greater part of humanity. In democratic societies, these values are expressed through the strong but conflicting interconnectedness between diverse social actors such as governments, private companies and non-governmental organizations.

During the last decades, social theories did unveil the mechanisms that reproduce inequality and domination but have overlooked the importance of explaining the other side of the coin: the processes that keep the fight for freedom, solidarity, and social justice alive as central values in contemporary societies. A comprehensive social theory requires an analysis of the complex interrelatedness of the two processes, those that favor inequality and domination and those that favor solidarity and freedom.

The topic of this book, the digital divide, refers to the unequal distribution of resources associated with information and communication technology between countries and within societies. We will explore how one factor, in this case information technology, can potentially support contradictory tendencies: towards greater freedom and social participation and to deeper social inequality and new forms of concentration of power.

To approach the challenge of analyzing the digital divide, we must avoid simple, easily formulated views with strong media appeal that overlook the richness, diversity, and complexity of social life. For some authors and international institutions, new technologies can allow less developed countries and poorer sectors of the population to substitute advanced technologies for investment in education and material resources. Others argue that new technologies will widen the gap between the rich and the poor both internationally and within societies. Both visions indicate partial tendencies. The social consequences of new technologies are neither linear nor predictable and they are capable of generating new forms of stratification and social fragmentation. While current data shows that new information technologies mainly reinforce social inequality, there are some indications that they could be

equally important in helping the least privileged sectors of the population. Both processes coexist and the final result will depend on the creative efforts of groups, companies, non-governmental organizations, and, most importantly, national governments. As the examples in this book will show, the impact of each technology depends on the way it is creatively appropriated by the different social groups and pubic institutions.

To understand the digital divide it is necessary to place it within the broader dynamic of each society and the international system, as an element in the set of goods and services that determine social inequality. Many argue that the digital divide is a secondary problem, that new technologies are luxuries in a consumer society, and that inequality should be fought through the classic channels of food, housing, health, and job creation programs. This book parts with this view, which represents, as we will see in the next chapters, a narrow and elitist perspective of the consumer world. Though we agree that new technologies are not a panacea for the problems of inequality, their universalization is today among the fundamental conditions of participation and productive integration in society.

Overview

In chapter one, we will use the example of the creative of forms of appropriation of cellular telephones among low income Brazilians to analyze the limitations of social science when challenged to explain the role of consumption in contemporary societies. We argue that although some consumer objects have strong symbolic dimension related to social status, and although product choice can be influenced by advertising and personal decisions, the majority consumer products are prerequisites of access to a better quality of life, to jobs, and to active participation in society. A large part of the literature on consumer societies is focused on a relatively small number of products and says little about the majority of consumer products offered by contemporary society. This includes most products that are not oriented toward a specific social class and that are not consumed because of the influence of advertising or individual preference. Most of consumer goods are **artifacts embedded with technology** that have profoundly transformed society and access to them is a prerequisite for full participation in modern social life.

In the second chapter we will show that social inequalities are multiple and interlinked. They should be analyzed with consideration both to inequalities in personal income and to access to the goods that are directly or indirectly the responsibility of the state. The various kinds of social inequality are not independent; they are interrelated and reinforce one another. Public policy and civil society initiatives should confront the diverse forms of social inequality as an interdependent set of phenomenon and address them with simultaneous and coordinated actions. The digital divide has added another dimension to the diversity of existing inequalities in society: that of unequal access to the set of new goods and services associated with new information and communication technology.

Beginning with a summary description of the principal dimensions of the information society, chapter three will argue that an emphasis on new processes and changes related to the impact of informatics and telecommunications does not allow us to overlook the continuities in social organization. We will show that, in spite of the expansion of networks, societies continue to be pyramid shaped structures based on the control of material resources. The challenge for the contemporary world is to create a virtuous integration between networks and pyramids, between states and non-governmental organizations, and between national and international institutions.

In the fourth chapter we introduce the elements that constitute the digital divide. The digital divide is played out on many levels, in each case with specific impacts on social inequality. We will show that the digital divide involves different questions related to the social impact of new technologies that should be articulated in terms of their consequences over social inequality, economic development, and the fight against poverty. The existence of physical infrastructure, access to individual connections, digital literacy, education, and contents developed specifically to reach the needs of the poorest sectors of the population, all have an impact on inequality. At the end of the chapter we analyze the principal problems that must be addressed by public policy in order to fight the digital divide in developing countries and to establish efficient uses of resources.

In the fifth chapter we analyze the expansion of telecommunications in Brazil, in particular the expansions of telephone and Internet systems, within the context of the transformations brought about by privatization and the creation of a regulatory agency. We will show the successes and limitations of the transformations of the last decade, the inequality in access to new information systems, and its impact on society and governments.

The largest concentration of the poorest sectors of the Brazilian urban population is in the *favelas* (shantytowns) of Brazil's major cities. In the sixth chapter we provide a panoramic view of the *favelas* focusing on the themes of public services, violence and consumption. We will discuss the idea of *favela* residents as **excluded** sectors of the population. Despite a certain metaphoric value, in practice this notion promotes a false view of life among the urban poor, who are seen as people who are yet to be included in the culture, values, and expectations of the rest of Brazilian society. In fact, the residents of Brazil's *favelas* share expectations of access to the same goods that the middle-class already enjoy and constantly engage in efforts -sometimes successfully, as we will show- to obtain individual consumer goods. Though low income is a central factor, the principal problems in the *favelas* are directly related to the limited access to public services. In particular, the neglect of public institutions charged with ensuring security has allowed the *favelas* to be transformed into territories that are colonized by drug lords who generally control their areas in some form of collusion with the police. This has brought violence and death among *favela* youth to epidemic proportions.

To the extent that it has assumed epidemic proportions, urban violence cannot be viewed as a simple byproduct of urban poverty. Violence is associated with specific problems related to the illegal arms trade, at-risk youth without high school education or hope in the job market,

and ineffective and corrupt systems of police security. This book is inspired by the experiences of Viva Rio, a non-governmental organization located in Rio de Janeiro, Brazil. In Brazil several organizations have developed important programs in the fight against the digital divide. Viva Rio excels due to the variety of its activities, all of which converge on the theme of **human security**: the right to live without fear of violence or lack of basic needs. Viva Rio's activities are oriented toward reconstructing the social fabric to permit **new forms of communication** that promote greater equality through different practices and giving value to the self-image of the poor communities and their members.

The central characteristic of Viva Rio's activity is its multidimensional vision. The organization works on the social, economic, educational, cultural, ecological, legal, and police security aspects involved in improving the living conditions for *favela* populations. Viva Rio relies on its pragmatism and ability to mobilize public and private resources without committing itself to any political trend. Viva Rio's projects are oriented to create **replicable** models and its constant effort to integrate its activities with public policy effectively supports the process of democratizing public institutions. Viva Rio is specially conscious of the importance of communications mediums and acting through local networks. In the fight against the digital divide it excels in the production of digital contents oriented toward the needs of the urban poor.

The variety of themes that compose Viva Rio's approach shows the complexity of the struggle against the digital divide and indicates that it should not be considered in isolation from the various dimensions of inequality and poverty. The experiences we analyze will show that in some cases the Internet is not necessarily the most appropriate tool for addressing a problem. Sometimes "less advanced" technologies are more effective in the context of *favela* life, and in other cases the Internet can be helpful but plays only a secondary role.

The seventh through twelfth chapters describe Viva Rio's main areas of activity. Chapter eight describes the efforts to bring dignity to the self-image of *favela* residents through the creation of a web portal dedicated to *favela* life. The ninth chapter describes several different communication spaces created within the *favelas* by Viva Rio. Chapters ten through twelve describe Viva Rio's principal projects in the areas of education, job creation, violence reduction, and developing a culture of human rights. It is important to indicate that Viva Rio has the capability to keep track of the results of its activities in a systematic way. This is an important contribution given that information on activities for digital inclusion is replete with anecdotal examples describing pilot projects that generally lack quantitative data on their social impact.

In the final chapter we will analyze the lessons of the Viva Rio experience within a general discussion of the relation between the state, non-governmental organizations and enterprises, and the challenges posed by the digital divide to develop creative policies and uses for new communication technology in the fight against poverty and social inequality.

Box A - The` Long Journey Towards Social Globalization

The globalization of societies is a long-term process unfolded under the aegis of capitalism and liberal democracy. Its history is full of contradictions. The discourse of human rights, now a basic part of humanity's common language, cannot be disassociated from the economic, political and cultural processes of capitalist developments that make the universalization of human rights viable.

In the name of humanistic values, it is both necessary and possible to question and limit the most negative aspects of globalization today such as the excessive power of multinational companies and financial capital. But when this questioning is presented as an antagonistic conflict between human rights or cultural traditions and the political and economic forces that promote globalization, it leads to rhetorical discourses with practical impotence and, as in the case of religious fundamentalism, the danger of abandoning illuminist thought.

One of the challenges of the globalized world is to control the colonization of global public goods by private interests. The challenge to national governments – which continues to be the most important institution for organizing social cohesion and citizen rights – is to regulate the public interest and actively participate in the construction of a new international order.

As the examples in this book show, it is the capacity to advance the positive aspects of the principal forces of modern civilization that transforms globalization in a democratic utopia. The horizon of humanistic thought of the twenty-first century, filled with challenges, dangers, and hopes, needs to recognize the central role of technology and in many cases the positive aspects of mercantile relations in the shaping of modern civilization.

1 – What is a Telephone? Capitalist Civilization and Consumption

In Brazil, at the beginning of the 1990s, a cellular telephone line cost US $12,000 and a cellular telephone itself cost US $ 2,000. The number of people with cellular phones was small and owners of cellular phones liked to be conspicuous about them, constantly gesticulating with their phones in their hands in public situations. Cellular phones were almost never used and their utility had an inverse relationship to their price. They were above all symbols of social status.

In the late 1990s, with the privatization of telecommunications, new companies introduced cellular telephones to the Brazilian markets on a large scale, offering cellular phone lines at no cost. At the time, a fixed telephone line cost ten to twenty times the value of a monthly minimum wage. In one of my sociology classes, students argued that the cellular phone companies were using advertising to convince people to buy unnecessary products designed only for individual use and with a much higher per-minute price, in place of expanding the existing telephone system for family use. I argued that the expansion of the cellular telephone system was spectacular, that we shouldn't assume that the people are so easily manipulated, and that the widespread adoption of cellular phones should be explained leaving aside ideological prejudices in relation to current government (which favored privatization). The debate created a tense and polarizing atmosphere in the classroom that was only broken with the proposal of a research project on the use of cellular telephones among low-income Brazilians.

The results of the research were surprising even for me. The people we interviewed said that cell phones were an important tool for improving chances in the employment market. In a city like Rio de Janeiro, where more than half of the population - and among the low-income populations, the large majority - work informally without a contract carrying out *ad hoc* services, the telephone is a fundamental tool for setting up job opportunities. With the introduction of the cellular telephone, carpenters, painters, plumbers, housekeepers, locksmiths, bricklayers, manicurists, and taxi drivers increased enormously their chances of being located when work opportunities arose.

Before the cellular telephone, the only means of contact for informal workers was generally the home phone of some neighbor who offered the favor of taking messages. Still, it could be argued that for these sectors of the population, a standard telephone line would be more convenient as the cost of calls is lower than the cellular telephone, but this was not the case. Even later when telephone lines were made available at no cost, the low-income population continued to acquire cellular telephones. The explanation was simple: a standard telephone does not offer the mobility that the cellular telephone offers. An autonomous worker with a cellular phone can be reached easily, thus maximizing the use of his or her time. Mobility also offered other advantages for workers who need to be reachable. For example, low-

income mothers, who provide housekeeping services in organizations or companies without access to a telephone, could rest easier leaving their small children with a neighbor knowing that they could be contacted in case of necessity.

The higher cost of mobile phone calls remains an issue. Both the per-call and monthly fees are higher for cellular telephones than for standard telephones. The low-income population responded to this problem by opting for prepaid cellular service without monthly fees (although prepaid cards have expiration dates that amount to a minimum fee). Since calls made from prepaid cellular phones are much more expensive than call made from phones with traditional service plans, the solution was simple: cellular phones became a tool only for receiving calls. In Brazil, the fees for incoming calls to cellular phones are charged to the caller rather than the recipient. Low-income people continue to use public phones to make phone calls and make calls from cellular phone only in cases of urgency.

The expansion of cellular telephone in Brazil in the past few years has been impressive. In 1994 there were 800,000 cellular telephone accounts. By the end of 2002 there were 32 million. However the projections for universal cellular service in Brazil have become overly optimistic, and recently, companies have reduced their expansion plans. The current prediction is that at most, only a third of the Brazilian population will have a cellular telephone in coming years. What happened to the rapid growth? The barrier of income distribution makes cellular telephones, even with prepaid service plans, inaccessible to Brazilians at the lowest income levels. As we will see in the coming chapters, the market sometimes creates miracles but only to people who are able to reach certain income levels. The poorest sectors of the population will need the leverage of state intervention to gain access to communication services.

The cellular telephone is an excellent example of the diverse dimensions that should be considered in the analysis of the social impact of products or services consumed in contemporary society. As mentioned earlier, the cellular telephone, like the standard telephone, was initially an object of conspicuous consumption, used ostentatiously as a symbol of the class or status of their owners. Even in the present day, the initial dimension of social status has not disappeared. The telephone industry continues to periodically release more expensive products, usually with small modifications in design or function, that permit high income consumers to feel that they can use their telephones as tools of social differentiation.

The expansion of cellular telephony involves what is known as the **product cycle,** in which initially a product is introduced in small quantities with high price and is later mass-produced, permitting access of a large part of the population. This process is accompanied by a **social product cycle** in which a new product initially reaches only those at the highest income levels and later, with mass production and price reduction, is disseminated throughout all sectors of the population. Thus, the dynamics of technological innovation reinforce social inequality in the initial stages, when a product reaches only the highest income sectors of the population, and later plays an equalizing role through mass production.

The **international product cycle**, the distribution of new products on an international scale, involves a different type of social product cycle in developing countries. Many products reach the highest classes and later the middle classes, but these products may take a long time to reach the lowest classes and in some cases never do. When the product cycle is incomplete, excluding certain sectors of the population from new technological innovation, it helps to consolidate and create new forms of social inequality.

In many cases, the dynamics of the social product cycle play a role in determining the product utility. The diffusion of a product is in some cases a condition of its practical use. This is due either to the availability of necessary infrastructure, as is the case with paved roads and highways whose development depends on a minimum number of cars in circulation; or the existence of other users to permit interaction, as with case of the telephone, which requires a minimum number of telephone users.

Capitalist Civilization and Consumption

In recent decades, theories regarding the consumption society have focused on the analysis of consumption objects as a symbolic system -a type of language in which consumption objects are symbols of social status. Thus the use value of a product is viewed not as a consequence of its material utility, but rather as its capacity to indicate social distinctions. The differentiation of products follows the differentiation between social groups, and the middle and upper classes in particular mark their social status through objects and an aesthetic to which only they have access or can afford.

Theories that connect social stratification with consumption do describe a dimension of social reality. But this is only one aspect and, in general, a secondary component of the act of consumption. These theories ignore the central characteristic of consumption in contemporary society: **the majority of consumption products are embedded expressions of the scientific and technological knowledge of society, which have become prerequisites for social integration in everyday life, as much in terms of quality of life as in chances for social participation in general and entrance into the workforce in particular.** Consumption as a mechanism of social distinction is important at the margins of the productive sector and much advertising focuses primarily on brands of mass consumption. In fact many consumption products like home water, electricity, and telephone lines, which were also once objects of conspicuous consumption, are now considered commodities or public goods.

The critiques of the McDonaldization of the world and the alienating role of trademarks epitomized by Nike refer to very limited aspects of the world of consumption. For the poorest populations of the planet, globalization is not the expectation of eating at McDonald's or wearing Nike, it is access to food, water, electricity, appliances, radio, television, telephone, Internet, antibiotics, books, cinema, CD players, cars, travel, and all those products

and services to which persons opposed to globalization would not deprive themselves. These products bring material quality of life to such a level that, for instance, poor persons in France today enjoys a better material quality of life than the richest French did 200 years ago. Be it to treat a toothache or an infection (in the 19th-century Nathan Rothchild died, unable to get treatment for a boil), to access information, to deliver children, to lie down in a comfortable bed, or to have a good heating or cooling system to face winter or summer-consumption goods are disseminated because they facilitate life, not through the brainwashing by advertisers.

Capitalist consumption civilization has enormous problems, but the principal challenges are in the areas of environmental impact and the relationship between advanced technologies and democracy and ethics. Such is the case, for example, with the problems surrounding genetic engineering, which raises questions about the control and mercantilization of life and the possible effects of mutation of the human species or, as we will see, information technology with its potential to destroy privacy.

Social science lacks comprehensive theories regarding the relationship between consumption and society. Economics, with its nearly exclusive focus on production, has reduced consumption to a simple question of personal choice in which the consumer is free to choose based on his or her personal priorities. Sociological theories, such as those mentioned earlier, were developed to oppose this perspective by showing that consumer options are constructed socially and that individuals make choices based on the esthetic standards of their social group.

In past decades some economists have tried to develop limited scope theories about consumption. For example, they have shown that levels of consumption or savings is related to the life cycle, and they have introduced some very general hypotheses on the way individuals structure their consumption by prioritizing basic necessities (such as food), and later satisfying necessities they consider secondary. These are important but partial efforts and economists are still far from a consumption theory with the same explanatory capacity as the theoretical frameworks they have developed to analyze the logic of the productive system.

The difficulties that social science encounters as it attempts to analyze the role of consumption in capitalist civilization originates with a false starting point, which radically separates the processes of production and consumption. Treating both spheres as autonomous realities results in a search for separate explanations for each one. But consumption is one of the constitutive elements of the productive system, not only because it allows the flow of production but also because the majority of products consumed transform the context of production, workers productivity, and society. Even Marx, who tried to relate production and consumption, made a major analytical error by reducing work to a commodity. He didn't grasp that labor is a very particular commodity, one that not only is capable of fighting for its market value, but which is transformed through the process of consuming other commodities.

When economists introduced the notion of human capital, they took the first step toward recognizing that investments in consumption goods, like education, have a direct impact on

the production process, both directly –increasing labor productivity-, and indirectly – promoting scientific and technological innovation. But human capital is only one of the mechanisms through which consumption products affect production. To the extent that they increase longevity, facilitate locomotion, permit communication between workers and their private lives, and reduce time spent on housework, consumer products directly impact the productive system, transform society, and become essential to social life.

In short, consumption products, particularly within capitalist society, but also throughout all human history, incorporate and condense as much technology and knowledge as the instruments used in the production process. Social relations are affected and transformed through consumption as much as through production. The introduction of the cell telephone provides a simple example of the multiplicity of impacts of consumption goods in social relations.

What is a cellular telephone?

In the same way that some technologies can transform the productive system, that is, they have a capacity to penetrate the most diverse dimensions of social organization, some consumption products, especially those with embedded technology, penetrate and change diverse patterns of sociability. The simple change from fixed to mobile telephone offers some good examples of how consumption products play a role in increasing possibilities for individualization as well as in creating new forms of social control.

Even homes with more than one telephone line used the fixed telephone line collectively, while the cellular phone is used individually. Fixed phones facilitated control over phone calls between family members since anyone could answer a call (the classic question when someone arrived at home was, ”Did anyone call?”). The telephone was sometimes a source of family crisis, especially when children became adolescents and spent hours on the phone. The collective use of telephones even had an impact on statistics: the relevant data on availability of telephones was the number of phones per household, whereas with cellular phones it is the number per individual.

The cellular telephone permits greater individualization through the elimination of control over calls by family members, and by increasing the communication spaces that are not controlled by the immediate environment. Children and adolescents can communicate without their parents knowing who called and everyone can talk from spaces where husbands, wives, mothers, and fathers, cannot overhear, deliberately or not. On the other hand, the fact that people have their cellular telephones with them all the time creates a new potential for social control and the loss of privacy. For example, one of the major initial consumers of cellular telephones among the middle-class were parents buying telephones for their adolescent children in order to maintain control at a distance.

When someone calls a fixed phone, the first question is, “How are things?” With cellular phones, the first question is, “Where are you?” In the past, reaching someone on the telephone meant at the same time knowing exactly where the person was located. The cellular permitted a separation between spoken communication and a person's location or to put it another way, to locate a person, you no longer need to know or find out their location. With cellular phones, the act of locating a person does not tell you where the person is located, which has the effect of dissociating communication from location. But this possibility, which limits control over personal privacy, could be eliminated in the future when all telephones come with cameras that transmit images, and GPS systems that identify the location of both the caller and the call receiver.

In the work sphere, the cellular telephone allows people to be located at any time and in any place, and, as we will see ahead, when combined with the Internet, has the effect of bringing greater flexibility to work through an end to the separation between work and private life. In place of the promised “end of work” trend of the eighties, we find an increasing colonization of private space and intimacy through the constant invasion of calls and messages outside of business hours.

Box B - Necessity and Consumption

Behind a large part of the social criticism surrounding contemporary consumption society there is a view that there are "real necessities," while other necessities are products of advertising, exhibitionism and ostentation.

Anthropology has criticized the notion that consumption can be reduced to a natural notion of necessity. Culture always permeates tastes and defines which products are appropriate for consumption. For example, there is nothing natural about the preference in some cultures for beef while others prefer dog meat. Anthropology also shows that consumption objects are more than instruments of social distinction for dominant groups, since they are used equally to mark the identities of minorities and underprivileged groups, and to express social protest.

Though ostentation has always characterized, and will continue to characterize, the lives of the dominant classes, modern society is a society of consumption not because of advertising but because the large majority of consumption products are pre-conditions of access to health, education, work, and sociability.

It is important to remember that the majority of consumption products are used because, within the context of contemporary society, they are useful. They represent technologies that allow improvements to the quality of life and social integration. After they have reached a certain level of dissemination in society not having them means social ostracism.

Most of the negative impacts of mass consumption product are related to the paradoxical and unexpected consequences they produce. For example, the car facilitates transport of an individual from one place to another, but today in many cities, an excess of cars makes the bicycle a faster mode of transportation and a way to reduce the pollution that cars cause. New medicines can save lives but their effects on the human gene pool could be disastrous. New seeds can increase production but can also have irreversible negative impact on biodiversity. Or, as we will show, with the case of the information society, databases containing patient medical histories or credit card purchase records can save lives or reduce the risks involved with carrying money, but they generate information on people's private lives that could lead to control over privacy.

2 - Paths of Social Inequality

Contemporary capitalism is the product of the combined and contradictory effect of two structuring principles. On one hand are freedom and individual initiative -consolidated in the institutions of private property, of freedom of contracts and of the market as the main way to organize system of production and exchange. On the other hand are the values of solidarity and equality, expressed through the idea of citizenship and of the nation as a community that should ensure for its inhabitants some minimum living conditions and chances for participation in society. The coexistence of these two organizing principles of capitalism constantly generates new models that will define the most appropriate way of public intervention in production, distribution, and consumption of goods and services.

While the first principle indicates that each person should acquire goods and services in the markets according to his or her assets and personal options, the second requires some private intervention in the system of distribution to assure that all citizens have access to a set of minimal goods and services that are considered basic at the particular point in history. It is important to note that they are different principles, associated with values that coexist simultaneously in modernity. There is no scientific formula that will resolve the problem of how to combine them. Each solution will depend on political struggle and on working out solutions and creative arguments with the capacity to convince the majority of society.

In the history of capitalism, social struggles for greater equality organize themselves around two axes: the distribution of revenue between employees and employers and the extension and universalization of public services. Since the relations between the states and markets are always changing and vary from one country to another, the following is a somewhat simplified introduction to the relations between the social inequality and public goods to identify the role played by the digital divide in the contemporary world of production/consumption.

The World of Consumption: Types of Relationships Between States, Markets, and Consumers

Goods and services can be divided into two major categories: individual and collective consumption goods. Individual consumption goods are those that are selected on the basis of each individual personal option. Goods and services for collective consumption are those that, in a given historical period, are considered fundamental conditions for citizenship and therefore require public intervention to ensure universal access**. These state regulated goods and services impact on social inequality by partially or totally dissociating access to goods and services from personal means.**

Public action concerning collective goods can cause them to lose the quality of being mercantile goods. In other cases they can be produced and/or distributed through the markets, under public control. In all of these cases the state intervenes, be it to through orienting investments or subsidies and/or price controls, to insure universal access - independently of individual income- to goods for collective consumption. Though economists have tried to identify traits or qualities that can be associated with public utility or social good nature, there are no criteria to distinguish public and private goods in their pure states. The definition of the public or social character of good will depend on the values of each society in a given historical moment. In democratic societies, public debate determines which products and services should be universally accessible or protected by the state.

In the past few years, a new concept related to collective consumption has been introduced in the public debate: the **global social goods**. These are goods that cannot be delimited to national borders or whose absence in one country can affect the quality of life in other countries (such as the protection of the environment or control of epidemics, but also free international circulation of ideas, peace and information). The concept of global social goods has yet to be adopted and elaborated by public opinion, as they demand a broad discussion on global governance mechanisms that can ensure effective creation of an international space for public goods. If the world economy is being globalized, the process should be accompanied by the globalization of at least some collective consumption goods.

There are four main types of collective consumption goods in contemporary national societies. The first group is made up of public services connected to basic government institutions. Access to these services is completely separate from payment. They are state run goods and services like police, the justice system, and the services associated with executive and legislative power. Their nature requires a complete separation between the public service and citizens' individual income, to ensure egalitarian and universal treatment. The financing of these services is carried out indirectly through the tax system.

A second group is made up of common "indivisible" services such as public lighting, cleaning services, road maintenance, parks and gardens, fire department, and environment. Generally they are the responsibility of local authorities. They are financed through taxes, usually related to housing, and can be carried out by public or private companies.

A third group is made up of collective goods and services that are not by nature indivisible. This is made up of goods and services that are regarded as basic conditions of citizenship such as health, education (at least basic education), social security and, to a lesser extend, housing. They are financed by direct taxes and/or employers and employees contributions. These goods and services can be offered by public or private institutions as well as by non-profit organizations. When they are offered directly by the state, these services generally coexist with private services of the same type oriented toward individual consumers such as private health plans and private education.

Finally, the fourth category of collective consumption goods is made up of goods and services considered essential or of public interest that are connected to **networks and/or natural resources** that occupy finite space (be it under the earth in urban areas, or in the form of waves that travel through air) and give their owners a position of monopoly or oligopoly. They include water, electricity, sewage, radio, television, transportation, and telephone. These collective consumption goods can be offered either by public or private companies with exploitation rights delegated by the state. In either case, the state takes responsibility for ensuring the quality and pricing of these services and that networks provide effectively universal access. Though these services are generally paid by individual consumers (or in some cases by taxes), effective access requires that the network reaches every home and that the prices are reasonable even for low-income groups. While in the case of the previous types of collective consumption goods, the different capacity of each citizen to contribute financially to the goods and services is approached by a taxation structure where fees are inversely related to income, in the case of networked goods and services, compensatory pricing systems usually takes the form of subsidies in which certain consumers (for example, those in high income areas or businesses) pay a higher price thereby permitting other consumers to pay a reduced price for the same services.

To these public goods should be added other forms of redistribution policies, which include unemployment insurance, social services, disability insurance, minimum income policies, food distribution programs, and subsidized housing.

The central question for contemporary society is that the permanent introduction of new consumption products that impacts quality of life imply changing the threshold of goods considered among the basic minimums necessary for life in society. In this sense, each technological innovation introducing new consumption products changes the perception of what it means to be socially included or excluded based on access or lack thereof, thereby changing the universe of goods and services that require some type of state intervention. In other words, poverty, and the fight against it are dynamic and require constant efforts to readapt social policies.

A classification of individual consumption goods is outside the limits of this work. It is however, fundamental to emphasize its deep relationship with collective consumption goods. The different individual and collective goods and services cannot be dissociated from one another. Public health, for example, frequently suffers from the problems caused by the lack of treated water and sewage, the principal causes of child illness in poor neighborhoods in developing countries. The large majority of individual consumption goods depend on prior access to collective consumption goods. To use home appliances, electricity service is needed. Telephone use requires telephone network access. Home water and sewage services require access to urban infrastructure.

The new wave of information technology product has characteristics that are new or more pronounced than in previous waves of mass consumption. First, information technology, in addition to being interactive (like the telephone), is **proactive**, meaning that it allows users to personally appropriate the contents of instruments of communication (for example by making

their own web site). The uses and possibilities of information technology depend, however, on the intellectual training, in particular the education and profession, of the user. While the use of appliances, telephones, radio, and television require almost no formal education, information technology not only requires literacy but its usefulness depends on each users intellectual ability in selecting, analyzing, understanding, and evaluating available information. While for the user with limited analytical competence the Internet is an information tool, for the user with greater analytical capacity, it is a knowledge tool.

In addition, information technology presents specific barriers to initial access that are greater than those of previous electronic products. The majority of previous electronic products require minimal service expense after initial purchase. The only exception is the telephone with its monthly service charges. New information technology products require either fixed monthly fees (for example wide-band service), or increases in telephone charges (for users of dial-up service, as flat-rate local residential service is not available in most countries). We will see that these fees make up one of the principal barriers for the diffusion of information technology among low-income groups (and sometimes even the low middle class). In the case of computer, their use requires other ongoing expenses such as printer cartridges, paper, periodic technical support, updates to programs, and the constant need to update equipment that makes these products reach obsolescence rapidly.

Finally, information technology products, due to their pro-active character, are for individual and personalized use. Older systems of communication such as radio, television, and fixed telephones, were easily shared between family members.

Multiple Inequalities

Studies on social inequality analyze the distance between the poorest and richest sectors of the population taking income of individuals or families as the principal indicator. Individual income is without question an important criterion in social inequality, but it represents only one dimension of the problem. The unequal distribution of public goods and services is equally important, and in some cases this unequal distribution is even more decisive. Not being able to count on police protection or access to electricity, water, sewage and telephone networks, medical services, or schools, have dramatic consequences on quality of life.

The relationship between individual income and access to goods and services can generate both virtuous and vicious circles. For example, people who live in neighborhoods dominated by drug trafficking activities have difficulty getting jobs. Similarly, poverty force some families to take their children out of schools to make an early entrance to the workforce, while poverty is mainly the result of low education levels.

The many inequalities of personal income and of access to collective consumption goods should be considered within a systematic perspective and should not be reduced to a single factor. Combating these inequalities requires actions directed at various dimensions of the

problem. The challenge is to identify those issues where the positive consequences are greatest both in the short and medium term. Some actions, such as investment in education, take years to make an impact in terms of personal income while other actions such as extension of water and sewage networks have immediate consequences over quality of life but do not directly impact income levels. In practice, social policies are oriented both by technical logic and by the capacity of each social group, including the lower, middle, and upper classes, to put pressure on the state.

Box C – Unequal Inequality

Social inequality supposes differential access to social wealth within a social system. Analyses of social inequality traditionally distribute the population of a country as though it was made up of a continuum of individuals, a straight line from those who have a lot to those who have very little.

In the past decades, studies on social inequality have been transformed under the impact of new social movements such as feminist, gay rights, black, and ethnic movements that have argued that society cannot be considered as a homogeneous group of individuals and that social inequality should be analyzed with consideration to the relative position of each identity group.

The new emphasis on identity groups within social studies has increased the perception of the complexity of the fight against inequality. But, on the other hand, it has also created new distortions in perception, particularly with regard to social groups that lack self-representation and political support., as, for instance, young men in poor neighborhoods, who are put at risk by the lack of security policies capable of confronting gangs and drug traffickers; or unemployed people between ages forty and fifty, who have the greatest difficulty re-entering the workforce; or young children, who are most likely to fall ill as a result of inadequate water and sewage systems. These social groups have little ability to project their interests in the symbolic and political field.

The growing emphasis on problems impacting specific identity groups can result in fragmentation in the fight against social inequality, which is increasingly colonized by lobbies applying specific pressures that can distort public policy and limit the development of comprehensive strategies for the whole of society.

3 – What is the Information Society? Pyramids and Networks

The term "information society" is currently the most common way to refer to the set of impacts and social consequences of new information and communication technologies. While it is useful as a concept that identifies a theme, it is not a theory or an explanatory framework for the dynamics of societies in the contemporary world. In a strict sense, the term is also incorrect, first because information is equally important in all societies, and second because information on its own has no value: its relevance depends on its insertion into a system of knowledge. In this sense, another widely-used term, "knowledge society", is more appropriate, but once again the term overlooks the fact that all societies are based on knowledge. In practice the concept of a "knowledge society" refers to a particular type of knowledge -scientific knowledge- through which technological innovation, the principal vehicle for economic expansion in the contemporary world, is possible. From a sociological point of view, it is perhaps more appropriate to speak of capitalist societies of **consumption of technological goods**, that is, societies where communication, quality of life, and economic and social relations are mediated by technological artifacts (in the form of products and services) that incorporate scientific knowledge.

Since the processes associated with the "information society" are in their initial phases, many analysts confuse trends, extrapolations, and speculation with current reality. Certain argumentative exaggerations play an important role in expanding our field of perception and sensibility to new phenomenon. In spite of this, it is important, especially with regard to the use of scarce public resources, to focus as much on continuities as on discontinuities -on the new and the old- without carelessly extrapolating experiences from other contexts. We must remember that the world is not California (home of the information boom), and that each land has its own nutrients, farmers and crops.

The Internet at the Convergence of Social Transformations

The unilateral emphasis on the impact of the Internet can create a perception of a radical transformation dividing the new and old forms of social organization. But we cannot overlook the fact that the computer has been influencing society for several decades. Its influence was already discussed extensively in the seventies and eighties before the Internet. The Internet represents a new communication technology that adds to the long list of instruments of voice and image transmission such as telegraph, telephone, telex, radio, television, and fax that have changed communication in contemporary society.

Information technology, and its most widespread system, the Internet, is of enormous importance because it allows the convergence of two activities that are central to social life: the manipulation of knowledge and communication. Information technology allows the

storage, organization, and processing of an enormous amount of information in a small space and incredible speed. New communication technologies permit instantaneous voice, text, or image communication on a worldwide scale, constantly increasing the availability of information while decreasing communication costs.

These combined technologies working through a set of protocols (TCP/IP is the most common on the Internet) allow communication between computers. The Internet is a network of computer networks, all communicating in real time, making information instantaneously available anywhere on the planet. Thus, information and communication cease to be spatially localized and are transferred to "virtual space" (or cyberspace), allowing simultaneous contact between an infinite number of people using the memory of the computers participating in the network, independent of their physical location.

The Internet appeared in a period when capitalism was undergoing a deep change in its productive and social system. Internet acted as a catalyst and accelerator, but information technology did not cause most of these transformations, nor was it a condition for their appearance. By forgetting recent social and economic history, several authors have ended up with technological determinist interpretations. They glamorize the Internet and propose unrealistic visions of the social conditions in which information technology functions and the impact it has on people. In order to get a historical perspective it is worth mentioning, albeit in a summary form, these processes prior to the arrival of Internet:

1) The transformation, in the last decades, of the **service sector** in the dynamic core of the productive system. The capacity for technological innovation and the control of knowledge associated with it become the principal source of aggregate value, productivity gains and dynamism of the economy. Information technology was not the initiator of the so-called information society or knowledge-based society, but an accelerator or vector of a process that precedes it. The increasing importance of knowledge as the principal source of innovation and value creation in a constantly changing world transforms learning into an ongoing process, driven by the necessity to update and adapt professional skills to the requirements of new technological transformations.

By putting a large part of human knowledge in virtual space, facilitating the interchange and expression of ideas and developing online services in real time, the Internet allows people to break the barriers that in the past have limited access to and transmission of information. But the Internet is not a substitute for human capital, which is the product of large, long-term, investments. Nor does it substitute the laboratories, research centers, and corporate resources under which scientific knowledge is produced and transformed into technology, and finally into consumption products.

2) The increasing **"flexibilization" of the work process** and the production arrangements. This trend is associated in part to the processes described above, in particular to the value assigned to knowledge demanding greater autonomy and creativity in the chain of production and new models of business administration. It is also related to overall changes in the socio-political system, the relative decline of trade-unions, welfare benefits and labor rights. The

Internet, in some cases has been a tool for the advancement of new models of management and the flexibilization and decentralization of production and work.

3) The tendency known as **dematerialization of production** and the surge of the "new economy". The idea of dematerialization of production describes a twofold process in which, a) added knowledge is the principal component in the value of the final product, while the relative costs of physical materials declines constantly, and b) the most dynamic goods and services in the economy are those that transmit or condense/incorporate information -as is the case with goods connected to the cultural industry, finances, medicines or genetically modified seeds. (The dematerialization of production, doesn't mean, however, as we will see at the end of the chapter, that material resources can be dismissed).

The new economy is mostly related to "dematerialized" products and services, constituted by enterprises mainly in the fields of telecommunications, audiovisual, biotechnology and pharmaceutics. The principal characteristic of these companies is that they are dependent on permanent technological innovation, which transforms knowledge into products and services. The market value of these enterprises, especially those which are mainly research oriented, is not related to current revenue levels, but based on the projections of their potential for future sales if the product/service they invent is adopted by the market. The new economy has transformed a considerable part of financial investment into venture capital, as it is carried out in under high-risk conditions in which expected potential gains may never materialize. Due to the quantity of new products associated with communication and computing, the Internet expanded the new economy enormously.

4) Deepening of the process of **individualization**, in the sense that there has been a reduction of outside references in standards and values of social conduct. Individual are less and less guided by traditional values, norms, institutions, and ideologies of modernity (such as patriotism, parties, work, family), bringing about a new form of reflexive individualism in which people must constantly negotiate social relations (for example with sons, daughters, and colleagues). By inserting the reflexive individual in a world of global information and increasing contacts with diverse social networks, information technology enhances individualism.

5) The proliferation of **transnational agents**. Since the 1970´s multinational companies have been studied as agents acting on an international scale according to a strategic vision that is not delimited by national borders. In past decades, the number of these transnational agents has multiplied due to the growing internationalization of various groups, including companies, scientific and technological systems, religious groups, non-governmental organizations, and criminal and terrorist organizations. The Internet facilitated and accelerated the development of these transnational agents and networks.
..

6) Finally, the **globalization of societies** and partial loss of symbolic significance of the nation, discussed at the beginning of this book. The processes of internationalization of financial flow, of international commerce, and of patent regimes, have limited the breadth of

action available to governments. Meanwhile, the Internet facilitated the globalization of social and cultural interactions, limiting state control over sources of information and education. Despite this, the state continues to be the principal actor in national and international politics. If the globalization of societies has limited government control, it has also increased the expectation that governments will ensure regulation and adequate distribution of wealth.

New Tendencies: The Impact of the Internet on the Perception of Reality

Information technology has had several impacts on knowledge and culture. The first, about which there is some consensus among researchers, is the unification of the perception of space–time at least in relation to all of the social dimensions that are based on the flow of information (in the form of text, voice, or image). In the human experience, the limited reach of physical senses, which require that individuals go from one place to another to reach another individual or object, determines the sense of distance as related to time. Mechanisms for sending information such as drums, smoke signals, mail, telegraph, telephone, and television, were the means developed by humans, to transmit information without going from one place to another. These tools brought a new dimension to the relationship between time and distance.

Now that voice, text, and images can be instantly transmitted, the association of space with time is disappearing, at least with relation to things that can be transmitted digitally. With the transmission of television images via satellite, televised events took place for the whole world at the same instant regardless of space or time. The Internet brought this revolution to a new level allowing an individual in any place on earth to be in immediate contact via a choice of voice, text, or images, with any other person on the planet. At the same time, it brought a large part of the collection of human knowledge and culture (at least those parts that can be transformed into digital format) to cyberspace, making it available for any user in any place.

The unification of space and time does not mean that temporality has disappeared. On the contrary, it represents the contraction, acceleration, and increased value of time brought about by the disappearance of space barriers.

A second issue, about which there is sometimes conceptual confusion, is **virtual reality**, defined as **a set of images and sensations produced electronically.** Virtual reality is often contrasted with reality, as though the virtual world were less real or authentic than the world of sensations or the world as we experienced it before these new technologies. This is a romantic vision of the past, of sensory experience, and social life. The world of humans is by nature virtual. Human beings relate to their world through culture, a set of abstract symbols that determine how things transmitted by the senses are perceived, understood, interpreted, and evaluated. Be it by way of the Bible, the Koran, or a science book, the only way to get beyond the finiteness of individual experience is through the world of meanings that organize and allow transcendence from the limited universe of our sensory world.

The third impact of the Internet, perhaps the most important, is the transformation of the human universe by the growing integration between machines and humans. This is an area about which little is known and two main schools of thought have developed. For some, the computer has the potential to mirror the human mind, allowing integration between the two in the future. For others, the distance between the human mind and artificial intelligence is unsurpassable because the human mind cannot be dissociated from the biological and cultural support that allows it to function.

Finally, an ample bibliography already exists concerning the consequences of hypertext over intelligence and perception. Hypertext allows the development of reading written material in permanent connection and association to other texts, thereby allowing instant access from one text to another in a continuing spiral. It is different from "classic" text reading, which is undertaken in a linear fashion, from beginning to end. Some authors claim that the capacity to connect large amounts of information associated with diverse contents and networked material could cause losses in the intellectual culture of the "the age of books," with its emphasis on deep reflection and conceptual development carried out in large part by isolated individuals. Others emphasize that the intellectual activity associated to hypertext takes place with more awareness of the collective character of all works, is less individualist, and more fluid.

New Tendencies: Information Technology and Social Structures

Since the Internet evolved into the most used means of distance communication (substituting mail and to a degree the telephone), naturally it is present and has permeated all social, economic, and political relations. But this does not mean that the Internet is capable of changing these relations. If the Internet, as we have shown, deepens existing trends in contemporary society, nothing, at present, indicates that it is capable of radical transformation of the social structure, system of stratification, or the norms and values of society. At the end of this chapter, we will return to the question of the impact of information technology on the political and legal dimensions of society, in particular the possibilities it opens to new forms of social control.

Electronic networks do not substitute face-to-face relations, which **continue to be the principal source of trust in human relations.** Internet opens possibilities to intensify interchanges and diversifies social networks but with the exception of marginal cases, generally of adolescents approaching adulthood who encounter an alternative world on the Internet, this has not been sufficient to substitute or modify the social ties that are established by direct coexistence.

One area where the Internet has had an important to impact is in consolidating feelings of solidarity between members of immigrant communities (in many cases temporary and illegal workers) residing in developed countries. For these people, the Internet allows constant

contact by e-mail with family and is an ongoing source of news from their home countries, reinforcing their ties with their homelands. The Internet is also used to re-create effective ties as is the case with genealogists or old friends who have lost contact.

From the point of view of social agents and social movements, new technologies have produced a new kind of social actor, the hacker. Hackers are highly able programmers, mainly academic scientists and freelancers, who have launched a movement against commercial control of the Internet. The principal contribution of this group has been the open source movement, which develops software, generally with registered licenses, for which source code is publicly available. As we will see, the open source movement is a principal factor in the resistance to commercialization and private and state control of information that circulates on the Internet.

New Tendencies: Applications of the Internet

e-mail: Through the vehicle of e-mail the Internet offers a mechanism for sending messages and documents instantly causing the postal mail (as well as of the telegraph, fax, and telex) to practically disappear as a means of transmission of text, while to a certain extent substituting the telephone call. E-mail is the most common use of the Internet in terms of user time.

Increasingly, having an e-mail address is viewed as the equivalent of a residential address, a way that a person can be "located". The lack of an e-mail address will cause social isolation and in the future an e-mail address will be a basic condition of citizenship.

The ability to send messages instantly to an unlimited number of people anywhere on earth for the price of a local telephone call, without the need for material resources like paper or ink, has caused communication and the possibilities for interaction to multiply exponentially. Many of the messages that circulate would not be sent to if there were a financial cost or printing effort required. This generates a new problem, the "excess of communication," which requires an enormous time investment for taking in and generating communication.

The Internet has changed the rhythm of communication requiring greater speed and creating the expectation of immediate responses. However, the speed of human emotional and intellectual processing is not the speed of light.

e-research: The Internet has facilitated the process of accessing information enormously, a process which by traditional methods required great investments of time, energy, and resources. The Internet does not just store computerized cultural production, it is also a way of making the material publicly available. The Internet allows access to a growing collection of text, images, and sounds to which the public would not have access if material reproduction were necessary. The growth in the amount of material available through Web sites is exponential causing users to depend increasingly on research mechanisms to locate information of interest. While on the one hand the fact that anyone can put content on the

Internet represents a form of democratization of information, on the other hand it causes dependence on search engines that have the capacity to influence the priority level of texts for users.

Many search engines put sites that have paid to appear first at the top of search response lists. Even when this is not the case, they define priorities and classify material available on the Internet on a non-explicit basis. The enormous quantity of material available on the Internet makes room for companies specialized in processing and developing information as well as new, increasingly complex, search mechanisms.

It is possible to distinguish between the use of the Internet to get **information** and **knowledge**, or in technical terms, texts with high and low informational content. Low informational content refers to material that does not require any much intellectual training to understand and comprehend and is depleted after serving its immediate function. For example the name of a street, a pornographic image, a bank transaction, or online shopping, are all low-content information. High informational content material depends on the analytical ability of the user and has an impact on his or her further competences and intellectual abilities. As we will see, the prior intellectual ability of the user is a determining factor in the transformation of the Internet into a tool of cultural empowerment and social creativity.

e-science and technology: in addition to facilitating access to databases, virtual libraries, and all kinds of information, the Internet has enhanced two traditional characteristics of the fields of scientific research and technology: its functioning through networks and international contacts. Scientists and researchers are extremely open to the Internet and its possibilities for restructuring communication. The strengthening of international networks related to the interests of each researcher has contributed to the weakening of immediate social ties based on local faculty life

The ability to circulate scientific work on the Internet allows new possibilities for scientific publication in electronic periodicals without printing costs. This has contributed to academic debate concerning the regulation of these publications (whether they should follow the same editorial norms as printed publications) as well as disputes concerning intellectual rights.

e-production: as discussed earlier, information technology did not globalize the economy itself, but it accelerated communication between and within companies enormously, independent of the location of any given employee, increasing the speed and quantity of informational interchanges. The Internet allows companies to keep track of inventories, market trends, and relations with providers and clients online, reducing the time of production, distribution, and consumption cycle.

The impacts of information technology on the productive system are varied. In the first place, it has created an enormous market for information technology products, from communication infrastructure to computers, equipment, and software. Second, it opens up the possibility of new products and services that can be transmitted via the Internet. Third, it

has allowed revolutionary changes in systems of knowledge management and communication within companies. Fourth, the different forms of e-commerce (the principal forms are B2B - business to business, B2C - business to consumer, C2C - consumer to consumer, and B2G - business to government) revolutionized selling and buying. Fifth, the electronic auctions of B2B, B2G, and C2C have reduced transaction costs enormously while B2C and B2G modified logistics and the supply chain among businesses while increasing the speed and reducing the costs of transactions. Finally, services that were previously carried out by employees serving clients can be transferred, as is the case of automatic teller machines and Internet banking as a substitute for the teller, or secretarial services, which are now in large part carried out by each employee, or with the reduced importance of the sales staff in commerce between businesses.

The tendency to maintain the flow of exchanges to a minimum has had a particular impact on the financial sector, one of the sectors that, due to strictly informational nature of money, has come closest to the elimination of time. As time can never be eliminated, the financial sector has always been characterized by the fact that many lucrative opportunities depend on the ability to arrive first. Today this translates to an advantage that is counted sometimes in terms of seconds.

e-employment: The Internet allows all information to be encountered in virtual space. Because all information can be accessed in virtual space, the necessity to use of physical space has diminished and contact between the employee and the employer has become independent of their location, allowing increased productivity and making the structure of businesses more flexible. Transmission of messages by Internet has changed labor practices in the service sectors were information is circulated via e-mail permitting more agile communication, documentation, and control.

The Internet, when combined with cellular telephones, allows employees to be reached wherever they are. The consequences of this have been calamitous, increasing the amount of work that is performed outside normal work hours and in practice, destroying the notion of work hours, weekends, vacations, and the distinction between work and the private sphere. The rhythm of electronic communication enters into conflict with the biological and emotional rhythms of people, and this conflict leads to growth of social problems and ills. The current symptoms of such ills are the epidemic of stress and depression caused by the difficulty of keeping up with the rhythm of things and that sooner or later will result in demands for new regulations in the world of work. Eventually, worker's rights will need to include the **right to remain unplugged** outside of work hours. If we do not move in this direction in the near future, humanity will have to reinvent one of the principal contributions of the Bible: the right to a day of rest.

e-education: the capacity to analyze, bring together, and make use of information is a central component of professional competence for the majority of economic activities in the contemporary world. In principle, the Internet and education seemed to mutually reinforce one another, but in practice the relationship between them is quite complex. The junction of education and information technology has two axes: the transmission of specific educational

contents, and education oriented to further development of the capacity to use information technology in an autonomous way.

The use of the Internet to develop specific competence or knowledge (language education, extension courses, professional courses, and courses in diverse areas including higher education) is widespread today. A growing number of companies, and practically every university in the developed world and many developing countries have multimedia production facilities and/or distance education courses. Educational CDs, which in many cases require only computers and not access to the Internet-, represent an important segment of the education market.

Although there is still very little long-term comparative data concerning the effects of the Internet on adult education, several international and governmental institutions have compiled reports attempting to evaluate the impact of the Internet on education. They indicate positive results in the area of second language instruction, training for the business sector, higher education, and teacher education. Private industry and universities have been functioning in all of these well-established markets, which have been little affected by the recent crisis in the new economy.

At school level, aside from special cases such as children with special needs, the impact of the Internet on education appears to be ambiguous. There is a shortage of long-term and comparative studies for clearly identifying the contribution of the Internet in elementary schools. Case studies indicate that teacher training continues to be a fundamental element in the educational system and that the Internet can be used as a complement, but not as a substitute, for the function of teaching. The principal differential in terms of individual performance in school, aside from social context and family background, continues to be the teacher´s qualification level. Through the words (and emotions) of teachers, children develop intellectual instruments that allow them to advance their reasoning capabilities and analytical autonomy that are so fundamental in the Internet age, where the availability of an unlimited quantity of information can be practically as paralyzing as the lack of information.

New technology tends to transform the role of the teacher by subverting his or her function. If they offer a great potential for supporting classroom activities, when they are used to substitute the role of the teacher they limit the creative application of his or her pedagogic experience and interaction with students. In practice, some interactive educational software excluded teachers from their pedagogical functions.

In addition to personal relationship between teacher and student, there is no substitute (at least not in the near future) for paper and pencil, both because of its importance in the development of writing skills and for the value of paper as the best means of storing information and work compiled by students and making this work available for school teachers and parents review.

Since the introduction of the Internet in education is still experimental, it should be carried out gradually, backed by the experiences of pilot programs and **as part of** the (much needed

in most countries) general reorganization of the teaching system. For example, three-dimensional computer images are an excellent tool for facilitating comprehension of things like the human body, the subatomic world, or geology. But using these tools to develop children's complex reasoning will require further advances and redefinition of the role of the teacher and curricula. This type of instructional practice is still its initial stages and the instruments that are used still need improving. Since most multimedia products tend to standardize education, they move away from the requirements for individualization an adaptation to the necessities of each student, especially at the school level.

At the secondary and university level, excessive emphasis on the importance of the Internet as a source of information and ideas can have damaging consequences. There are indications that students have substituted reading and writing efforts with the Internet searches for texts that can be adapted to meet their assignments. Rather than being a used as a starting point, Internet searches have been transformed into arrival point, leaving behind the practices of sustained reading and reflection. The excessive emphasis on the computer screen and on multimedia educational tools risks compromising the pedagogic necessity for developing intellectual discipline needed reading a book and or the patience necessary to develop creative ideas.

The indiscriminate introduction of computers and Internet can have negative effects on education especially when teachers lack adequate training in computer and Internet use. Massive investments in teacher training will be necessary to avoid gaps between the knowledge of teachers and students in relation to technology use. .

.The introduction of computers as teaching instruments should be preceded by teacher education programs designed not only to prepare teachers in purely operational terms, but also to offer them a more general understanding of the environment in which computers and the Internet function as research tools that can advance student ability to pose questions rather than simply finding means and not an end. **Education supported by information technology** should not be confused with **information technology education,** an urgent necessity in all school systems. Information technology education requires the creation of mandatory courses designed to prepare students in the use and evaluation of information technology instruments, from their technical basics and uses to considerations of the challenges they create for society

e-culture: A growing part of humanity's cultural heritage is available on the Internet. It is already possible to visit in the web a large number of museums, historical archives, and libraries. These collections comprise a large part of the great works of literature, at least those works that are in the public domain. These materials can be obtained on the Internet usually without cost. In the future every new musical work, films, and literary works will be available via the Internet.

e-government: the impact of the Internet on political life can be divided into three levels: **e-governance** refers to the use of the Internet for increasing efficacy, quality, efficiency, transparency, and enforcement of the actions and services of the government and public

institutions; **e-government** includes a set of new instruments that allow greater and different types of citizen participation in government decisions; **e-politics** refers to the impact of the Internet on s the social structure and the political organization of society.

E-governance includes the use of the Internet for: 1) publicizing all activities of the government including budgets and public spending, allowing greater transparency and public monitoring; 2) improving the quality of administrative services by increasing their speed and outreach; 3) offering service online, including government documents, health and education service requests, bill payments, and tax declarations; 4) the electronic transmission of public bids and auctions.

E-government includes electronic voting, the possibility of interacting with public institutions, and regulating activity associated with the Internet - development of legislation concerning commercial activities, security and individual privacy rights – as well as all measures designed to ensure universal access to the Internet.

Prognostics about the impact of the Internet on politics must not overlook the fact that there is a long analytical tradition relating the way that politics is made with the dominant means of communication. Mass society has been associated with radio and in some cases even ascribed to it, in the same way that television has promoted the "spectacle society". Today several social scientists relate Internet to a new political model, through the strengthening of civil society networks disassociated from, or marginally connected to, the state.

Though past results do not permit predictions for the future, we must not forget that many socialists regarded the radio era as the advent of a new era of popular participation. We lack sufficient evidence for confirming theories regarding the impact of the Internet on politics. Currently, there are two co-existing and opposite interpretations of its consequences: some analysts believe that we are about to experience a radical social transformation from representative democracy to referendum democracy, while for others new forms of virtual contact could destroy the basis for face to face interaction that allows the construction of public space and will increase the capacity of control over the population by the state (see the box at the end of the chapter).

e-health: The Internet has facilitated work in the areas of monitoring and controlling epidemics, reorganizing health-care systems and patient relations, and allowing access to medical information by laymen (a trend that is frequently criticized for producing erroneous or counterproductive information). In the area of health, information technology is particularly promising despite its limited impact at the moment. There have already been several successful experiments in tele-medicine including diagnosis, distance surgery, medical teleconferences, and tele-monitoring. The majority of these experiments are still in the pilot stages.

One service that has been developed in many advanced countries is the so-called health card, a card that allows access to patient medical histories regardless of location. The health card facilitates remote health services and medical research. If the confidentiality of these

databases is not protected it will be possible for insurance companies and employers in possession of this information to develop discriminatory insurance and employment policies.

e-crime, e-terrorism, and e-war: Finally, we can't forget the potential of information technology to be used for falsification, theft, and destruction by criminal and terrorists networks and by a new type of criminal, the **kracker**, who specializes in breaking the security systems of networks and sites with destructive goals. As we will see, drug trafficking gangs in Brazil use cellular telephones to control their organizations from prison. **Crime and terror have been, so far, much more effective at making use of new information technologies than most of the security systems of the national states**. This is particularly dramatic in less developed countries.

One of the principal impacts of information technology on human destiny is the transformation of the art of war, thanks to new satellite systems and remotely guided missiles that combine, with increasing efficacy, information, communication, and destructive power.

Copyrights: the Private Sector vs. Public Goods

To the extent that scientific knowledge, information, and culture that can be transmitted by Internet and play central role in economic life, they have become sources of social conflicts concerning the most appropriate forms of social regulation. Information, knowledge, and culture can be seen as merchandise and sources of profit or as public goods that should benefit from state intervention to ensure effective universal access for the population. These social conflicts on the appropriation of the Internet revolve, in particular, around the theme of intellectual property.

Public debate over what can be patented started in the 1980's related to developments in biotechnology. Historically, the concept of the patent was founded on the distinction between invention and discovery. While the former could be patented, as it was associated with the creation of something new that does not exist in nature or in the public domain, discovery refers to knowledge of something pre-existing in nature or society, as is the case with scientific knowledge, which cannot be patented. The objective of patenting was to ensure that new knowledge would not be transformed into industrial secrets. As an incentive for inventors to put their inventions in the public domain, they were insured a monopoly of use or royalties from third parties for a certain limited period of time. With biotechnology, the separation between discovery and invention was called into question, with attempts to patent knowledge concerning the utility or function of certain genes, giving the patent holders the rights to charge royalties to anyone using this knowledge to develop new products. Thus science was colonized by industry and the knowledge that it produced started to lose its universality and free communication character which is among its chief historical characteristics.

The Internet has allowed the transformation of activities that were traditionally considered crafts such as teaching classes, organizing courses, conferences, and developing pedagogic material, into commodities. Institutions and companies regard their staffs as producers of patentable material transforming work that used to belong to the nonprofit category into income generating activity. In doing so they have modified the scientific ethos of pedagogy. In the United States, in particular, demands for copyright payments by third party users of any text, image of minor innovation, even for marginal or tangential uses, has become a mania with potential paralyzing impact on creativity.

All creative efforts are collective activity as the absorption and re-expression of many varied influences sustain them both consciously and unconsciously. If it were necessary to consider possible copyright violations each time a person gave a class, produced a literary work, or performed a surgical intervention, society would run the risk of repressing creativity and turning activities that have traditionally been playful and with strong collective ethos, into mechanical acts based in individual desire for personal advantage.

In the field intellectual production copyrights were originally used to protect editors and later authors of all types of artistic and intellectual works. In the European tradition, copyrights protect the author. In the United States, copyrights can be transferred in their entirety to the companies. Recently, copyrights of all literary and artistic property were standardized worldwide from 50 to 70 years after author death and 95 years after publication or 125 years after creation in cases where a company has acquired the rights of a work.

Copyright law has always included articles that accept fair use, including the reproduction of work for educational research and for personal use. With the widespread use of photocopiers editors were already questioning fair use. Later, with the introduction of Internet, the copyright problem was reopened because of the possibility of placing almost any written, musical, or visual work on a website at practically no cost short-circuiting the owners of copyrights. Various sites specialized in music and later films made recently released music available for free on the Internet. Recording companies responded by demanding the closure of the sites in court. Though the companies won in the courtroom, the near impossibility of eliminating these sites have caused them to seek out new commercial models for the use of Internet and, sometimes, unorthodox solutions such as computer virus attack.

The Internet has raised new questions regarding of the definition of fair use in the cyberspace context. Should permission or payment be required for non-commercial use of information and material made available on the Internet to anyone with access to a Web browser or search engine? Should the browser or search engine receive payment? Internet companies and holders of copyrights expect than in the future they will be able to require payment from each user for any downloaded information. To gain control over Internet users many pressure the hardware industry to include mechanisms that control and monitor each user's action. In addition to raising serious concerns regarding personal privacy, such systems would practically privatize the Internet.

An open national and international public discussion should seek to identify answers that allow payments for content producers while ensuring the open and public service character of the Internet and preserving personal privacy. One proposed solution is a fee-based system, collecting from users and distributing among visited sites according to a publicly controlled system. The transformation of cyberspace into a public regulated global space is one of the great challenges to the new forms an international governance capable of managing technological systems with impacts beyond the limits of national frontiers.

Open Source vs. Commercial Programs

The creators of the Internet left the source code of their work in the public domain allowing any person to develop compatible programs without paying for copyrights. Since the beginning of the Internet a group of researchers and hackers have worked to keep source codes for computer programs in the public domain. This movement seeks to confront the growing oligopolization of source codes within the software industry such as the best-known Microsoft case. These movements created the Open source Standard, certifying that the source code is available without cost to individual users.

The most important product of the open source movement is the Linux operating system. The use of Linux is widespread within large companies, institutions, universities, and governments. These groups generally use large computers with sufficient human resources for providing technical support to users. For individuals and small businesses without technical knowledge, commercial software has the advantage of easy installation and technical support. Although its use continues to be small, there are an increasing number of companies that specialize in providing technical support for open source programs.

Discussion concerning open source software often revolves around economic themes, particularly in developing countries where open source software use is viewed as a way to reduce expenses. The existence of open source software has, in fact, pressured the industry to reduce prices. But the central question raised by the open source movement is fundamentally political. The original architecture of the Internet facilitated communication rather than identification of the user and the content being transmitted. Both companies and governments have since developed tools aimed at identifying users and their movements. For companies, monitoring users each time they access the Internet is the only way to ensure payments of copyrights while also accumulating information regarding the consumer profile of Internet users. For governments, access to and storage of information transmitted in cyberspace is seen as a necessary component of vigilance over activities that could affect national security, causing many countries to restrict or prohibit the use of cryptographic systems by private parties, to regulate the commercialization of advanced deciphering systems, and to oblige service providers to store all e-mail for certain period of time.

The existence and ongoing development of alternative open source programs is among the fundamental conditions -together with adequate copyright laws- for limiting the capacity of

the corporate sector to subordinate the Internet to the logic of their interests. For the large majority of users, commercial programs and hardware are black boxes. Most users lack a notion of the information that they transmit when they use the Internet. Efforts to clarify the questions raised by the Internet in terms of public freedom are needed to assess the legal boundary concerning the power of the state and the corporate sectors to interfere, monitor, extract and use information from Internet navigators. And open discussion should define the role of the Internet as a public good, including the rights of companies to collect returns on their investments and of the state concerns with public security. Both are legitimate rights but they must be developed within a democratic system of regulation.

New and Old: Pyramids and Networks

The interactive and open character of the Internet has caused many authors of to view the Internet as a source for a new paradigm of social organization in which the central category is the **social network**, a system of communication comprised of interconnected nodes that are fluid and constantly changing form. In this model, each social actor participates in different networks each one depending on one another within relations that may be asymmetric or hierarchical but within which all parts are interdependent without a defined center. The network would subvert the hierarchical and rigid social structures of industrial capitalism, which in contrast are characterized by vertical systems of communication with well-defined structures of power.

The 20th century dominant metaphor for describing society was that of a **structure** taking the form of a **pyramid**. Metaphors concerning pyramids and structures are associated with concepts of cause and effect from physics or with the functioning of the central organs of the human body. The notion of networks was borrowed from studies on the functioning of the nervous system and artificial intelligence.

From the pyramidal perspective, society is organized with a small top representing the most rich and powerful and with workers at the base, while some sectors of the population are in the middle. In another metaphor of social organization, societies had a center and a periphery, companies divided themselves between employers and employees, while the political structure was based on dominant and dominated groups. In this model, interaction and communication between the different levels was underplayed. In fact, social participation and communication was always present through political parties, social movements and public opinion. In enterprises workers responded with unions or factory commissions. Finally if the distribution of resources stratified society, social mobility presented a more flexible reality. Even highly centralized totalitarian states depended on networks for keeping informed and controlling society.

With the insight of the current world it is obvious that the pyramid metaphor was unilateral. Rather than viewing the metaphor of the network as a radical break between the present and the past, we should consider how networks have always been a central part of human society.

In fact the importance of communication and information has been a central part of discussions concerning the nature of capitalism since the work of Adam Smith. Not only the markets but also democracy has all the characteristics of a network, where participation in the circulation of information is central for its functioning.

The danger of a unilateral emphasis on the role of networks is that we move from a partial metaphor of structures and pyramids to another equally insufficient metaphor. Virtual networks multiply and change the functioning of vertical organizations but they come a long way from making those structures disappear. In the same way that the unification of space and time has not eliminated time, the creation of virtual networks has not eliminated the material nature of the world and the importance of the centers of political and economic decision-making and control of power and economic resources. The principal source of technological innovation in telecommunications continues to be investments in research connected to the military sector, a highly centralized and pyramidal structure.

Networks and structures have always been interlinked. National governments have always known about the importance of the means of communication for unifying and controlling national space. While companies today have more flexible processes, power structures continue to play a central role. The centers of power concentrate political, cultural, and economic resources imposing unequal distribution of decisions and communication flow. If the Internet indeed has the effect of weakening territorial trends, by allowing interchanges on a global scale, big cities continue to be important not despite but because of their material nature, their human resources and their infrastructures.

As we have shown earlier, networks (represented by private users) and pyramids (represented by the states and by corporations) continue to confront one another within the web. While large companies connected to the information technology industry promote the broadest interpretations of copyrights, individuals and voluntary groups developed free software. Government security services try to control the communication and information of each citizen while organized groups of society work to limit these powers and strengthen privacy rights.

The impact of the Internet is **bi-directional**. On one hand it expands the possibilities for social action, for worldwide public opinion, and for activism among decentralized social movements; on the other hand it also allows new forms of social control and fosters anti-democratic organizations. These are transnational **operational networks**, with a highly **centralized** organization, thanks to new possibilities of control and command that do not require a fixed location in space. Confronting these international networks of organized crime and terrorist groups while maintaining a respect for democratic liberties will require a deep reformulation of security systems at a national and international level.

The view of a world of participatory global networks functioning apart from the government and corporate sector power structures of global society is an illusion because it offers only a partial vision of social reality. It is also problematic because it can cause us to overlook new problems in global society and to abandon the dialog with organizations (states and large

companies) that continue to be decisive in the leadership of contemporary society. The great intellectual challenge at the beginning of this century is to invent new interactions between pyramids and networks enhancing the democratic dimensions of new technologies.

Box D - The Two Faces of Information Technology: Freedom and Control

The debates concerning the impact of the Internet on political life are polarized between those who believe that the Internet is a liberating instrument and those who see its as a mechanism for the destruction of public space and for the control of citizens by governments and the corporate sector.

The optimistic vision combines disparate views. For some the Internet allows increased citizen participation in government decisions by way of a system of ongoing consultation allowing day-to-day referendums on diverse themes. For others, the Internet enhances democracy radically, creating a new public space in which civil society organizes itself separately from the state.

The pessimistic perspective includes those who consider the Internet as a threat to face-to-face relations, the only source of communication capable of generating solid and stable groups with historic memory (rather than the a-temporal world of the Internet), and capable of sustaining public life and constant political action. By creating a world of virtual relations the Internet facilitates the growing control of governments and of corporations over of citizens, destroying privacy and freedom.

The diverse positions concerning predictions of the impact of the Internet indicate real potentials that, depending on the outcomes of social conflict, could someday become dominant. In practice both the strengthening of democratic life and the weakening of privacy and freedom through the control information can be encountered today. Databases that centralize information from genetic codes to medical histories, laws that require service providers to keep copies of all e-mails, cameras that film activities in workplaces, streets, and stores, tracking systems for Internet users, credit cards that record details on all purchases, electronic toll booths, cellular telephones with cameras and GPS systems, new systems of biometric recognition, and in the future microchip implants with medical or other functions, converge in destroying the notion of privacy and together comprise an enormous potential for social control and the destruction of freedom.

The global village runs the risk of reproducing the aspects of traditional villages that made them into places of control and social oppression and where anonymity and the feeling of freedom were impossible. The growing impossibility of lying (as an individual choice) has a destructive potential for human sociability, as we know it. Though lying can be used to hide crimes, it is also an instrument of the oppressed and a fundamental recourse of human freedom.

The dependency of society on networks of electronic communication for the proper functioning of practically any service creates an enormous risk of paralysis and destruction on a global scale in case of successful attack on the system. Processes that make humanity vulnerable have always been a part of the interactions between the diverse groups of people made possible by the encounters of societies. When people lived in isolation they did not

have access to others' technological and social innovations, but they were also protected from diseases, epidemics, and new problems that are parts of the homogenization of productive, social, and political systems. With globalization, epidemics travel by airplane and an electronic virus at the speed of light. The homogenization of crops is now on a worldwide scale, advances in medicine save life but can have a neutralizing effect on the natural selection mechanisms of the species, and new technologies impacts on all of humanity and the planet rather than local people and ecosystems.

New technologies have increased individual security at the price of putting basic modern democratic institutions at risk by constructing a fragile system of life dependent on technology and vulnerable to attacks whose prevention could lead to totalitarian practices of social control. Perhaps there is a "law" of human history indicating that every new technological instruments that increases the capacity to control nature and society itself, increases the potential of destroying the environments and society while simultaneously promising improvements in quality of life and renewing the hope of a better world.

4 – The Dimensions of the Digital Divide

Connected, Disconnected, and the Digital Divide

In modern societies, the terms "connected" and "disconnected" refer to the unequal access to a diverse collection of communication tools such as books, periodicals, radio, telephone, television, and the Internet. Although we will be focusing on access to and uses of the Internet, the digital divide cannot be disassociated from access to other communication and information technologies. There is a strong correlation between the digital divide and other forms of social inequality. Generally, the highest levels of digital exclusion are found in the lowest income sectors. In modern societies based on mass consumption, social inequality in terms of communication does not manifest itself solely only on the basis of access to material goods such as radio, telephone, television, and Internet. The intellectual and professional capacity of each user to make the most of each of these communication and information technologies is as important as access itself.

The central focus of this book is the impact of the digital divide on inequality within each society. The concept of the digital divide used in the bibliography and reports from international organizations encompasses widely differing meanings. Distinguishing the different questions and problems associated with the concept of the digital divide is necessary to avoid analytical confusions and to clearly define objectives of social policies by.

The Digital Divide on an International Scale: e-readiness

International studies seeking to develop indicators to establish a country's relative position in terms of information technology development created the concept of **e-readiness**. This concept evaluates the penetration of communication technologies within countries in comparison with other countries, an important factor in determining international economic competitiveness. The relative e-readiness of a country is not necessarily correlated with the country's internal digital divide, although policies that fight against the digital divide positively affect national capacity in terms of e-readiness.

There are many ways to formulate and define the e-readiness of each country. Some authors identify stages of e-readiness development; others propose formulas based on key indicators such as the number of people with access to communication technologies. More complex models consider factors including the institutional contexts, regulatory systems in the area of telecommunications, human resources, systems of innovation, and the uses and impacts on society of new technologies. The simpler formulas suffer from the types of problems that are typical of quantitative comparisons between countries with diverse economic, political,

and socio-cultural realities. This is particularly important in this area where product dissemination and education levels determine the diversity of potential uses for new technology. The more complex formulas also have their shortcomings in that by considering qualitative dimensions, they are more difficult to quantify and they depend on adjudication of more or less random values to each index.

Despite the different criteria they use, the majority of studies arrive at a typology of levels of e-readiness that generally accompanies the scale of countries in terms of per capita income. Still, within each group of countries, there are important differences. Among the most advanced countries, the United States occupies a special position, being the country with the largest number of Internet users, home to a large number of leading software and service companies, and to the majority of the world's most popular portals and search engines. The relative advantage for U.S. companies is expected to diminish in the next years, but European and Japan linguistic diversity or specificity makes it difficult to bring their sites to international audiences.

Access to communication technology at the international level seems to reproduce the same distance as in per capita income inequality between countries. However, when we consider advanced technologies alone, the inequalities between countries is even greater than when measured in terms of per capita income. If the difference in distribution of radio and television between rich and poor countries is smaller than the differences in economic development, the availability of computers with access to the Internet is 600 times greater in the most developed and wealthy countries than in the poorest developing countries. If we consider the number of people with broadband access, this difference increases even more.

It is often argued that poor countries can jump stages of the development process by absorbing the most advanced technology. But technology is constantly changing and what appears to be cutting edge is quickly rendered obsolete. While the telephone is still unknown for a large part of the population of the planet, communication by telephone is increasingly becoming secondary to the Internet as instrument of communication. Soon, the new generation of cellular telephones will take over with devices that provide a large part of the Internet's functions in miniature form. Thus, the highly dynamic character of new technology is a barrier toward attempts to bring poor countries to the level of richer countries.

The Digital Divide and Development: E-Development

The digital divide discussion includes another subject, the use of information technology to generate economic growth, or e-development. E-development must be differentiated from the digital divide itself though it has consequences for social inequality, through the creation of employment possibilities, and reduction of poverty. It raises specific questions that will not be addressed in this book concerning the direction of investments, industrial policies, international trade, and policies for developing human resources, science, and technology. These policies also demand a legal framework including laws for the protection of privacy,

copyright laws, protections against electronic crime, laws governing the uses of cryptographic systems, regulations for commerce and for authentication of electronic signatures, and consumer rights specific legislation.

International and national institutions have touted the Internet as an instrument for modernizing small and medium-sized businesses, and as a mechanism for accessing international markets. Since Internet use by tourists in developed countries is practically universal, nearly all governments and many hotels in developing countries have web sites aimed at this audience. In many of the poorest developing countries, a large part of publicly and privately runs web sites are for the promotion of tourism.

An important theme in this area is the impact of the new technologies on the **flow of payments between developed and developing countries** and its consequences not only on development but also on the digital divide. While the international telephone payment system favors developing countries for receiving more calls than they make, the payment systems for information transfer via the Internet favor developed countries, primarily the United States, the main center of international of Internet traffic.

The Digital Divide and Social Inequality

The digital divide represents a dimension of social inequality**:** it measures the relative level of access to products, services, and benefits of new information and communication technologies between different segments of the population. The digital divide also addresses another subject associated with social inequality that it cannot be confused with the digital divide itself, that is, information technology as **a tool in the fight against poverty**. In situations of economic growth it is possible to reduce poverty indicators (the size of the population below a set poverty line), while simultaneously increasing social inequality. Thus the fights against inequality and poverty have much in common but are not synonymous.

As with all new social innovations, the impact of information technology will in principle increase social inequality because its initial impact reaches only the wealthiest sectors of the population. Thus, the fight against the digital divide is not so much a fight to diminish social inequality as it is an effort to prevent inequality from increasing because of the advantages that those groups of the population with more resources and education enjoy as a result of exclusive access to this information technology

The many methods for evaluating the size of the digital divide take in consideration the distribution of varied communication media, education levels and types of use of digital contents. As in the case of e-readiness there are innumerable formulas to measure the digital divide and, as in the previous case, they present the same types of problems. Instead of arguing in favor of a particular method of measurement, we will discuss the diverse dimensions of the digital divide.

The Dimensions of the Digital Divide

The digital divide depends on five factors that determine the level of equality of access to information technology systems: 1) the existence of physical **infrastructure** for transmission; 2) the availability of **connection equipment** such as a computer, modem, and access line; 3) **training** in the use of the computers and the Internet; 4) **intellectual capacities** and the social insertion of users (this is the product of the educational and intellectual level, profession and the social network that determines the effective use of information and the necessities of Internet communication; 5) the **production and use of specific contents** adapted to the needs of the diverse segments of the population. While first the two criteria refer to passive dimensions of Internet access, the last three dimensions define areas of potential active appropriation.

The distinction, between the different levels of access and use, is basic to development of methodologies for evaluating, accompanying, and acting in the fight against the digital divide. Starting at the first, each successive level is a prerequisite for the next. Public programs aimed at universal communication services focus primarily on the first and second levels of physical infrastructures and connection equipment that are only part of the preconditions for transforming the Internet into a public service.

Below is a more detailed description of each of the different levels:

Access Infrastructure – Access infrastructures are comprised of transmission systems that can function by way of telephone, satellite, radio, cable television and electricity wires. In the future it will be possible to access the Internet by way of cellular telephones and digital television (although digital TV will not allow effective interactivity, and requires connection to an Internet provider). Internet connections can be at either normal or broadband levels, which determine the speed of information transfer. The availability of both systems is dependent upon the existence of local providers with equipment for these services.

It is important to mention that the competitiveness of the different access technologies has been evasive and that billions dollars of investments (for example in satellites) have been lost for backing the wrong technologies, supported by inaccurate forecasts of market trends. The same thing could occur with the prognosis on the convergence of third generation mobile telephony technologies (3G), of the telephone, digital television and Internet, which are expected to lead to the abandonment of the current model of personal computer (PC). This trend may be real but it is still far from materializing and a clear definition of its format has not yet emerged.

The universalization of access infrastructures is a process that is practically complete in advanced countries, though there are still some more isolated regions of the United States and various regions of the European Union where broadband is still not available. In developing countries, on the other hand, the universalization of infrastructures is still a central problem,

particularly in rural areas. In the developing world, broadband is generally only available in large and some medium-sized cities. In the majority of developing countries, the Internet is a phenomenon that is concentrated primarily in urban centers, in particular large cities.

The ongoing introduction of new information technologies contributes to the creation of a permanent gap in the social cycle of products, both internationally and nationally. As indicated previously, at each stage of technological innovation, developing countries make an effort to reach the advanced countries, but when they are nearly successful, a new technology replaces the enormous technological distance. For example, now that the telephone is starting to be universally available in emerging industrial countries, the challenge has become access to the Internet, and in turn as the access the Internet starts to spread, broadband presents a new challenge. The acceleration of technological innovation means that we must consider thinking the digital divide as **dynamic**, with parameters that are modified with each new innovation in information technology systems. When most production of Internet content will be aimed at users with broadband access or long-term connections, slow speed users will become excluded.

Equipment for individual access - The most common equipment for accessing the Internet is a computer with a modem and a telephone line with a dialup access to a service provider. The main mechanisms of individual access are: home, work, school and public or private tele-centers. In low-income sectors without equipment or access services, access to the Internet depends on **collective access points** such as school, work, or tele-centers.

The literature on the digital divide is generally consistent in defining two main factors that determine Internet access levels, given the existence of communication infrastructure. They are personal income and educational level. Given the same income level, people with higher education levels are more likely to have access to the Internet. With the exception of some particular regions, there is relative equality of Internet access between men and women. The unequal impact on different racial and ethnic groups tends to be consistent with inequalities in income and education, with the exception of some situations where unequal access is aggravated by language differences between ethnic groups. The penetration of the Internet in developing countries is also associated to the level of urbanization. The digital divide, particularly in the developing countries, is aggravated dramatically in rural regions. In general, higher levels of urban concentration correspond to higher numbers of users.

The digital divide has a strong age component that is more pronounced among low-income sectors. The likelihood of a person being computer and Internet literate decreases with age. The difficulty of learning at a later age and the high concentration of illiteracy among older populations, cause the digital divide, to be particularly large among low-income older adults in developing countries.

For some authors it is necessary to distinguish between active users, for whom the Internet is integrated into daily life, and passive users, for whom Internet use is casual. The number of computers and users registered to Internet access providers is the principal means for measuring the number of users. The diversity of methods of access makes it difficult to count

the number of Internet users. There is great disagreement regarding the criteria for evaluating the number of users, even within the United States, between the different organizations and companies specialized in the business. In principle, one assumes that the number of users per access point (computer connected to the Internet) is larger in developing countries than in developed countries and that poor families have more users per computer than rich families (where families have more than one home computer connected to the Internet). In some cases, a single user can be registered with multiple providers, in other cases, as in the tele-centers, a single computer provides access to a great numbers of users. When Internet access penetrates the poorest sectors of the population, the number of users per computer tends to increase.

The policies of infrastructure access expansion, oriented by the privatization and competition generating telecommunications policies of the 1990´s have been generally successful, but in all developing countries they have collided with the limits of effective demand. The poorest members of the population do not have the resources to buy a computer and are even less able to pay monthly fees for a telephone line and Internet access provider. The most common mechanisms for addressing this barrier to universal access are: 1) price subsidies for the low-income users, 2) promotion of low-cost or recycled computers, 3) support for the creation of tele-centers.

A) Price subsidies – This is an area that still lacks convincing solutions. The international experience offers examples of reduced access rates in poor neighborhoods, tele-centers with free or subsidized access fees, and subsidized rates that favor low-income users and tele-centers.

B) Promotion of low-cost and recycled computers - The production of cheap computers, sometimes associated with subsidized financing, has not yet produced relevant results according to the digital divide literature. Critics argue that these computers generally are inferior in terms of data storage and speed. Some simplified computers, without hard drives, are designed for users with broadband access that can pay connection costs, which is not within the reach of good part of the population. Another approach, the recycling of used computers for distribution to technology centers in low-income areas, has some successful experiences on the international level through the donation of used computers to poor countries.

The production of “people’s computers” has as its main challenge the creation of a product capable of confronting the “double helix” of the computer industry: the need for constant **renewal of the hardware** required by the **new software** increasing demand of information storage and processing capacity. There are several possibilities for how the production of such a computer could happen: 1) the development of an alternative computer through joint efforts of public research centers and national enterprises in developing countries; or 2) the production of a cheaper computer by the multi-national industry. In the latter case the problem is that a low-cost computer could take a share away from the existing market. One possible solution would be to target only the institutional market (schools and public

organizations) and tele- centers in low-income areas. In addition to efforts to reduce hardware costs, it would be necessary to find alternative solutions to lowering the costs of the software.

Tele-centers - Tele-centers are collective access points where users can benefit from Internet services using equipment that does not belong to them. Tele-centers are the primary response to the difficulties with obtaining universal access and play a role comparable to that of the public telephone for people without their own telephone. Tele-centers are the main instrument for advancing universal access in developing countries.

Despite the importance given to tele-centers, the bibliography details only a small number of documented examples of successful experiences. Paradoxically, or perhaps not, it is the most developed countries where there have been the largest number of tele-centers experiments designed to address the requirements of the most needy communities.

In addition to responding to the needs of users without the means for individual access, tele-centers enable investment by providers in areas where the individual consumption capacity is low but through the aggregated demand, providing access can become a viable and relevant commercial market for Internet service providers. In general, telecommunications regulating agencies, due to limitations of their mandates or other factors, tend not to regulate access fees that could make tele-centers services viable.

International organizations have developed several typologies of tele-centers. They can be simplified in the following models:

Access providing tele-centers, provide basic access such as Internet, fax, photocopying, printing and telephone service. In Africa, in particular, the tele- centers often provide only telephone service

Single purpose technology centers, which offer a single type of content and services, such as governmental or educational information

Training tele-centers, that include courses in information technology use and user support along with the services mentioned in the first type,

Multipurpose community tele-centers, that offer several of the following services: local access, information, public services, educational courses, technology courses, community radio, content production, and services for the community.

Training - Training in the use of the computer and the Internet (called digital literacy or e-literacy) can be offered through formal courses in school or at work, private courses, or courses promoted by non-governmental organizations, or by spending time in contexts (schools, work or home) where the Internet is used and people nearby are able to offer assistance when needed. Children, in particular, tend to learn to use computers and the Internet through play without direct orientation.

The probability of having the type of access that allows this kind of learning by osmosis, either at home or work, is lower in low-income sectors where the chances of owning a home computer as well as having access to a computer in the work are extremely low.

Intellectual skills of the user - The ability to use the information available on the Internet as source of knowledge and intellectual and professional development, depends on the users prior skills. This qualification assumes basic literacy and abilities acquired within the school system. **Digital literacy cannot be dissociated from book literacy**. The network multiplies the possibilities for intellectual and professional work but at least until the present moment, it is not a substitute for the basic intellectual qualifications that are acquired at school and its effective potential depends on them. Thus social inequality expressed thorough education is reproduced and increases with use of the Internet. As long as much of the population of the developing world continues to struggle with illiteracy and semi-literacy, universal access the Internet, will be an illusory goal.

The Impact of Digital Services

The aforementioned factors combine in determining the **uses** for information technology, the most important criteria for evaluating its effective relevance for society. These uses depend on the creative appropriation of the new technology by the different social actors and each user´s creative development, producing new contents and applications that represent innovative responses to economic, social political, and cultural problems.

e-communication - The uses of the Internet can be analyzed according to its dual dimensionality as both an instrument of communication and dissemination of information and an instrument for access to information. Its potential as a communication instrument (email) is greater among high income users since most of the members of the user's network have access to the Internet, while this is not normally the case of low income users. This is even truer in the case of international contacts, because low-income sectors are very unlikely to have an international social network. The only relevant exception relates to poor families with members working abroad, often illegally, for whom the Internet offers cheap communication and contact with their native land and families.

e-education – Distance education precedes the Internet. Correspondence courses followed by radio, television and videocassette, have a long tradition and have served innumerable people, who, due either to time or distance, could not attend a traditional class. In 1969 the Open University, in Great Britain, had a pioneering role in university level education by way of correspondence courses. In the 1980´s and 1990´s several developing countries created higher education distance education courses, especially for inhabitants of rural areas. Today distance universities in Turkey, China, Indonesia, Thailand, Korea and India have hundreds of thousand of students each.

In the majority of distance universities established in developing countries the main means of communication are the post office, radio, television, videotapes and CDs, with the Internet still playing, in general, a supporting role. One of the obvious reasons for the limited use of the Internet is that the majority of students lack access. This situation is starting to change and in the past few years, nearly the majority of the principal universities in developing countries have begun to conduct distance education via the Internet. Courses are often at the graduate level and participants are generally professionals who are unable to participate in traditional courses.

While local universities seek to enter the distance education market, large universities of the developed world, in particular the United States (but also from Spain in Latin America), have entered into the distance education business, often in partnerships with local private universities with courses supported by the prestige of the university of origin. Tuition for these programs is often higher than that of local universities but the level of quality control often leaves much to be desired.

Distance education has been defended as a solution for schoolteachers training problems, especially in rural areas. There are several cases in developing countries of the creation of regional training using the Internet and videoconferencing, and school nets that offer teachers continuously updated programs and didactic material. The success of these initiatives depends on the availability of Internet access in schools and on the basic training of the teachers in the use of the Internet. Among countries that have made advancements in the creation of *schoolnets* are Chile (with the Enlace program supported by a network of universities that already reaches almost all secondary schools and more of the half of primary schools), South Africa, and Thailand.

Since most of the children in developing countries can only access computers in schools, it is fundamental that computers be available into schools even if they are concentrated in collective laboratories. This allows children to become socialized in computer and Internet use, offering a minimum of familiarity with information technology and increasing their future chances in the market place.

e-science and technology - The Internet was originally a tool used by the scientific community and spread rapidly among the most advanced developing countries including the majority of Latin America, China, India, Egypt, and South Africa. It has already spread in the poorest countries, generally with the support of international organizations, foundations, and corporations. For the scientific communities of developing countries, access to the Internet has meant the possibility for easy, fast, and cheap communication with the international scientific community and online access to databases and virtual libraries to which they do not have material access. The Internet facilitated the scientific interchange and participation in specialized international networks.

e-culture - In the field of culture one the most important impacts of the Internet has been the creation of virtual libraries, that allow populations of developing countries that are financially unable to construct and to maintain traditional libraries, to access the written assets of

humanity. Although access to these texts by computer screen is neither equivalent, nor a substitute to paper based text, virtual libraries allow contact with texts that would otherwise be unavailable to students at schools and universities in the developing world.

The Internet has great potential as a vehicle for expression of the cultural diversity of the contemporary world and for making cultural works available across the world. The creation of virtual museums has advanced substantially in some developing countries in particular in Latin America followed by some Asian countries like Korea, China, and Turkey, as well as South Africa. The use of the Internet for developing cultural tourism and publicizing artistic events is now a well-established practice.

e-health - The Internet is often presented as the solution for remote regions and/or for regions of developing countries that lack sufficient local medical staffing. Although there is an enormous potential for this use, there are limited possibilities for success in the near future, because the regions with the greatest needs are those with the least access to resources and staff trained for using the instruments of telemedicine, with their continuing high costs. This area is a low-priority for health care systems in developing countries.

The Internet has already been introduced for modernizing administration systems and organization of health care systems in developing countries, leading to more rational resource management and improving the quality of the services. Information technology is also used to control epidemics, for participation in international monitoring, to make the body of medical literature available via virtual libraries, and to distribute information between health care professionals, particularly in public health campaigns.

e-government - In developing countries, e-government can be an important instrument for reducing the inefficiency and the private appropriation of the state by way of bureaucracies that transform public services into sources of favors, gratuities and systematic corruption. The ability to access an increasing number of documents and official information via the Internet eliminates the power of the bureaucratic and political intermediary.

However, to the extent that public state services are accessible via the Internet, they tend to create an increasing divide between citizens with and without access. This problem will be aggravated with the widespread use of public services via the Internet. Since the universalization of Internet access in developing countries will be a long process, it will be necessary to maintain alternative lines of communication between the government and citizens, such as telephone and face-to-face contact.

Social content - The contents available on the Internet constitute a decisive area in the dynamics of the digital divide. The uses that they enable are central factors in the impact of the Internet on social inequality. Even if universal access is assured, the lack of specific contents can limit the effective impact of the Internet on low-income sectors.

Generally, in both developing and developed countries a large part of Internet contents are developed for the middle class target market, the principal market with the potential to

indirectly or directly generate revenues for web sites, either through advertising, by buying advertised products, or by direct payment for access. The orientation toward middle class users is evident in both form and content as the majority of the sites assume a relatively high user educational level. Even non-commercial home pages tend to be produced by the middle class, since making a web site requires certain knowledge of the Internet or a minimum of financial resources.

The shortage of contents specifically created for rural communities is aggravated by the fact that the Internet is basically an urban phenomenon. Users and especially producers of web sites are in large majority concentrated in large urban centers. In small cities and in low-income neighborhoods of large cities, the production of information concerning local necessities (such as job and housing announcements) is very limited.

For some time, the main concern associated with the global impact of Internet content production was the predominance of English language sites. In addition to imposing an Anglo-Saxon cultural hegemony, English language sites were socially exclusive as much because of their contents (not relevant to local conditions), as because they require knowledge of English. In non-English speaking regions, this skill is usually limited to the upper classes.

This concern has been shown to be an exaggeration: as the Internet grows the percentage of home pages in each language tends to be consistent with the percentages of Internet users (with exception of most Asian languages and ethnic minorities). Still international inequalities continue to be important. International Internet traffic indicators show that Latin American users consult web sites in advanced countries many times more often than the reverse and, that, while growth in the number of sites in developing countries has accelerated, in comparative terms, most sites still leave much to be desired in terms of quality and the amount of the information they offer (this can be easily confirmed by visiting sites of many of the governments of central Africa). The importance of the quantity information available on English language web sites means that those who lack English language abilities have a limited capacity to make use of the Internet. In the future, instantaneous text translation systems (many of which already are available but do not yet produce high quality translations) will be important instruments in the intra-cultural communication and dissemination of information on a global level.

The existing literature indicates a shortage of sites aimed at minority ethnic indigenous groups in developing countries, and has shown that where these sites do exist, they tend to be produced by outside specialists. The shortage of sites dedicated to the needs of poor urban sectors of the population, whose main point of access are the tele-centers, is equally dramatic. These groups, which are the first line of potential users of Internet, much more than in rural areas, have limited e-content produced with consideration toward their cultural and socio-economic necessities.

Box E - Policies for Combating the Digital Divide

E-social development does not substitute other kinds of social development, nor does the fight against the digital divide substitute the set of other measures necessary for facing poverty, social inequality, and one of their most terrible consequences, urban violence. But e-development has become one of the dimensions of development, as the fight against the digital divide is one of many dimensions of the fight against poverty and social inequality.

The criteria for assessing efforts to combat the digital divide must be the value of these programs for reducing other forms of social inequality and poverty. In the past decade, the United States has practically achieved universal access to the Internet but social inequality did not diminish because of this, in fact it increased. Japan, the country with the second highest number of people with Internet access, has been unable to overcome economic stagnation that has continued for over a decade

The increasing complexity associated with the fight against the social inequality creates new challenges for strategic planning of governmental actions and for the development of social policies. Policies aimed at reducing the digital divide are a necessary component of social policy but they are not the answer to all the social and economic problems. The same is true in relation to e-education and to the problems brought on by declines in school performance. The introduction of Internet should be part of the general rethinking of teaching methods and the role of both school and teachers. The search for simplistic solutions is constant in developing countries and international agencies. The Internet is too important to be brought into the cycle of miracle cures that later are abandoned for not meeting unrealistic expectations.

In the first place, developing countries should take into consideration the dynamic nature of the digital divide, which demands that countries that are not part of the central nucleus of technology generation develop at least the capacity for **defensive strategic analysis.** This will allow them to follow the trends and experiences of information technology leaders in developed world and relevant experiences in developing countries, thereby reducing the experimentation costs and helping to define the best technological options and most appropriate products for their social realities.

Second, policies must assure the coherence, integration, security and interoperability of different public services, controlling costs and making government action more coherent. The coordination of the policies cannot be left to short sighted party interests and the institution responsible for defining the strategies for the information society must be part of the central core of government. If the decision-making nucleus of the government does not commit to the coordination of ministerial activities associated to the information society, the result will be waste due to duplicated efforts and unrealistic programs. The fight against the digital divide must be viewed as long term **state policy**, avoiding the tendency in developing countries for new governments to abandon and devalue the accomplishments of their predecessor.

Third, a lack of coordination between the activities of different international and national cooperation agencies, each with its own agenda related to the digital divide, often leads to duplicating efforts. Fragmentation and institutional isolation causes not only waste of resources, but also affects the learning process on how to confront the digital divide.

Fourth, is necessary to increase the coordination of infrastructure development policies and the synergy between different physical networks such as roads, electric lines, telephone and fiber optics. Universal service should be promoted, either by creating incentives so that the private companies invest directly in the most needy areas, or, if needed, intervening directly to assure services at accessible costs.

Fifth, the urgency in resolving the problems of the digital divide cannot justify the massive hasty investments in areas that demand experimental pilot programs, adequate local conditions, users training, systems of evaluation and technical support. This is particularly true of the installation of Internet access in schools and tele-centers.

Sixth, investments in collective access must be accompanied by preparation of local human resources. If there is nobody to provide help in making use of transmitted information, the investment in communication infrastructure and access equipment is wasted. The Internet allows access to excellent educational programs for remote areas, but this possibility does not resolve the problem of shortages of teachers with a minimum education (typical of many remote places). Qualified teachers are necessary for making good use of the available material in the Internet.

Seventh, an international effort to constantly evaluate, systematize and disseminate existing experiences of tele-centers for low-income areas is needed in order to go beyond anecdotal material presented in the bibliography on the digital divide. These evaluations should include technological alternatives, types of software, models of management, systems of payment, services offered, and types of partnership between NGOs and the private and public sectors, and forms of integration with the local community.

Eighth, it is necessary to advance policies that assure the development of tele-centers. Specific regulations should ensure that communication services operators and Internet service providers offer public institutions and tele-centers in low-income areas access to infrastructure at reduced cost. The models of tele-centers must be adapted to the diverse local contexts, and should be developed directly by the public sector supported by non-governmental organizations and enterprises. The creation of public access points should creatively combine a variety of types of tele-centers. For example, a model can be imagined where in a particular neighborhood or small village, some collective access points are installed by the private initiative while a public multi-purpose tele-center offers courses, orients the population in Internet use, and supports efforts to produce local content with information on the life of the community.

Finally, as the second part of this book attempts to demonstrate, confronting the digital divide requires creative partnerships between non-governmental organizations, companies, and government, in which the non-governmental organization and enterprises play an important role as source of innovation and contracted services, without taking responsibility away from the state. The fight against the digital divide depends, above all, on the capacity of state action to use market impulses and the experiences non-governmental organization pilot programs, to assure that poor sectors of the population are integrated into and participate in the construction of the global society.

5 – Telecommunications in Brazil: Public Services and Social Inequality

Background

The development of telecommunications in Brazil can be summarized in three major phases: from 19th century (more accurately since 1852, the date of the installation of the first electric telegraph) until the military coup in 1964; from 1964 to the beginning of the 1990´s; and from the mid-1990´s to the present time. In the first phase, a long period that will not be detailed here, the telephone companies installed telephone lines in the country in a fragmented form. In 1964, they were 800 telecom companies; but only São Paulo, Rio de Janeiro, and Belo Horizonte were interconnected, while other inter-regional and international calls were carried out on short waves.

In 1922 commercial broadcasting was established and throughout the 1930s it spread quickly as an instrument of national unification, particularly under Vargas´ *Estado Novo* dictatorship (1937-1945). Television transmission began in the early 1950s, but until the end of the 1960s its dissemination was very limited.

The military regime[1] (1964-1984) was responsible for the reorganization of the telephone system and a radical transformation of the communications system as a whole. As part of their geo-strategic vision of controlling and ordering the national territory, the military governments promoted a process of nationalization and concentration of telephone companies that put an end to the majority of telephone companies and created the Telebrás system of public companies. One of the Telebrás companies, Embratel, held a monopoly over interstate and international telephone connections.

The accomplishments of the Telebrás system are impressive. In the period from its creation until 1980, the number of telephone terminals went from 1,69 million to 7.5 million. Embratel created direct connections between all Brazilian states and, via satellite, to the international system, and expanded and consolidated a research and technological development center focusing on telecommunications.

During this period was established Radiobrás, a government radio network broadcasting one hour daily through all radio broadcasters across the entire country. But, the central cultural phenomenon of this period is the expansion of television and in particular the television network Rede Globo, which through association with local channels initially transmitted the daily evening news and later a complete set of programming.

[1] The army toppled Brazil's civil government in 1964, leading to some 20 years of military rule.

In a country undergoing rapid urbanization and industrialization, where only a minority of the population had access to print news media, and a considerable part was illiterate, the television and in particular the Rede Globo network, had a decisive role in national cultural integration. In that regard, it served as a functional substitute for the poorly developed educational system. Television was transformed into the primary –and for a large part of the population, the only- source of information and the formation of values, expectations, and habits. In the 1970s and 1980s, Rede Globo, through its television news, had an important role in supporting the military regime. At the same time, through its world-famous televised soap operas, it renewed customs, introduced feminist values, forms of critical though and expanded horizons and people's expectations.

In the beginning of the 1990s, for different reasons, two of the large institutions associated with the military regime and the period of the economic miracle, the Telebrás system and, later, the Rede Globo, entered into crisis. Rede Globo, the nineties, went in to extensive debt, largely in foreign currency, to make a series of investments in the area of the new economy (cable TV, communication via satellite, Internet portals). These investments did not produce the expected returns at a time where competition among broadcasters of traditional television increased.

The Telebrás crisis was comprised of the same ingredients that caused the reorientation of the Brazilian economy and politics in the 1990s. From the early 80s, Telebrás was affected by the fiscal crisis of the Brazilian state and by inflation. Its investments were cut and the price of its services were kept low as part of a policies to fight against inflation. The return of democracy led to an increasing influence of political interests on public companies. Lack of motivation and salary reductions caused the abandonment of a large number of technical and executive staff. The accelerated expansion of the telephone system of the 1970s ran out of steam. During the 1980's, individual telephone lines were worth thousands of dollars on the parallel market and subscribers who registered for telephone expansion plans waited several years for the installation of a telephone line.

The privatization of Telebrás and of cellular telephone services was part of the overall policy of privatization initiated during Collor's presidential administration (1990 to 1992) and continued by presidents Itamar Franco (1992 to 1994) and Fernando Henrique Cardoso (1995 – 2002). At the beginning it seemed that the new telephone system would maintain public companies in competition with private companies, but the approach that was finally adopted completely privatized the sector. In the same way, proposals oscillated between maintaining only one national telecom operator company or breaking it up into independent regional companies. The latter model was eventually selected.

Although the importance of the privatization for enabling expansions of new investments in the sector is subject of debate, privatization has brought unexpected side-benefits. To legitimize privatization policies, the government mobilized a discourse that associated privatization to universal access, consumer rights, and quality services.

Privatization: the impulse and the brake

The privatization of the telephone system resulted in the creation of several competing companies, most of which were controlled by or had strong participation from foreign telecommunications companies. Within a few years, they were able of to increase the availability of both standard fixed telephones and cellular telephones dramatically, eliminating the parallel market. Today, in practically all Brazilian cities, telephone lines are available for immediate installation without costs other than the standard technical service fee.

In 1994, approximately 13.3 million fixed telephones had been installed in the country. By 1998, a year of privatization of the telecom system, this number had doubled and by 2001 there were 47 million telephone lines, seven million more than the goals for the year as established in the public utility contract. From 1995 to 2000 the number of telephone lines per 1000 inhabitants increased from 85 to 182 and the rate of phones using digital technology went from 35.5 percent in 1994 to 97.2 percent in 2001. While the prices for installation of new lines fell dramatically, the per-minute costs underwent a less significant reduction. The availability of public telephones also underwent an enormous expansion, from 300,000 public telephones in 1994 to 589,000 in 1998 and 1.4 million in 2001 (8 public telephones for every thousand of the population).

Although telephone lines continue to be unequally distributed between urban and rural areas, between the different regions of the country, and between low and high-income sectors of the population, the greatest expansion has been in the poorest regions and among lowest income groups. The number of families in the lowest income category with telephones has quintupled although still half of Brazilian poor do not have a telephone (fixed or mobile). Among the lowest income populations of the (richest) central southern region of Brazil, 50 percent have a home telephone (equal to the national average).

The numbers for the expansion of cellular telephony are even more dramatic: 800,000 cellular telephones in 1994, 4.4 million in 1998 and 28.7 million in 2001; bringing Brazil to ninth place in the world ranking. In 1994, there were 0.5 units for each 100 inhabitants and by 2001 the number had climbed to 17, the great majority using prepaid service (68 percent of the total). In 2001, 51 percent of Brazilian homes had a standard fixed telephone line. The expansion of the fixed lines during the period when cellular phones were rapidly increasing indicates unmet demand of fixed phones. The current trend is that fixed telephone system growth will slow down while the cellular telephony will continue to expand and is expected that in the coming years cellular telephone lines will surpass the number of fixed telephones.

Although the cellular telephone, as we saw previously, adapts itself better to the necessities of the modern life, the fixed telephone continues to have a strategic importance for the universalization of communication services as the main vector in the convergence between Internet and television. Current indicators show that probably this convergence will take much longer to materialize through cellular telephones.

The growth in the number of telephone lines in the 1990s seemed to indicate that universal telephone service would become a reality in the near future. Unfortunately this was not the case. In the last years the expansion of the telephone system has already began to show strong signs that it is reaching the barrier of the income limits of a considerable part of the population.

Public utility contracts require that telephone companies install a given amount of lines. After reaching these minimums, phone companies are free to offer their services outside their original areas. Phone companies hurried to install a large number of lines, but today only 75 percent of these lines are in service. A large part of the population is unable to pay the monthly subscription fees, which were once subsidized but have increased since privatization. The deactivation of lines for nonpayment has become a chronic problem. Optimistic plans for expansion among cellular telephone companies have also been cut back even though the market continues to grow.

The fact that that fixed and cellular telephony is increasingly oriented toward the low income means that the monthly average bill tends to decrease. As we indicated previously, a large part of users sign up for prepaid cellular service, which is used more for receiving than for making calls. This service does not lose money for companies only because they collect fees from the callers to cellular phones through their telephone service providers. In the case of the fixed telephones the expansion of the network for low-income groups has meant a decline in average use as measured in telephone pulses (the number and duration of calls). This results in a decline in the billing amount per telephone line, a natural consequence of the dissemination of the telephonic system, since the average monthly bill drops with the average user income level.

The expansion of cable television confirms this diagnosis and shows that the problem even reaches the middle class. Despite efforts to increase coverage areas, cable TV in Brazil has not kept up with the original plans. In 2001 there were only 3.6 million subscribers with minuscule growth in recent past years. From 2000 to 2002 the number of new subscribers was almost as high as the number of canceling subscribers. Despite reductions in monthly fees, cable television still costs 1/4 of a monthly minimum wage, it is oriented primarily toward the population interested in foreign language broadcasts and generally it is not considered a priority for even the middle-class. The principal company in the sector, NET Services, which also offers Internet access, is in a serious financial crisis.

In Brazil the situation is similar to what has happened in other countries with similar per capita income levels. In the 1990s, there was large-scale expansion of the telephone system in response to demand that had previously been unmet. But after this demand was satisfied, construction of new lines started to face restrictions of income distribution caused by the fact that an important part of the Brazilian population does not have an adequate income for maintaining a telephone line.

The Information Society in Brazil: e-readiness

As with the majority of countries, the Internet was first introduced in Brazil as part of the scientific system, where it spread quickly. In 1987 the National Research Network (RNP) made the first connections between Brazilian and American research centers. In 1991, the first regional network for scientific ends was launched and, later in 1992, expanded to 10 states by the National Council for Scientific and Technological Development (CNPq). In 1994 commercial Internet service was offered in Brazil, initially by Embratel and later through other companies. In 2001 broadband Internet (Internet 2) started to become commercially available and was offered by several companies, especially those with installed television and telephone networks. These services are available only in urban areas, most providers serve specific areas and most addresses only have one option for broadband.

Studies allowing in-depth comparisons between Brazil and the rest of the world in terms of the impacts of the Internet do not yet exist. Most e-readiness evaluations studies rank Brazil at an intermediate level, near the top of the intermediate segment in terms of B2B, e-government, and science and technology. But in terms of software and human resources, Brazil is under-performing compared to other large countries with equivalent or even lower levels of economic development.

According to recent research conducted by Nielsen-NetRatings, Brazil represents 2 percent of the world population with home Internet access, placing the country in seventh place in the international ranking of countries, which is led by the United States with 168.6 million people (79 percent of the population over 16 years old) connected to the Internet.

The Information Society in Brazil: E-Development

Spending in the information and telecommunication industry in Brazil represented 2.7 percent of the total GDP in 1995. This number increased to 8.3 percent in 2000. From 1995 to 2002 software sales went from 700,000,000 to 2,557,000,000 dollars, and the telecommunications industry became the principal source of foreign investment in the Brazilian economy during this period. From 1999 to 2001, the number of people employed by telecommunications companies increased from 152,900 to 250,000 and the GDP of the industry has increased more than 10 percent per year since 1992 (with the exception of 1995 and 1999, a period when the overall national GDP has shown little growth).

In certain sectors of e-development Brazil, stands out in comparison to the rest of Latin America. The country has one of the most advanced automated banking systems in the world and has exported know-how in this area. Brazil is responsible for 60 percent to 80 percent (depending on different evaluations) of B2B transactions in Latin America. Brazil's strength in this area is in large part connected to the importance of the financial industry.

In the area of B2C, Brazil has not reached comparable levels. According to year 2000 data, unlike the rest of Latin America, Brazil's B2C transactions are mainly purchases within of the country. This situation can be explained by the high import taxes that consumers must pay on any product coming from abroad. The B2C sector in Brazil faces another barrier: less than ¼ of the population has a credit card.

According to research recently conducted by the Federation of Industries of the State of São Paulo, 88 percent of the state's micro businesses use a computer of which 41 percent used some type of management software. 99 percent of small businesses use computers with 57 percent using management software. In both the cases it was indicated as the main obstacles for computerization the costs of the equipment and software. The SEBRAE (Brazilian Service in Support of Micro and Small Businesses) offers on-line courses for preparing entrepreneurs and launched a project creating tele-centers for entrepreneurs. The contents that will be offered under this program have not yet been decided.

The use of distance education by companies is still low. A recent survey printed in the magazine *Carta Capital* showed that most of the companies surveyed do not use distance education as part of their training programs. Among the companies that do use distance education, it is used mostly for the technology and sales areas, followed by marketing.

As in the rest of the world, Brazil has experienced a process of concentration of portal sites and access providers that have transformed themselves into the main source of information for Internet users. Four large portals represent more of the half of Brazilian Internet site visits. A similar process of concentration occurred with free dialup access providers, a market that became practically monopolized by iG (Internet Grátis).

Considering that the availability of high quality Internet services is a prerequisite for the establishment of new modern companies, in the current Brazilian context information technology increases existing polarizations favoring large urban centers at the expense of the majority of smaller cities.

The Information Society in Brazil: The Digital Divide

Social context - To determine the limits of the possibilities of Internet expansion, the first and basic variable is the literacy level. In 2001, 94 percent of Brazilian school-aged children were registered in schools, but 41 percent of students do not complete their basic educations (from 1st to 8th grade, age 7 to 16). The situation among adults is even more dramatic: 64 percent of heads of households have not completed primary school (1st to 4th grade) and the illiteracy rate among people over 15 years old is 13.6 percent. At least 30 per percent adults are technically illiterate, meaning that they are unable to accomplish sustained reading or writing. On average, Brazilians over 25 years of age have been through 5.9 years of formal schooling and even though the university system expanded, it is still below the levels of countries with similar per capita income.

The socioeconomic situation also affects the chanced for Internet access and in this area the Brazilian situation is particularly lamentable. As of 2001, 33.6 percent of Brazilians live under the line of poverty. Of those, 14.6 percent are considered indigent, meaning their income level is less than half of the poverty line. Brazil has one of the highest levels of social inequality in the world.

While the inequality measured in terms of individual income has remained historically stable in the past decades, Brazil advanced significantly, in terms of access to public services. In 2002, 96 percent of the Brazilian homes had electric energy. In relation to traditional communication technology, the situation is also much better: in 2001, 89,1 of homes owned a television and a slightly higher percentage owned radios

Number and Distribution of Users - As we indicated earlier, access to the Internet can be available at home, work, school or tele-centers. The existing data concentrates on home access. There is insufficient data about people who only have Internet access at work while the number of tele-centers in Brazil has not yet reached a relevant critical mass. We will therefore concentrate the following analysis on home access and later we will discuss school access.

To have access to the Internet, using the technology that is currently widespread in Brazil, it is necessary to have a fixed telephone line or cable television. Since people with cable television generally also have a telephone line, the important data relates to fixed telephone lines. In 2001, 51 percent of Brazilian homes had telephone lines. The second necessity is a computer. 12.5 percent of Brazilian homes in 2001had a computer.

Although low-cost computer distribution has been attempted in Brazil with the help of financing made possible by public sector banks, these initiatives have not yet shown results. Even so the new administration of President Lula has announced plans to launch an initiative in this area.

By May of 2002, the number of registered domains in Brazil approached 500,000. According to Network Wizards, Brazil had 2,237,527 hosts in January of 2003 putting it in ninth place worldwide. This number it is as high as all of Spanish speaking Latin America combined. As we have indicated, it is difficult determine the number of users per computer. In accordance with the Nielsen-NetRatings company, at the end of 2002, the number of people over 16 years of age with access to the Internet in Brazil was 19.7 million, of which 14.3 million people have access from home computers. This represents approximately 8 percent of the population with home access. The study, that measures Internet audiences affirms that the number of Internet users in Brazil increased by 2.1 million in the last year.

Despite the exponential growth in the number of people with access to the Internet in Brazil, the percentage of users with broadband access at the beginning of 2003 was around 5 percent of the total. This low percentage should be a source of concern since, as we have shown

previously, the digital divide is a dynamic phenomenon and the current trend is that an increasing amount of available content is developed for broadband users.

In the northern region of Brazil, 4 percent of computers have access to the Internet; in the northeast region, 3.5 percent; in the southeastern region the number jumps to 12,2 percent and in the mid-west and southern regions, it approaches the national average of 8 percent. Thus, the Internet follows and in some cases deepens national inequality trends because it is a phenomenon particularly concentrated in the largest cities of the country (in 2002 only 350 cities, 6 percent of the total, had local Internet Service providers that could be dialed without long distance charges). 90 percent of users belong to the richest 25 percent of the population whose levels of Internet access are comparable to the average in advanced countries.

Research conducted by the Getúlio Vargas Foundation, with data from the of 2000 and 2001 census, confirms predictable trends: access to the Internet is concentrated among the sectors of the population with more formal schooling, higher income, and who live in urban areas, and in the richest states of the country. The unequal distribution of access is reproduced within each state and city. For example, in the Lagoa neighborhood, one of the wealthiest areas in the city of Rio de Janeiro, 59 percent of the population has access to a computer while in the Complexo do Alemão, one of the poorest areas of the city, fewer than 4 percent have access. The research indicates that homes with small children have lower chances of having a computer, confirming the typical distribution of consumption capacity within the cycle of family life as well as the fact that, in Brazil, the birth rates are higher in poor sectors of the population. The study did not find significant differences in the access between men and women, but they did find that the black population has lower rates of computer access than the national average given the same educational and professional conditions.

Education and Culture

In 2001 Brazil had 94 percent of school-aged children registered in basic education (grades 1-8), and 65 percent of secondary education students (grades 9-11). These rates improved Brazil's relative standing in Latin America. The development was made possible by policies that provided incentives for staying in school (such as offering meals at school and a grant for low income families for each child attending school), as well as policies to reduce failure and grade repetition rates. Further, investments in public education made Brazil the only Latin American country where the number (both absolute and relative) of private school students diminished in the 1990s.

This success is partially overshadowed by the low school achievement levels and educational outcomes in the public schools, which reflects, in addition to the social and cultural context of the family, the poor level of teacher qualification. It is not surprising that the Internet has been presented as an almost magical solution to teacher education problems and the overall quality of education. But despite some isolated experiments, there is still no clear operational plan in Brazil for how multimedia and the Internet should be part of school instruction.

Public schools in Brazil are either supported by cities, states, or in some cases, the federal government. In terms of information technology, they often get support from all three levels. For example teacher training might be supported through one source while another might provide computers. The fragmentation of policies is aggravated by the lack of national curriculum and teacher training policies for use of information technology in schools. In 1997 the Ministry of Education created a program called ProInfo for developing school computer training and content. ProInfo would have access to resources made available through the FUST, a fund that will be explained later, that supports access universalization for telecommunications services. The ProInfo program has been paralyzed by debates in Congress over the use of commercial or open architecture software

According to the 1999 Ministry of Education census, only 3.5 percent of the elementary schools were connected to the Internet. Among private schools, this number is substantially higher and the availability of computers and Internet is used to attract students. One characteristic of Brazilian private education is the existence of large groups that, directly or through franchising, control a large number of schools. These groups generally develop multimedia programs and Web sites for supporting teachers, students, and parents.

The same survey indicates constant growth in the number of schools with computer laboratories. In 1997, 20 percent of elementary students had computer labs in their schools. By 2001, the number had increased to 23.9 percent (they do not indicate real size or the breakdown according to public and private education, but experience indicates that the great concentration is in private schools). Of the total number of 1st through 4th grade students, 14.66 percent had computer labs in schools. About 25 percent of these had Internet connections. Among students in grades 5 through 8, 35.7 percent had computer labs in schools and about 33 percent of these have Internet connections. Among secondary school students, 58.5 have computer labs in schools and 45.6 percent of these had access the Internet. The same dramatic differences between states, cities and urban and rural areas can be found in the school system.

The research also indicates that children with Internet access at home have better school performance. This is an insufficient correlation for explaining student performance: the students with home Internet access are generally the ones who belong to the wealthiest families, with higher educational level and who study in private schools. Each of these factors alone could explain the performance inequalities.

Despite constant growth in the number of schools with access to computers and other information technology, we cannot overlook the fact that in 1999, 29.6 percent of all Brazilian schools lack electricity and only 23.1 percent have school libraries. This situation reaches even more dramatic levels in the northern and northeastern regions of the country.

During of the 1990s several companies were formed that were devoted to the production of Internet material for the education system, particularly for basic and secondary education. With the crisis of the new economy, many of these companies closed or lost momentum.

Today, private foundations, state education secretaries, and large Internet service providers produce the majority of sites designed to support schoolteachers.

University support for school systems is fragmented. The case of the School of the Future, of the University of São Paulo stands out for its long experience in bringing together technological research and didactic products for teacher training. In terms of distance education, Telecurso 2000, a project of the Fundação Roberto Marinho, continues to stand out. The Telecurso 2000 program is designed for students who dropped out of school and are preparing for exams that substitute completion of elementary or secondary education. It is broadcast on television (but can also be obtained in videocassette form) and is complemented by a series of books. As we will see, Viva Rio bases one of its activities on the Telecurso 2000 program.

In the area science and technology, Brazil has been precocious in terms of computerization even by international standards. To date, all public universities staff, and in many cases students, have access to Internet. The National Council for Scientific and Technological Development (CNPq) and the Ministry of Education and Culture make collections of periodicals and library catalogs available to Brazilian researchers on the Internet, facilitating the integration of local libraries with libraries outside Brazil. The Brazilian Institute for Science and Technology Information (IBICT) is developing a project to integrate the computerized databases of all libraries in the country. The work of IBICT is considered a reference point in all Latin American countries.

Despite these developments in the use of the Internet, higher education in Brazil lacks a tradition of distance education. Only within the past few years have public and some private universities started to develop distance education courses, usually at the graduate level, and organize consortiums throughout Latin America. In 1989 was created the virtual public University of Brazil (UniRede), a consortium of 70 public higher education institutions. Its objective is to develop undergraduate, graduate, and extension courses. According to research conducted by Unisul Virtual, in 2002 there were 84,713 students registered in 60 distance higher education programs accredited by either the ministry of education or state education councils.

At the end of the 1990s, the introduction a large number of foreign graduate level programs, generally associated to private Brazilian universities, produced a wave of requests for recognition of foreign diplomas at the Ministry of Education and Culture (2,700 requests in 2002). Given the dubious quality of many distance education programs, the ministry decided that it was necessary to define criteria for distance education program certification, and suspended all new authorizations.

Public Policies

During the administration of President Fernando Henrique Cardoso (1995-2002), important achievements where made in the areas of e-governance and e-government. There were also relevant, though unequal, advancements at the state level, while at the municipal level, progress has been unsatisfactory. It is difficult to exaggerate the importance of government use of electronic means of communication and computerization of public services for reducing corruption, private appropriation of public goods, and the enormous waste and the inefficiency that has been associated with the public system since the creation of the Brazilian state. Access to documents and information concerning bids and general information by citizens and businesses, the unification and improvement of public security databases, the allocation of vacancies in public schools, and the scheduling of appointments in the public health system by telephone and Internet, are all examples of how the Internet is an instrument of democratization of the state.

During the Fernando Henrique Cardoso administration there were many success stories in the area of e-governance. Brazil was one of the first countries to introduce income tax declarations via Internet, and today it is among them the international leaders, with almost all businesses and 80 percent of individual contributors declaring via Internet (this also reflects the narrow base of contributors in Brazil). The Brazilian experience in electronic voting is exemplary and among the most advanced in the world in both efficiency and reliability. The Law of Fiscal Austerity requires that federal and state governments publish information concerning their budgets on the Internet, increasing transparency and the possibility of overseeing government activities.

Another area where the government has had success is with bidding for government contracts, a traditional source of corruption and embezzlement. In 2002 approximately 5 percent of government purchases were carried out in electronic government auctions and more than 50 percent through bidding processes via Internet. The government made advancements in the consolidation of the public key infrastructure that will ensure standards for security, certification and authentication of electronic documents. At the inter-ministerial level and all official communication with the presidential offices is carried out electronically.

All branches of the federal government have Internet pages with constantly updated information concerning various services related to documentation, tax payment, benefits, obtaining certificates and documents, and public job offerings. Though the many federal government web sites are at different levels of developments, there is a searchable portal with links between the web sites of many public institutions. In many states, the court system provides online services for keeping track of legal processes.

Brazil has made important advancements in creating legislation that facilitates the expansion of Internet businesses such as: punishment for electronic crimes, due process for documents, and privacy protection. There is still a need for further developments in this area particularly in adapting commerce laws to electronic transactions, legally recognizing digital signatures, taxation of products and services, and the rights of the Internet consumer.

The legislation concerning copyrights was expanded to include the audiovisual sector, computer programs, and databases were consolidated in the 1998 laws No. 9609 and 9610. Copyrights for software is protected for 50 years regardless of whether the software is registered or not and the law requires that software vendors offer technical assistance. The government is developing proposals concerning Internet commerce and electronic signature. A law for official government documents has authorized the use of electronic signatures.

At the end of 1999 was created the Program for the Information Society in Brazil (SOCINFO). In 2000, SOCINFO produced an excellent document, *The Information Society in Brazil Green Book*, which maps out the Brazilian situation and proposes specific policies. The program aimed to promote greater coordination of activities and identify and promote programs of strategic value. During its first few years, SOCINFO supported the development of projects in the areas of connecting libraries and non-governmental organizations to the Internet, developing a national health card, creating citizen service terminals, developing of an electronic commerce program for small businesses, and developing technology for automatic text translations to Portuguese (all software associated with PROINFO use open source technology).

SOCINFO played an important role in international forms as a leader in outlining regional positions. Despite the impact of The Green Book, considered an international reference, and the high technical qualifications of the staff, the program was in large part paralyzed by its dependence on FUST resources, which, as we will see, were never liberated. The fact that SOCINFO is part of the Ministry of Science and Technology, a ministry with limited political weight and resources, makes it difficult for the program to be transformed into an effective center for the coordination of government activities.

A second center for decisions affecting the fight against the digital divide is the National Telecommunications Agency (Anatel). Anatel is responsible for the regulation and enforcement of the telecommunications system and the execution of the FUST fund for universalization of services, which will be analyzed in more detail in the box at the end of the chapter.

At the state level, the dissemination of the Internet is steadily advancing but at an unequal rhythm. Some cities and states have policies for creating tele-centers like the mayor's office of the municipality of São Paulo Plan for Digital inclusion with Tele-centers offering free access and relies on the GNU/Linux operating system and, at state level, the Acessa São Paulo program, which is supported by the state government with a similar program of tele-centers with free access and training for the most needy populations..

The states in the southern regions and north-east state of Bahia have higher levels of Internet use and information dissemination, offering various services, among others, registering for school, data on taxes and services for enterprises. Many of the state sites adhere to the federal government online purchasing program. The situation is much more jeopardized at the municipal level. Although the largest cities are at a level comparable to the most

advanced states, the large majority of municipalities do not offer any information services via Internet, and many are not even computerized.

Non-governmental Organizations

The Internet and non-governmental organizations have had a precocious association in Brazil. IBASE, a non-governmental organizations located in Rio de Janeiro, originated in a proposal to create alternative information systems for low-income sectors. It was the first private institution in Brazil to offer Internet services to the public. In 1995 The Information Technology Network for the Third Sector (RITS) was created with the objective of promoting the incorporation of the Internet in the work of non-governmental organizations offering technical support, and information.

There are many initiatives in the fight against the digital divide in Brazil, not only though non-governmental organizations but also universities and enterprises. The experience of the non-governmental organization Viva Rio, that will be discussed in the following chapters, stands out in the fight against the digital divide for the amplitude and variety of its activities, the inclusion of programs related to the struggle against other forms of social inequality, and for the production of innovative content and products. But before introducing the work of Viva Rio, we will briefly discuss the world in which it operates, the world of the *favela.*

Box F – Telecommunications Regulation and Universal Service in Brazil

The National Telecommunications Regulation Agency (Anatel) was created as part of the process of privatization of the telephone companies. Its goals are to promote competition and reduce prices, preserve the interests of investors and shareholders, ensure respect for contractual terms and the goals of the public utility agreements, including the universalization of telephone services. There are various definitions for universalization of services, but the general sense is availability of service for all users at prices within their reach.

Though its creation did not include all necessary precautions and preparations that should have been taken before privatization, Anatel has shown great operational effectiveness and is considered a model by international standards. It has transformed itself into the principal reference for telecommunications consumers who made 4.21 million complaint calls in 2001. According to Anatel, 92 percent of these complaints were resolved through Anatel's services. Anatel's price reduction role has yielded limited results and has difficulties in establishing effective competition in the telephone industry where structures continue to be oligopolic (a problem common even in the countries that pioneered the privatization process, such as the United Kingdom).

With the objective of assuring access to telecommunications services, the Fund for the Universalization of Telecommunications Services (FUST) was established in 2000. The objective of FUST is to finance expenses associated with universalization in areas where building infrastructure would not be commercially viable and support project that are outside of the goals established for the public utility companies. FUST resources originated in a 1 percent tax on the gross revenue of telecommunications service companies and 50 percent of funds collected in fines. The Ministry of Communications is responsible for defining the broad priorities and uses for the FUST and Antel is responsible for the operational and enforcement components.

FUST has operational difficulties not only because its resources are limited considering its objectives (in the United States a similar fund receives 2.2 percent from telecommunications company invoicing), but also because until 2003 the projects associated to FUST have not left the planning stage. FUST funds have been on contingency by the federal government to assure budgetary surplus.

Anatel also possessed neither the instruments, nor the internal qualification to implement, enforce and oversee the use of FUST funds. In fact these activities could raise conflicts of interest for Anatel between the exemption requirement of its regulating function and the political leverage necessary for effective implantation of universal access. The goal of universal telecommunications services, particularly Internet services, surpasses the Anatel mandate and its operational capacity. Goals for universal access are part of public utility contracts between the government and the utilities but the contracts refer only to the availability of lines. As we have shown, the barrier to universal access to the Internet is

individual income. Part of the problem is related to high costs of telephone services due to high taxes, among the highest in Latin America.

The limitations of Anatel and its ability to carry out universalization policies don't mean that it cannot develop initiatives that favor excluded sectors of the population. For example, Anatel recently proposed the creation of differentiated access numbers for Internet dial-up service (Project 00i0). This will allow Internet users without local access providers to connect to the Internet's without long distance charges. This would be an important step in supporting digital inclusion.

At this moment, proposed solutions for creating new collective access points continue to be paralyzed. Free access kiosks at post offices and electronic presence points of the federal government are still in the planning stages. Some projects, like the creation of the national health cards, computerization of schools, and digital networks that link the entire school system and professional education network, not only suffer from unrealistic deadlines for their realization but are also based on inflated assumptions about the availability of local human resources and should be develop through pilot programs. Most of the existing projects lack detailed analyses of local contexts, and in the case of schools, clear programs for teacher education and development of curriculum suitable for critical Internet education.

6 - *Favelas,* consumption and violence

The imaginary construction of *favelas*

The image of a society polarized between those who are "integrated" and those who are "excluded" -where a minority middle/upper class reap the benefits of modernity while a majority live in "another world" of cultural, social and economic marginality- has both permeated the political discourse and been adopted by international organizations and NGOs. This vision is sustained as much by the natural tendency to think in opposites as by its capacity to mobilize moral sentiments and prejudices. It has, however, no basis in social reality.

The vast majority of the Brazilian population is integrated into the values and expectations of the global society. They have access to a variety of public services and struggle on a daily basis to acquire the goods offered by the market—with some degree of success, as we will see. At the same time, they suffer from poverty, social inequality, and severely limited access to public goods, in particular police protection. Violence, itself a product of egalitarian expectations and of young people with no prospects, who seek rapid social inclusion (i.e. easy money and recognition), is also the principal generator of exclusion, since it leads to the stigmatization of *favela* residents as a group, to a dynamic of confrontation with the police, and to the destruction of social relationships and trust under the weight of repression by both criminals thugs and the police.

The *favela* is one of those social categories that originate in a precise context and historical reality, but with the passing of time lose their original meaning acquiring multiple connotations. The word *favela* -in the sense of a define urban conglomerate- emerged in Rio de Janeiro in the early decades of the twentieth century to describe populations that were a product of illegal occupations, generally on near middle class neighborhoods. The shantytown dwellings, or *barracões,* were made from unstable materials, without any prior planning or urban design, and without access to public utilities. In general, the inhabitants were extremely poor, without steady employment, and mostly immigrants –in particular from the Northeast who fled draught and , poverty to settle in Rio de Janeiro. This image, still present in the imagination of those Brazilians who live on the "asphalt" (the name given by the hilltop *favela* dwellers to the "rest" of the city below) has little to do with contemporary reality.

As time passed, and the *favelas* grew and spread to more distant regions, they began to lose their original characteristics. Within a short time, the shantytown dwellings multiplied, not only throughout the city center but also throughout Rio's new upscale neighborhoods in the

south zone of the city. At that time, the term began to be used to describe these low-income communities made up of zinc shanties -a cheap material frequently used in this type of construction. In the 1940s, there were only 60 *favelas* in the city of Rio de Janeiro. Today there are more than 600.

Originally a marginal phenomenon, the *favela* population soon came to represent a significant part of the city, and a reason for political concern. Between the 50s and the 70s, official public policy sought the removal of *favelas* and the transferal of their residents to housing projects, usually in distant regions, far from where residents worked. Naturally, *favela* residents were uncooperative. A few *favelas* were "removed", but the majority of them remained and continued to expand. This process continued under the passive eye of the military governments, which, lacking a housing policy for the thousands of recent arrivals to Brazil's cities during its 'economic miracle', accepted the "solution" of land invasions[2] followed by self-construction of a dwelling. Ironically, the housing projects built for the victims of forced removals also began a process of "favelization", that is, of expansion without urban planning and without any provision of public services.

During the late 80s, with the return to civilian rule, the policy of removal was abandoned, (with the exception of housing at risk of collapse) and a process of *favela* urbanization began, with the development of infrastructure and urban equipment and legalization of land titles. At the same time, *favela* residents transformed their shanties into solid structures made of brick, often with several floors. Today, visitors to *favelas* are surprised by the notable difference from the precarious "*villas miseria*" of other Latin American countries and the solid constructions of these urban nuclei.

The distinguishing mark that has historically characterized the *favelas* of Rio is their extreme proximity to middle class neighborhoods. This has always been a major factor in the constant tension between the more wealthy sectors and the poor, due to the difficult of isolating one group from the other. At the same time, the proximity of their respective homes, together with that other democratic space -the beach-, has furnished a point of contact between popular culture and the intelligentsia, producing some of the richest phenomena of Brazilian culture, whether in popular music or Carnival, and in general a complex relationship of attraction and repulsion, of conflict and inter-class fraternization.

In spite of the clustered housing and narrow passageways that characterize those *favelas* built on hillsides (and the accompanying problems of trash removal and vehicular access), and the traditional denomination of certain housing projects as *favelas*, it is difficult to make a clear and rigorous distinction, from a legal or socioeconomic point of view, between *favelas* and urbanized low-income neighborhoods. As we will see, Viva Rio is equally active in the latter as in the former.

Favelas, in part because of their proximity to middle class drug consumers, have been transformed into a privileged space where gangs of drug traffickers control the physical space

[2] "Invasion" refers to the illegal occupation of public or private land, almost always uninhabited, on which *favelas* are then constructed.

and generate a dynamic that strengthens old prejudices, associating the majority of *favela* inhabitants with a phenomenon of which they are in fact the principal victims: armed violence. In this way, discrimination against *favelas* has resurged in the social imagination over the last few decades. *Favelas* are no longer associated with a precise socioeconomic or legal reality, which, as we have seen, has tended to dissipate over time, but with the phenomenon of violence and the culture of informality.

The Social Reality of the *Favela*: Consumption

The majority of the criteria that were associated with *favelas* are now out of date. Today, *favelas* are often in better conditions than poor neighborhoods, sometimes because *favelas* are older and have been receiving public investment for some time. The majority of them have access to light, running water, sewage, and -though these are more precarious- telephone and trash collection. The typical characterization of *favelas* as illegal occupations does not always apply; many *favelas* were created by owners legally dividing their lots, while, in other cases, the state has begun a process of legalizing property titles. The percentage of *de facto* homeowners in *favelas* (property titles are often not formally legalized), is about 90%. A significant percentage of *favela* residents have regular work, and a good part of the *favela* population is no longer made up of immigrants from rural areas or from other states.

The world of the *favelas* is profoundly heterogeneous, both in terms of the internal social reality of each community as well as the huge differences between them. Houses in those *favelas* closest to the wealthy south zone are prized for proximity to commercial areas and jobs, allowing residents to economize time and money on transport. Likewise, the views from many of the *favelas* located on hillsides are among the most beautiful in the city, and some houses are lucratively rented out during holidays. The rental price of commercial space for shops along the main streets, due in part to the difficulty of access to side streets, is comparable to rents in middle class neighborhoods.

A study by the *Favela, Opinion, and Marketplace* research group, which will be described in more detail later, had some surprising results: 51.3% of *favela* residents belong to class C; 24% to class B (17.3% in class B2 and 6.8% in class B1), and an unexpected 2.5% in class A2. Less than 1% belongs to the lower class E. (Class determination is based on the so-called "Brazil Criteria for Social Classification", which focuses mainly on access to consumer goods and housing conditions, assigning class 'A' to those with most access and E to those with the least.)

In spite of the difficulty of access to consumer goods –stores are located far away from these communities, and credit is expensive and difficult to obtain- families are able to save money and invest in products such as home appliances and entertainment equipment. 96% of those interviewed had color televisions, 55% had a VCR, and nearly 57% had washing machines. *Favela* residents who have a live-in housekeeper made up about 2.4% of the total. The

percentage of residents with their own vehicle was 15%, in spite of the difficulty of driving through the narrow, winding streets of the *favelas.*

In spite of the surprising number of consumer goods found in *favela* homes, a main indicator of the difficulties in social integration can be found in the education portion of the survey: 25.4% of the adults interviewed had not completed the first four years of elementary school; 37.5% finished the first four years but not the second four years; 13.6% completed secondary education, but did not begin or abandoned a university course.[3] Only 1.0% completed university. Another relevant piece of information should be added to this data: 25% of the young people between 15 and 25 years of age have not completed their basic education, limiting access to the job market and encouraging involvement in drug trafficking activities.

All these indicators show that within the universe of urban poverty in large Brazilian cities, there is a distinction to be made between individual consumer goods and collective, public goods. In terms of the capacity of individuals and families to acquire consumer goods, *favela* residents are included; in terms of collective goods, especially education and security, they continue to be excluded, with deleterious effects on quality of life and chances for employment. Moreover, the association of *favelas* with violence has recreated the stigma of living in the *favela,* which in many cases leads residents seeking employment to give false residential addresses.

The Institutional Reality of the *Favela*: Neither War nor Peace

The 1970s and 80s were a period of expansion of so-called civil society and grassroots organizations in *favelas*, arising from community leaders, many of them associated with the Catholic church and liberation theology. This period also witnessed the rapid growth of Protestant churches and congregations, which today have come to represent one fourth of the *favela* population. The interaction between these elements and the overall political system produced a complex dynamic, which was transformed and disfigured with the widespread appearance of gangs associated with drug trafficking.

The associations that came about at the end of the 70s and the beginning of the 80s were seen as a new type of social movement, critical of the old clientelism and skeptical of political parties. Even before being decimated by drug traffickers, these associations had begun to lose their force with the democratic governments, ultimately colonized by political parties and by state government organs. Under the justification of partnerships with local institutions for development of infrastructure, partisan and government bodies transferred important resources to *favelas,* which became the root of internal conflicts and new forms of clientelism. At the same time the dizzying growth of evangelical groups transformed the values of part of the population, emphasizing personal concentration on work and family and channeling solidarity into doing ”works” for the church -distant from the collectivist and

[3] In Brazil, education is divided into basic (*ensino fundamental*), made up of two four-year “series”; secondary, a three-year course (*ensino médio*), equivalent to high school; and university-level (*ensino superior*).

ecumenical spirit of the grassroots movements. Maintaining a good distance from the world of politics and the secular institutions, evangelical churches were better able than the progressive Catholic Church to separate the mundane and the sacred. The majority of drug traffickers who want to be "reborn", then, turn to the evangelical churches.

By the beginning of the mid-80s, drug trafficking had grown to become the principal center of power within the *favelas*. The majority of community leaders had to shrink, accommodate, or associate themselves with the traffickers; if not they could run the risk of being shot down, as happened with dozens of them who questioned the power of the traffickers.

The tendency to explain the social importance of drug trafficking by the generalized poverty or the lack of public services -which would lead *favela* residents to accept their "protection" or employment in traffic-related gangs- is only partially correct. As we have seen, public services have improved, and the levels of poverty and the lack of hope for the future among youth, though important factors, do not by themselves explain the importance of drug trafficking in these communities. At best, these factors provided an adequate medium for the culture of drug traffic to take root in.

The deep insertion of drug trafficking, and the level of violence associated with it, is a product of decades and decades of history in which the state has continually left the *favelas* in the hands of local strongmen, who impose order through violence and ties of protection and clientelistic subordination, maintaining relations of favoritism and corruption with police and politicians.

Life in the *favela* is dominated by a culture of informality, i.e. a culture where the strategies of sociability are constructed at the margins of, or in contraposition to, the state. This informality is present in the construction and expansion of residences without official authorization, in the use of the most varied tactics to avoid paying light and water bills, in stores and businesses that are not legalized and therefore do not pay taxes, and in the omnipresent distrust of the police. This long-standing culture of "illegality" and the rejection of the state facilitate the attraction of young people to drug trafficking activities. Marijuana and cocaine trafficking in the *favelas*, in turn, is associated with the international phenomenon of drug traffic, quite simply one of the most profitable businesses in the world, and one which demands little or no educational qualification from its employees.

Finally, in the case of Rio de Janeiro, the high levels of violence associated with drug trafficking are fed by the lack of effective national weapons control policies. Relevant factors range from police officers themselves, often involved in selling these weapons to traffickers, to the economic interests of the powerful Brazilian firearms industry, which "legally" exports large quantities of weapons that later re-enter Brazil illegally, creating a triangle of illicit trade that amply supplies drug traffickers.

Drug Trafficking and Violence in Rio de Janeiro

The history of drug trafficking in Rio de Janeiro has a unique trajectory. The phenomenon of large-scale drug trafficking -related to cocaine produced in Colombia- arose in Brazil at the end of the 70s, transforming Rio into a hub for international connections, as well as a center of local consumption. With this transformation, the drug trade came under the control of a particular structure: the *Comando Vermelho,* or Red Command.

The *Comando Vermelho* was born in the prisons of Rio de Janeiro during the 70s under the military dictatorship, a period in which prisons were full of left wing revolutionary guerrillas. Common criminals learned from them the importance of organizing collective solidarity and mutual protection to ensure better conditions in the prison and pay for legal defense. They also absorbed the basics of critical discourse. Thus was born what would end up being known as the *Comando Vermelho,* a structured organized crime collective, which would later split into various in-fighting factions. In spite of the many changes it has undergone over the intervening years, the organization has maintained certain key traits: a large number of its superior members are still found in prisons, where they continue to exercise command through a complex support network -through fear and cooptation of guards and lawyers, and, in the last few years, directly through smuggled cell phones. It is not surprising that drug trafficking has been one of the first organizations to understand the potential of alternative uses of cell phones, nor that they have become massive consumers of these products.

Gangs of traffickers inserted themselves in the *favelas* with the support of local groups, in a scheme of fragile alliances with local gangs. The basis of drug trafficking is territorial control, and the struggle between the groups is about control over individual *favelas* or parts of them. It sustains itself by selling cocaine and marijuana, which has meant that practically no synthetic drugs, such as crack, circulate in Rio de Janeiro. This type of drug is rampant in São Paulo, but so far, attempts to bring crack to Rio have been unsuccessful.

Traffic has its material base in the *favela;* from there, traffickers organize the distribution of drugs and recruit members. It is estimated that the drug trade employs somewhere around 1% of the *favela* population. Internal community relations are founded on the long-standing distinction between two identities: "workers" and "criminals." Criminals expect the workers to keep quiet and not cooperate in any way with the police. In exchange, the criminals assure order, which includes occasional help for people who need money, conflict mediation and punishment of thieves (generally a gunshot through the hand or foot) and of child-molesters (normally a death sentence, often accompanied by torture). Their interest is not solely in keeping the police out; traffickers also find confirmation of their power in the ability to "impose order."

Police in Rio de Janeiro have a long history of disrespect and brutality with the poorest population of the city. They are also part of a web of corrupt practices fed for decades by their complicity with an endemic form of ilegal gambling known as the *jogo do bicho*, or "animal game"[4]. Politicians are also complicit with the *jogo do bicho,* receiving financial

[4] In the *jogo do bicho,* essentially an illegal lottery, gamblers place bets on numbers that correspond to certain animals. The winning animal pays out a certain percentage of the pot, the rest going to the *bicheiro* (the

campaign support from the game's "owners" and operators. The militarization of the police under the rule of the military regime further distanced the police from their own functions and made them even less prepared to deal with civil crime. The judiciary, in turn, continued to function with outdated and inefficient processes, sometimes itself co-opted by drug money. As for the penitentiary system, the history of the *Comando Vermelho* bears witness to its incompetence and counterproductive role.

The long tradition of mistreatment and abuse at the hands of the police has led many young people to identify with drug traffickers. The relationship between the police and drug traffickers can be described as sadomasochistic. On the one hand, the police represent the principal enemy of drug traffic, killing hundreds of its members and employees every year. On the other hand, the police participate in the enormous profits of the drug trade, whether it be through arms sales, ransoming traffickers and bosses, or accepting bribes to allow shipments to pass.

Initially, drug traffickers relied on light weapons and recruited primarily adults; children, if involved, had minor, helping roles. Over the years, however, the weaponry used by traffickers has gotten more and more sophisticated, and the recruitment age has gotten younger and younger -currently it is common to see children entering the drug trade at 12 or 13 years of age. *Favela* life is increasingly penetrated by a culture that associates carrying a firearm with manhood, not to mention a significantly higher income than the majority of legal workers within the community. This is a phenomenon common to other third world cities, related not only to obtaining "easy" money but also to masculine affirmation, which sees guns as a source of power.

Since 1982, the homicide rate in Rio de Janeiro has risen dramatically, from 23 per 100,000 inhabitants equal to New York in that year, to 63 per 100,000 in 1992, reaching a high of 80 per 100,000 in 1994 before settling down to an average of 45 per 100,000 since 1999. Because they are citywide averages, not even these figures convey the full severity of the problem. In middle and upper class neighborhoods of Rio, the homicide rate is no higher than in many of the world's large cities, including the first world. In poor neighborhoods, however, the homicide rate is much higher, exceeding 100 per 100,000 in some cases.

An increasing share of these homicides victims are children, adolescents, and young men. In 2002, firearms were responsible for close to one third of all deaths of children under the age of 18. In 1999, firearms killed 113.8 young men for every 100,000 inhabitants, a rate comparable to the mortality index in regions engaged in armed conflicts that are unanimously considered wars. But Rio de Janeiro is not a war zone: there is no foreign invader, nor is it correct to speak of a civil war, since society, as a whole is not divided. The rich do not actively fight against the poor or vice-versa. In fact, the poor are the most common victims of firearm homicide.

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bankier", or "owner" of the game). *Bicheiros* traditionally use their profits to win political influence and community standing, often subsidizing popular community projects such as samba schools.

But if this is not war, it cannot be said that Rio de Janeiro, or the other great cities of Brazil and the third world where the phenomenon of armed gangs has reached epidemic proportions, is living in a time of peace. The question of war and peace is not simply one of denominations. At the end of the day, are the thousands of armed children working in the drug trade to be known as "soldiers", as they call themselves, or as criminals under the orders of drug traffickers? If they *are* soldiers, what about their superiors, who do not consider themselves commanders, define themselves as "managers"? What kind of business controls large sections of the city and dictates the rules of the social order within its territory? What kind of state is fatally unable to control its own police force, the final guarantor of the social order? What kind of "non-war situation" is this, that in the last few years has killed more children per inhabitant than the Israeli/Palestinian conflict, or many declared armed clashes in Central America?

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Box F - Interviews with children and adolescents employed in drug trafficking[5]

I: How many bosses do you have?
T: Only one.
I: And if he wants you to do something...
T: You have to do it.
I: What happens if you don't do it?
T: Depends what he asks [...]. If it's to kill someone, I have to do it. If I don't kill then it's my life at risk...

Soldado[6], 17 years old

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I: What happens if a person receives [drugs to sell] and doesn't pay back the money afterwards?
T: Ah, if he doesn't pay, he dies, takes a beating. It depends on the boss. If the boss says that he has to die, then he dies.

Soldado, 16 years old

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I: To be killed [after breaking a rule], if it's a youth, if it's a boy or a child, does it make any difference?
T: No it doesn't.

Gerente de maconha,[7] 22 years old

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I: Today you're sitting in front of me with a gun, what's the name of this gun?
T: This here's an AR-15 baby [nickname given to an M4 or Colt AR-15].
I: ...and how old were you when you started working with firearms?
T: 14 years old.
I: Did you buy your first weapon?
T: No. The *boca*[8] gave it to me. Left it with me to do the security...it's from the *boca* but it's mine to carry.

Soldado, 18 years old

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I: Do you remember the first time you used a gun?
T: [...] Ah, it was a war [...] against the Terceiro Comando, another faction.

[5] The following excerpts are from the book *Children of the Drug Trade*, (Rio de Janeiro: 7 Letras), 2003, by Viva Rio/ISER researcher Luke Dowdney.
[6] '*Soldado*', or 'soldier', is an official "rank" within the hierarchy of the drug trade. A *soldado* is "responsible for armed security of faction territory and invading rival faction territory." (Dowdney, 2003)
[7] Literally "manager of marijuana," *gerente de maconha* is another official position, "responsible for all marijuana sales within a *favela* community." (Dowdney, 2003)
[8] A *boca* is a sales point for drugs within a *favela*. In this case, the gun in question is the collective property of the *boca* where the interviewee works.

I: And which faction are you from?
T: Comando Vermelho.
I: Were you defending or attacking?
T: Invading.
I: [...] why were you invading?
T: Hum, to get more money.
I: [...] how many of you were invading?
T: Oh a lot, about 200.
I: 200 armed men? Seems like a war?
T: It is a war.
I: [...] when you participate in an invasion, are you paid?
T: No, you don't receive money, but you receive a better position afterwards.
I: How does the community see the people that are invading, after you've invaded a Terceiro Comando area?
T: Ah, they get scared. But after a year or so they start trusting us.
I: [...] and how many people *[soldados]* stay [in the community] after an invasion?
T: Around 70.
I: [...] did many people die during the invasion?
T: A few.
I: How many is a few?
T: Around 15.
I: How long did the invasion take?
T: Four hours.
I: And which guns did you use during the invasion?
T: Two pistols.
I: 200 of you and the police didn't come?
T: Oh, the police only arrive late.
I: Why do they arrive late?
T: Oh they're scared to get shot, to be killed. Because this business is serious!

soldado, 16 years old

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T: ...the police [...] set up the bandits in order to kill them.
I: Why do the police want to kill them?
T: Ah, because that's their job.
I: To kill people?
T: Yes, the police kill the drug traffickers. That's why we have to exchange gunfire with them at night.
I: Have you already exchanged gunfire with them?
T: Yes.
I: How old were you?
T: 12 years old.
I: [...] did they know you were a minor?

T: They knew. They knew I was the *fogueteiro*[9]. There were four *fogueteiros*, and one of the others got it...pa, pa, pa, pa, pa,

I: And why do you think they wanted to kill you?

T: Because I'm a *fogueteiro* [...] we make noise to warn the others that the police are in the *favela*.

I: Have you lost friends in this business?

T: Yes, lots.

I: How did they die?

T: [...] in exchanges of gunfire with the cops, others in the war [with other factions].

fogueteiro, 12 years old

[9] "A lookout that uses fireworks to warn fellow drug traffickers of a rival faction invasion or a police raid." (Dowdney, 2003)

7 - Viva Rio: Digital Inclusion in the Fight for Human Security

Viva Rio

Viva Rio was born at the same moment as another movement that mobilized the population of Rio de Janeiro and Brazil as a whole, the Campaign against Hunger, launched in 1992. Led by the late social activist Betinho, director of IBASE, an NGO founded in the 1970s, the campaign shared common goals with Viva Rio: to create a space where all social strata could collaborate to confront the problems generated by social inequality. For a country that had recently came out from under more than 20 years of military rule and consolidated a cultural ideology of class warfare and confrontation, the idea of seeking the support of the business class and spreading a message of peace and solidarity, with nearly-religious overtones, seemed to many a sociological impossibility. But Brazilian society had changed. A new perception had taken hold, even among the dominant elite: all social groups, including the wealthiest, are affected by poverty and violence; extreme inequality impedes economic growth and denigrates the image of the country's cities, a central factor in attracting foreign capital in a globalized world. The combination of these factors -this new social sensibility, this desire to not let social fractures grow deeper, this need to create channels of communication between the "*morro*"[10] and the "asphalt"-– led to the creation of Viva Rio.

In July 1993, a small group of homeless children that slept on the sidewalk in front of the Candelária Church in downtown Rio was attacked and fired upon by local policemen. The policemen, who had been paid off by local shopkeepers, killed eight of the children. The episode shocked the entire country, and was widely reported in the international press. Just one month later, Rio was home to a second tragedy, this one in the Vigário Geral *favela:* after a skirmish with local drug traffickers, a group of military police invaded the *favela* and killed, at random, 21 residents. That same summer, the beaches of Rio witnessed a rash of so-called "*arrastão*" attacks, in which large groups of young delinquents would sweep along a beach, frightening away bathers and stealing everything in their path. This practice provoked numerous conflicts with police, and created havoc in an area traditionally dedicated to leisure and tourism.

As a way of reacting to these episodes, a group of entrepreneurs decided that it was time for civil society to voice its concerns. A first meeting was called, with various businessmen, intellectual and union leaders in attendance. Betinho, also present, invited Rubem César Fernandes, coordinator of ISER, to represent the diversity of religious currents.

[10] *Morro*, or hill, is commonly used to refer to *favelas*, though not all *favelas* are built on hillsides.

The first campaign launched by the group was an invitation for society at large to participate in a great public act. The idea was for the residents of Rio to dress all in white and dedicate two minutes of silence in hopes for peace. Christened with the slogan "Take a moment for Rio – Stop in order to begin anew", the campaign brought thousands of people to the doors of the Candelária church. The movement was strengthened, and the next day a manifesto was published by a multi-faith group of 24 religious leaders who had joined in prayers for peace.

In the course of the group's meetings, Rubem César's leadership was affirmed, and he offered the ISER headquarters to house Viva Rio's activities. ISER, still Viva Rio's principal research partner, was founded in the 1970s by theologians and researchers, most of them protestant. Originally dedicated to research on the diverse forms of Brazilian religiosity, ISER eventually began acting in social issues, in particular after receiving a number of catholic researches with links to liberation theology. In the 1980s, ISER expanded its research and social activities into diverse areas, and by the 1990s was involved in projects not directly linked to religious themes, such as Public Security, Racism, Violence, and Prostitution. This tendency to expand into diverse areas foreshadowed the development of Viva Rio, not surprising given the leadership of both organizations by the same person.

One and a half years later, Viva Rio was formally created, organized around a Board of Directors made up of business executives, journalists, artists, academics, directors of commercial associations, and community leaders, with its central objective to invent strategies for reducing violence and to develop projects and campaigns that would receive the support of civil society and the state. Viva Rio's first actions were symbolic and media-savvy campaigns for social mobilization. Organizers also defined the organization's mission: "To integrate the divided city and create a culture of peace, interacting with civil society and public policy, especially in *favelas* and poor neighborhoods, through local social action, campaigns, and communication."

The Campaigns

Organized in 1994, the second big Viva Rio campaign was aimed at creating an anti-violence movement, integrating the public security structures of the federal, state, and municipal governments with civil society. In November 1994, another campaign, "Disarm, Rio", was a kind of counterpoint to the occupation of the *favelas* by the Brazilian army – an emergency measure taken by the government in response to the alarming level of violence in the city. This campaign lasted until February of the following year, the longest Viva Rio campaign to date.

With each new campaign, Viva Rio won over new volunteers and collaborators. Businesspeople, liberal professionals, artists, and common citizens participated as volunteers in the creation and publicizing of the campaigns. One of the most successful and expressive was the "React, Rio!" campaign, in 1995. Created in response to a wave of kidnappings that year -at one point, three people were kidnapped in a single day- the campaign brought

together close to 400,000 for a "Peace March", under heavy rain, through downtown Rio. (See Box with Viva Rio's Campaigns in the Appendix)

One of the characteristics of Viva Rio's campaigns –in part due to ties with ISER, but above all to Brazilian culture- is its semi-religious and ritualistic components. Those who have had the chance to witness these public acts are always impressed by the profound impact of religious values on a large part of the population, which allows them to find the strength to confront situations of great suffering, such as the loss of loved ones, without giving in to destructive anger, intolerance, or prejudice.

Integration with the Communities

The first social initiatives aimed at low-income communities were born out of the campaigns themselves. In the beginning, there was still a great deal of distrust on the part of *favela* leaders in relation to Viva Rio's efforts. For example, the "React, Rio" campaign, though it mobilized many different sectors of Rio society, it also was criticized by some communities for defending the interest of the wealthy business executives who were the main target of the kidnappings. Representatives from the Vigário Geral *favela* even referred to the campaign as "React, Rich Man"[11]. In response, Viva Rio began organizing meetings with community leaders, and learned that for many of them, one the principal problems facing their communities was the negative image of the *favela* which the media projected: a no-man's-land entirely dominated by violence.

These leaders conditioned their participation in Viva Rio projects on the development of strategies for changing the negative public image of the *favelas* and improving the quality of life of local residents. After unsuccessful attempts to negotiate the issue of public image with print and television media –special newspaper sections dedicated exclusively to these populations were considered– Viva Rio decided to expand its scope to include direct social action, putting off for the time being its project for communication aimed at *favela* populations.

Human Security and Digital Exclusion

Viva Rio thus began the journey that would transform it into one of the foremost NGOs in the world working in the area of Human Security. Though unfamiliar with this concept when it began its work, Viva Rio engaged itself in a number of activities that converge on what today is called Human Security. This concept joins the right to live in security with the right to access to basic necessities, or, to put it slightly differently, the right to live without fear of violence and the right to live without fear of not being able to supply the minimum material

[11] An untranslatable pun. In Portuguese, the name of the campaign was "*Reage, Rio*", satirized as "*Reage, Rico*".

necessities. Human Security is the utopian horizon of contemporary society, and it should be the end result of the efforts of each society and the international system to ensure economic and social development and the peaceful resolution of conflicts. As the principal global public good, it should be the fruit of new forms of international governance.

Urban violence has traditionally been considered a by-product of poverty. However, beyond a certain level of crystallization, urban violence reaches epidemic proportions, requiring a change in perspective. Violence must be treated directly, with specific instruments, whether in terms of direct prevention and repression or within social actions that seek to transform the social groups directly involved.

In this sense, Viva Rio's work represents a breakthrough experience. Using research instruments and practical experience to identify groups at risk of violence (low-income adolescents and youth, especially those that dropped out of school before completing their elementary education, living in *favelas* and poor neighborhoods on the periphery of the city) and one of its principal vectors (the easy circulation of firearms), Viva Rio developed a series of activities that, taken together, form a true Human Security program. These activities, which will be discussed in detail in the following chapters, include direct actions aimed at high-risk groups (tele-courses for completing elementary and secondary education, computing classes, training of local leaders, job creation), more general actions for low-income areas (income generation projects, culture of conflict resolution, dissemination of citizens' rights, improvement of self-image), and specific actions in the area of local security and the fight against violence (arms control, disarmament campaigns, training and improvements of quality of life for police, and reform of the public security system).

In the area of human security, Viva Rio's principal vocation is the mobilization of all communications media – radio, print, video, Internet – both to raise public consciousness and to develop specific instruments of action, changing living conditions and opportunities through education, creating a culture of conflict resolution, transforming the security system, and improving working condition. Viva Rio's legitimacy stems from its ability to be a bride between many different sectors of society, the state, the media, and in its capacity to develop effective action in the fight against violence and urban poverty.

In all of Viva Rio's activities, therefore, the theme of digital inclusion can be seen not so much as an end but a means, an instrument in the fight against various inequalities and the transformation of a social context that perpetuates poverty and violence.

Current Dimensions

Viva Rio develops its projects in partnership with local institutions, thus constituting the central hub of an extensive network. Partners offer infrastructure, personnel, and knowledge of local conditions, while Viva Rio provides project elaboration, professional and technical training, didactic material, and other services. As of 2002, Viva Rio had **668** local partners,

including residents' associations, NGOs, unions and cooperatives, schools, military police battalions, community radio stations, churches, and prisons. **94** public events were held, part of some **741** local projects. Of these, **258** were in the area of education, **113** in the area of communication, **91** in community development (income generation), **93** in security and human rights, 41 in environment, **1** in sports, and **144** in volunteer projects. The projects are split more or less equally between the municipality of Rio de Janeiro and other regions within the state.

In 2002, Viva Rio engaged the services of 825 remunerated personnel and mobilized **3,941** volunteers. Many area coordinators and the great majority of remunerated personnel are *favela* residents. Except for a small number of core staff members, the majority of Viva Rio employees are organized into cooperatives contracted for specific services. Viva Rio is not identified with any political party, and does not consider party affiliation when hiring.

Viva Rio's income in 2002 was R$17,712,014 (around 5.5000,000 U$ dollars) , a 13% increase over the year before and 27% higher than in 2000. Within a universe of 75 donors, 47.9% of donations came from business, 20.7% from governments, 15.5% from foundations and NGOs, 13.7% from its own sales and fundraising efforts. Though financed principally by Brazilian sources, in the last few years international support has been growing in importance, from 4% of the operational budget in 1999 to 27% in 2002. The areas of Public Security and Human Rights, Community Education, and Environment absorb, in roughly equal proportions, 80% of the operating budget. 21,793 people have directly benefited from Viva Rio's educational activities, and 26,497 people have benefited directly by actions within the Public Security and Human Rights area.

One of Viva Rio's most important partnerships is with the press, aided by the presence of numerous representatives of Rio de Janeiro's television and print media, which has allowed it to effectively publicize its campaigns and projects. Viva Rio's media presence is impressive: a daily average of 74 cm^2 of print media exposure; 4 minutes and 48 seconds of exposure per day on television.

Organizational Structure

Like so many leaders of large NGOs in Latin America and Europe, the founder and executive director of Viva Rio belongs to the "generation of 68". Rubem César Fernandes was born in Niterói, on the opposite side of the Guanabara bay from Rio de Janeiro, in 1943. In 1964, now a young militant leftist, he fled the newly installed military government and went into exile in Poland, where he studied Philosophy. In 1968, in response to the repressive and anti-Semitic policies of the Gomulka government, he left Poland and went to the U.S., where he received his PhD in history of thought from Columbia University, in New York. He returned to Brazil in 1976 and joined the anthropology faculty at the University of Campinas, later moving to the National Museum of Rio de Janeiro, where he eventually retired. Rubem César had a central role in dynamizing ISER, which he directed in the1980s and 90s, and is

currently the principal executive of Viva Rio. As in many businesses and the majority of NGOs, the director/founder occupies a central place, and Viva Rio will certainly, in the coming years, traverse a complex path to ensure the continuity of the institution independently of the charismatic presence of its executive director.

Viva Rio is run by a Board of Directors which meets monthly, and is made up of a group of businessmen, representatives from the media – the heads of the principal Rio newspapers among others -union and community leaders, athletes and cultural figures, liberal professionals, and the executive director. Unlike the board of directors of the majority of institutions, which have a purely honorary function, Viva Rio's board meets monthly and has an active voice in the evaluation of activities and the definition of lines of action.

Operational questions at Viva Rio are analyzed monthly in meetings of the area coordinators. Recently a Managing Committee was formed in which participate the executive director, the finance director, an area coordinator and two volunteer business executives who review and consult on the direction of the institution, and in particular on problems relative to the management of resources and administration.

Internationalization

Initially concentrating its actions almost exclusively on the city of Rio de Janeiro, Viva Rio's success has meant an increasing tendency toward internationalization in its sphere of action. Viva Rio has transformed itself into a pole of attraction for youth from Latin America, the U.S. and Europe, who, passing through Brazil, become interested in Viva Rio's activities and remain in the institution, often occupying positions of responsibility.

Solicitations from other cities in Brazil and abroad to repeat the experiment are frequent, and, as we will see, the activities and research developed by Viva Rio are today considered benchmarks by international organizations; more than ever, Viva Rio is integrated into international networks of NGOs and institutions. The growing demands from this sector make it necessary to create a new equilibrium between international activities and its focus on local efforts, principal source of Viva Rio's projection and legitimacy.

Viva Rio is a member of the Latin American secretariat of the International Federation of Alternative Trade (IFAT), an advisory board member of the International Action Network on Small Arms (IANSA), and a member of the "Peace to the City" project of the World Council of Churches. It is also responsible for coordination of various research projects and the training of NGOs in the area of urban juvenile violence and the fight against illicit small arms traffic, especially in Portuguese- and Spanish-speaking countries.

Recently Viva Rio has been invited by the UNDP and European national cooperation agencies to create an International Training Center in Human Security, which will begin to function in 2004.

It is becoming increasingly clear to people associated with development-oriented cooperative efforts that relations between the NGOs of the first world and those of developing countries are determined by the agendas of the NGOs of the north. In response to this realization, Viva Rio has begun to experiment with internationalizing its experience. The idea is to publicize Viva Rio's activities and develop cooperative projects that build on experiences in Brazil. With due precautions, partners will be sought to develop similar projects in other developing countries, and even in developed countries, since in certain areas, such as combating violence, mobilizing low-income urban populations, and Internet applications, Viva Rio posses a relevant knowledge base.

In 2002, local volunteers in France created Solida'Rio, which will act as a local representative of Viva Rio. Initially, the group intends to work in the area of Fair Trade. A parallel project is to organize the Solidarity Games, a soccer championship between Brazilian and French youth from low-income areas. In addition to Solida'Rio, the creation of representatives in Italy, the U.S., and the U.K. is under study.

Box H - Principal Campaigns of Viva Rio

1993
Take a moment for Rio – Stop in order to begin anew
First of Viva Rio's social mobilizations for peace. Brought thousands of people together in front of the Candelária church in downtown Rio. The campaign published a manifesto signed by 24 representatives of different religions who came together to pray for peace.

1994
Disarm, Rio
Campaign in protest against the occupation of *favelas* by the Brazilian Army – a measure adopted by the government of Rio de Janeiro state in response to alarming levels of violence.

1995
React, Rio
Public protest against the wave of kidnappings in the city. 400,000 participants.

1997
Rio 2004 – Candidate City
Campaign in support of the city's candidacy to host the Olympic games of 2004.

International Campaign – World Council of Churches – Viva Rio's first international campaign. Promoted by the World Council of Churches, the campaign involved seven world cities selected for their high levels of violence and established the creation of community action directed at at-risk youth, as well as training for police and community leaders.

1998
School Friends
Rio de Janeiro schools established connections with 672 schools from the draught-ridden Northwest. R$142,512 was donated to pay for school lunches in afflicted areas.

Peace in Traffic
Drivers' education campaign by students of the Volunteer Civil Service project, with distribution of pamphlets explaining the National Traffic Law.

Holiday Reading
Campaign to collect and distribute children's' books, with the support of the Globo Television Network. 234,000 books and magazines were collected and sent to 200 community organizations.

Blood Donation – Future Agents

Campaign for blood donation at the Hemorio – the city's homological center – by the students of the Volunteer Civil Service project.

1999
Rio, Drop Your Weapon
A petition campaign that collected 1,312,929 signatures in favor of a national law to restrict the sale of firearms in Brazil.

2000
Drop Your Weapon
National campaign to raise consciousness of the need for disarmament, extending the movement begun in Rio de Janeiro in 1999.

2001
Choose Gun Free! Its Your Weapon or Me
At the first event in this campaign, popular artists and mothers of victims spoke out against gun violence. White flowers were distributed, along with pamphlets warning that a firearm does not guarantee the safety of your family, but rather puts them at risk. Through monthly events and national television spots, the campaign seeks to promote reflection on the dangers of gun ownership, increase popular pressure to disarm, and expand the movement to other states and countries. The project was presented in July 2001 at the United Nations conference on Illicit Traffic in Small Arms, in New York.

Rio Without Guns
Public destruction of 100,000 firearms, the largest simultaneous destruction of firearms ever carried out. Close to 20,000 people participated in the destruction ceremony, carried out in partnership with the Rio de Janeiro state government. The event sought to publicize the UN conference on Illicit Traffic in Small Arms, held in July, in New York.

No More Terror! I Want Peace!
Campaign against terrorism and all forms of violence, in response to the September 11 attacks and the war in Afghanistan. After the inauguration of the campaign at the Maracanã soccer stadium, thousands of people took to the streets of downtown Rio for a peace march. An Internet petition against the propagation of violence in the world was circulated over more than 30 websites, and received 7,000 signatures.

Viva Lagoa
Protest against the pollution of Rio's beaches, bays, lakes, and rivers. 70,000 participants completely encircled the Rodrigo de Freitas lagoon in Rio.

Enough! I Want Peace!
National campaign for peace that mobilized 16 state capitals. On July 7, thousands of people wore white, lit candles, and participated in peace rituals. In downtown Rio, the Wall of Pain, made up of 40 panels and totaling 154 m^2, exhibited photos of victims of violence, drawings, graffiti, and messages of peace. A sculpture made from revolver bullets showed people on

their knees, praying for peace. That night, 25,000 people came together in the city center, which was lit by nearly 5,000 candles.

Mother, Disarm Your Son
Organized by the AfroReggae Cultural Group, the rapper MV Bill, and Viva Rio, this campaign included free hip hop concerts followed by open public debates, and sought to promote disarmament in Rio's favelas by appealing to mothers to act in defense of their children against gun violence.

8 - Dignity Through Self-Image

Viva Favela

Since Viva Rio's creation, one of its goals has been to change the way the media portrays the *favelas*, to create news stories that do not simply concentrate on the issue of violence, but show the full reality of *favela* life -its cultural and human wealth and the efforts of the majority of its residents to develop a life of dignity. A first attempt at a publication was made in the first years of Viva Rio's existence, but ended up failing to materialize: the journalistic vehicles and private companies sought out by Viva Rio to invest in the project did not throw their weight behind it, and as such, Viva Rio decided to postpone its implementation.

The enormous demand among *favela* residents for computing courses and Internet access, and its experience with its Information Technology Clubs (which we will look at in more detail later), made clear to Viva Rio the possibility of transforming the Internet into a means of communication not only for *favela* residents and the press but also for society as a whole. The web portal vivafavela.com was made possible thanks to a US$1,000,000 grant from the globo.com web portal. The dedicated staff of 31 professionals, trained as journalists, photographers, technicians, correspondents, and collaborators, in 11 different communities, has made transformed the website into an experiment worthy of international attention.

The first important question raised by the project was the name of the portal. Residents of *favelas* prefer to call their neighborhoods "communities", since the word *favela* raises negative connotations in some sectors of society. After analyzing a number of alternatives, it was finally decided to maintain the name Viva Favela. The reasoning was that in any case, this denomination would continue to be used for some time, and that the real challenge was to change the negative connotations of the word by showing the dignity, creativity, and human wealth of *favela* life.

Since its launch, the Viva Favela portal has offered on-line services, information, entertainment, and opportunities for business and employment, aside from free e-mail, chat rooms, and news. The site is also home to the Comunidade Viva electronic magazine, produced by community correspondents, *favela* residents who produce articles and photos about the *favela* and are paid for their work. To be a community correspondent, an applicant must have completed secondary education and have some work experience in local media, such as a community radio station or the newsletter of a residents' association. Before hitting the street in search of stories, these "community journalists" go through a training course and a writing workshop, and are given constant supervision by the editorial staff. The enormous interest in participating as a correspondent is shows by the many résumés, cover letters, and requests for internships that arrive every week via the portal.

The correspondents produce exclusive stories from their communities. Often, these stories grab the attention of the mainstream media, which then cover the theme themselves. Vivafavela.com is updated constantly, several times per day, with a wide range of relevant information on *favelas*, the city, Brazil, and the world. Sections include residents' profiles, sports, educational and work opportunities, health, transportation, and many other themes.

Since public organs and the conventional media do not have effective access to these communities, the portal has become an important source for information The national press uses vivafavela.com to obtain news items that often end up on the national news circuit, and foreign correspondents have begun including it in their routine searches. Other important group of users is researchers in search of information on Rio's *favelas*. .

Rio natives living away from home and Brazilians living abroad also access the web portal as a way to keep up to date with the news from their communities, as evidenced by the great number of messages the site receives daily from various parts of the globe. Viva Favela also caught the attention of the Hip Hop community throughout the country, and especially in São Paulo. Hip Hop musicians and fans have identified with the project, and today use the portal as a meeting point and a place to exchange information about this rhythm that has become a common musical protest on the peripheries of large cities and in low-income communities.

The website's most popular pages among internauts from low-income communities are those providing services such as job opportunities. The portal offers information on public health services, medical advice, immunization campaigns, emergency info, treatment of childhood diseases, hospitals and Center, and bus timetables. In the Citizens' Rights area, the site offers information on obtaining documents, consumer rights, civil law, and complaints about public services and abuse of authority (a daily occurrence in the *favela*). As we will see in more detail later, a partnership between Viva Rio and the Workers' Aid Center (Centro de Amparo ao Trabalhador, CAT) made it possible for *favela* residents to obtain information via Internet on internships and jobs offered by companies. The site also publicizes information on opportunities for the physically handicapped, guidance for interviews, advice on opening one's own business, and instructions for writing a résumé, requesting workmen's and unemployment compensation, and receiving a pension. The creation of a classified ad section greatly increased the number of visitors, and brought the culture of Consumer to Consumer (C2C) to the *favela*. Today, residents of these communities sell, buy, and trade all manner of goods and services over the Internet.

Many children who access the Internet from *favelas* visit the Cartoon Network website. Based on this fact, Viva Favela created a cartoon character based on *favela* children, portraying the routines, hopes, and violence that make up their day-to-day lives. Named **Cambito**, the character began life with a weekly strip. Cambito has grown along with a gang of characters, and now the Cambito site constitutes a truly Alternative Cartoon Network, presenting a humorous but distinct vision for the juvenile public.

Vivafavela suffers from lack of funds. Unlike other Viva Rio projects that have a clearly defined focus, the portal has had difficulty in attracting support from donors, who do not

realize the full importance of the project. As a strategy for keeping the site up and running, Viva Rio is now seeking partners to invest in specialized areas, segmented for different products and services. By employing theme-based sites, Viva Rio hopes to attract investors to these neglected markets, such as, for instance, a site about feminine beauty for *favela* women (Pure Beauty - *Beleza Pura*), a site dealing with environmental issues (Eco Pop) and with legal services (Clique Direitos - Click for Rights)..

The growth in number of visitors has been constant. In January 2002, 1,545,786 visitors were registered, while in January 2003 the number rose to 2,838,344. In February 2003, the portal registered another increase in visitors: 2,836,638, close to 105,060 visitors per day. 88,26% of the domains from which the portal was accessed were commercial, which indicates that the majority of visitors are using tele-centers or accessing the portal from places of work. The average visit lasted 12 minutes.

The number of foreign visitors also rose: in February 2003, for example, 6.65% of all visitors were from the U.S. This suggests that Viva Favela also responds to a desire by Brazilians living abroad for news and information on local popular culture.

The *Favela* Remembers

Since its creation, the Viva Favela portal has shown that *favela* life is about more than just violence. Behind each resident, there are trajectories and histories that together make up the jigsaw puzzle of Rio de Janeiro's *favelas*, their birth and expansion, and by extension, the city as a whole. The public archives have few documents and registries about *favelas*. At the urging of a group of journalists and community correspondents from Viva Favela, and in partnership with ISER, the **Favela Remembers** project was undertaken to research and rescue the iconographic history of Rio's *favelas*. The project, which has a link on the portal's home page, is carrying out a survey of data, photos, images, and oral history among local residents, with the goal of publicizing and promoting histories and images that strengthen the socio-cultural identity of these communities.

The researches visit the winding streets of the *favelas* and make door-to-door calls on residents, gathering material and listening to personal histories of important events and experiences that help reconstruct the history of the construction of these communities. The project operates in partnership with local institutions and centers such as the Rocinha Historical Center, the Maré Center for Solidarity Studies and Actions (Centro de Estudos e Ações Solidárias da Maré, CEASM), Núcleo Orosina, Centro Cultural Condutores de Memória, of Grande Tijuca and The Moreira Salles Institute and Mega Cidades. These bodies collaborate with the project by offering professional expertise and technology. Field research is carried out by the community correspondents from the web portal responsible for stories on local residents

Since the correspondents live in these communities and are well known to residents, they have easy access to story material. These people work in partnership with journalists and researchers who are responsible for structuring and transforming the text into a simplified and easy-to-read language for the public.

One example of The Favela Remember's "rescue" efforts has been the recovering of the histories of the names of Rio's principal *favelas*, whose nomenclature is of all kinds (geographical, poetic, religious, in homage to prominent figures, etc.); in fact, its quite common for there to exist more than one explanation for a *favela*'s name. These stories are collected in the section of the website called "A Small Dictionary of the *Favelas*", which relates, through anecdotes from residents, the birth of the *favelas*, and even the origin of the word "favela" (a hill in downtown Rio known as "Morro do Favela"). This section also serves as a repository for histories of *favelas* that no longer exist. Some *favelas* take their name from Brazil's *telenovelas* -widely popular evening soap operas- such as the *favela* "Salsa e Merengue", named after the eponymous *novela*, and the *favela* "Minha Deusa" (My Goddess), named after a character played by a famous Brazilian actress in the *novela* "Mandala".

In addition to a photo gallery, with images of *favelas* from the end of the 19th century up through the present day, the website also foresees research into the music of the *favela*. The idea is to create a section where users can listen to music composed by *favela* residents -both famous and unknown[12]. The salvaging of the collective memory of *favela* life is also accomplished through the publication of news items from the past.

The Northeast Here[13]

The São Cristóvão Fair in Rio de Janeiro is a living example of the resilience of *nordestinos* -people from Brazil's northeast region who make up the largest single group of immigrants in Brazil's large urban centers- cultural traditions and values. Created in 1949, when immigrants still arrived in covered wagons after traversing the Rio-Bahia highway -begun in that year-, with dreams of finding work and earning a living in the "marvelous city"[14], the São Cristóvão fair was originally a depot for recent arrivals. In the space that is now home to the fair, *nordestinos* rested from their journey and waited for family members or employers to pick them up. Employers had a good reason to prefer *nordestinos*: they took jobs others refused, and accepted low wages.

[12] A large number of Rio's most famous composers of *samba*, as well as its performers and dancers, have been *favela* residents.

[13] Brazil's Northeast region is rich in terms of popular culture and economically poor, suffering from endemic draught. Throughout the 20th century, large numbers of *nordestinos* have immigrated into the great industrial and commercial cities of Brazil's Southeast, Rio de Janeiro and São Paulo.

[14] *Cidade maravilhosa*, a common nickname for Rio de Janeiro.

In open field at São Cristóvão, immigrants traded traditional goods brought with them from the northeast, such as manioc, jerked beef, sugar-cane *rapadura*, and many others. Business boomed, and today the São Cristóvão Fair receives 80,000 visitors every week to its many stalls offering everything from home cooking to professional services, from CDs and electronics to raw tobacco and artisan leather goods, all to the tune of *forró* - a typical northeastern rhythm and dance. With an eye to this enormous audience, Viva Rio has installed a Future Station inside the São Cristóvão Fair. In addition to Internet access, the Station publicizes the "Northeast Here" project to the *nordestino* community and the fair's visitors.

"Northeast Here" was created with the aim of remedying the lack of information about the social and cultural life of the *nordestino* diaspora, and is one of Viva Rio's most original projects. The website, located within the Viva Favela portal, is a space entirely dedicated to the *nordestino* community throughout Brazil, with a special emphasis on those who live in the *favelas* of Rio de Janeiro. "Northeast Here" functions as a kind of news agency on the Northeastern states, offering notices, reporting, interviews, recipes for typical *nordestino* dishes, music, events listings, seminars, life stories, and a virtual meeting place.

Under the heading 'Cultural Agenda', the site publicizes shows, expositions, and other events in Rio that could be of interest to the *nordestino* population. This section also has a bulletin board open to the public for posting event notices; a singer from a Northeastern state on tour in Rio could, for example, announce the dates and locations of his shows on-line. Viva Rio's goal is to preserve and reinforce the many cultural identities of populations from the Northeast. Every immigrant arrives with a strong sense of his traditions, but these often give way to the dominant culture of Rio, not to mention all-too-common prejudices against *nordestinos*, even within the *favelas*.

The site also reserves a place where internauts can find relatives and friends who have arrived from the Northeast: the 'Lost and Found' page within the section 'Meeting Place'. There, people can post messages as in the personals section of a newspaper. As a means of celebrating *nordestino* culture, the site publicizes new talents as well as already established professionals. Personal and professional life stories are also published, always emphasizing the difficult road traversed and the battle to win a place in the sun within the labor market. Another section of the website is dedicated to "cordel literature", a form of cultural expression entirely native to the Northeast. Both "classics" of this literature and newer representatives are available on-line.

Favela, Opinion, and Market

The reality of the *favelas* is still largely unknown. From down here on the "asphalt", society has no idea how *favela* residents live. What reaches the greater public is the information they receive from mainstream media – whose agenda is almost always violence-related. A large part of Rio's middle class population has never set foot in a *favela*. In spite of social

scientists' emphasis on the social diversity of the world of *favelas*, a simplifying and homogenizing vision still reigns, in which residents are portrayed as living in a permanent situation of misery and violence.

Public research firms consider these areas to be of high risk for interviewers, and so do not carry out polls there. *Favela* residents are interviewed in the city center, or at public transport hubs, undifferentiated from the general public.

In light of this, Viva Rio decided to create a public research group specially directed at these populations that today make up close to 20% of all habitants of Rio. In partnership with ISER, the "Favela, Opinion, and Market" group was launched. Through polls and market research, the group hopes to reveal a consumer market little known to companies, and a political space with a wide variety of opinions and affiliations, a deeper knowledge of which is surely in the interest of the media and political parties.

The first step was guaranteeing the researchers access to the *favelas*. To get around the problem of suspicion among gangs with links to drug traffic, Viva Rio recruited residents of each community to act as researchers. Of the first nine researchers, five had already been Community Caretakers of Citizenship (see below). The first poll was carried out in the middle of 2002, during the campaign for Brazil's presidential election, and asked what people's intention to vote were.

The second poll carried out by the project, on access to consumer goods, income levels, and education, and whose results were presented in the previous chapter, was widely reported both in the mainstream press and in local reporting. A third research is underway aims to identify the profile of the user (and not user) of the Internet in Rio de Janeiro poor quarters and the impact of Viva Rio´s digital inclusion projects

The studies carried out by Favela, Opinion, and Market have also been instrumental for Viva Rio's own projects. For example, a study on community radio produced important data on the habits of low-income populations that was fundamental in the implementation of the Viva Rio Community Radio project, and its choice of programming.

Box I - Community Correspondents

Exemplary Histories

Resident of the Complexo do Alemão *favela*, schoolteacher Bete Silva, 45, saw in the Viva Favela web portal the chance to publicize the best aspects of her community. Hired as community correspondent by the portal, she produces an average of four articles a month. "Each story is a life lesson. These are people who would like to scream, but know that normally they are not heard," says Bete. She remembers an article she wrote called "Men in the Kitchen", in which she interviewed unemployed men who, their wives employed outside the home, had taken over the command and the duties of the house. "In a *macho* society such as ours, it is impressive to see the conscientiousness of these men, learning that we have to share the duties," she notes. The teacher, who also works at a community day care center, has gone back to school and is now enrolled in a university course in social work. "I want to work more in this area," she says. In her opinion, the web portal has raised residents' self-esteem. "I feel like door, opening up new paths for the people of this community." Often, residents she has interviewed do not have Internet access, and so cannot visit the site to see their name or photo appear in an article. When this happens, Bete goes to the Complexo do Alemão Future Station and prints up the articles. "They get radiant with happiness," she says.

Cry for Justice

Tony, a photographer and community correspondent from the *favela* Cidade de Deus, will never forget the day he photographed a woman whose son had been killed by police. The title of the article was "A Life Lost", and Tony shot the photos by candlelight, in the shadow of a set of scales. "I borrowed the scales from a fishmonger on the corner. I wanted to use an element that would symbolize Justice, that would show the pain and the cry for help of this mother feels," he explains. Well-known in his community, he says that this familiarity helps him in his work of recording quotidian life there. To him, the region is an endless source of topics. The beauty of the women of Cidade de Deus, for example, drew the attention of the photographer, who eventually organized a fashion show for the community's youth. "The girls paraded on an improvised catwalk made of wood. Everybody stopped to admire them," he remembers. The event yielded an offer to work for a British fashion magazine. "Residents have no idea of their own value. It's only now that they are learning."

In Perfect Tune

Housewife Neide Alvadia, porter Paulo de Oliveira, and assessor Antonio Pereira live in different neighborhoods, but they meet on the radio dial, where they are all tuned in to Radio Viva Rio. "This station provides a service to society. I like knowing what's happening in my

community," says Paulo. Neide likes the music: "We hear music that has to do with us. There is *forró, samba de raiz,* and *pagode*[15]*,"* she explains. Neide calls the station every day to make requests, and has become friends with the programmers. "The station is cheerful, funny, and only plays good music. I used to listen to a station nearby on the dial, and ended up listening to Radio Viva Rio and liking it." Antonio Pereira sees in the station an efficient means of communication. "No other station talks about the problems of poor communities like this one. People can call, participate, denounce wrongdoings, and know about important events in the area," he points out.

[15] Popular music forms in Brazil, sometimes underrepresented on commercial radio stations.

9 – e-spaces for Communication

Future Stations

The original idea for the Future Stations came from the need to create a space with Internet access for low-income communities to facilitate the integration of the vivafavela.com project with the local population. In July 2001, Viva Rio was ready to launch the Viva Favela web portal, but most *favelas* still lacked Internet access, without which the portal's content would not reach its target audience.

The principal obstacle was technical: even in the relatively developed *favela* Rocinha, where the first Future Station was to be installed, there was no way to install a large number of fixed telephone lines. Without phone lines there could be no connection to the Internet, and without Internet access there could be no Future Station. The solution arose unexpectedly, through a chance contact with a Brazilian entrepreneur who was importing to Brazil a radio-based Internet access system that operated without fixed telephone lines. This technology was originally employed in the first Gulf War, and today is used commercially in Israel. The system uses an antenna to provide broadband Internet access, though at prices that most *favela* residents could never afford. Fortunately, the Brazilian firm that provided the technology -Taho- decided that the cost of subsidizing its use in Rio's largest *favela* would be more than outweighed by the publicity that the Future Station would generate.

The project was a success and made headlines worldwide. Viva Rio, together with Taho, won the Best Social Project for Digital Inclusion prize from the Wireless Communications Association, a group of 530 of the world's largest telecommunications and consulting firms.

The Future Station is equipped with 25 computers with broadband Internet access (15 for browsing and 10 for courses and training), printing services, and fax capability. There are currently 12 Future Stations, and 3 more should be open by the end of 2003. The Future Station project, which is supported by the Inter-American Development Bank (IDB) and the European Commission, is not merely an Internet café. Centrally located within each community, the Stations are integrated with other Viva Rio social projects, offering services like Viva Cred (micro-credit), Viva Rio Insurance, Fair Trade, job search through the Workers' Aid Center, and many others. By incorporating these services, the Future Stations are being transformed into logistical bases for the economic, social, and cultural development of their respective communities.

Future Stations are open daily, and are sought out by residents for both individual use and for the courses they offer -on average 50% cheaper than those available outside the *favela*. Classes are offered in standard programs such as Windows, Word, Excel, Power Point, and Publisher, as well as classes in typing, Internet, and even the building, configuration, and

maintenance of microcomputers. Demand is growing for courses in advanced programs like Access and Visual Basic. The night courses are the most popular, since much of the population works during the day and take advantage of their evenings to invest in professional training. At the Rocinha Future Station, for example, 4,000 students have enrolled in courses since its inauguration, and an average of 300 users access the Internet per day. The course tuition is minimal, only enough to offset the operational costs of the station. As with other Viva Rio projects, there is a lack of in-depth, demographic study of the users of the Stations, in particular their place in the socioeconomic of the *favela*.

Future Stations – Changing Habits

Within the first few days after the opening of the first Future Station, more than 250 people signed up for courses, and long lines formed to access the Internet. Internet access at the Stations is priced at 1 *real* per half-hour, about one fifth the market price on the "asphalt". These days, many children who used to spend a *real* on candy or pinball now prefer to spend their money surfing the web. Residents who cannot afford even this can go on-line in 15 minutes blocks, paying only 50 *centavos*, about 1/3 the price of a bus ticket.

With the installation of the Future Stations, there has been a change in the habits of many residents. For example, there is a large volume of traffic to the websites to lodge complaints with the public utilities, such as electric, water, and telephone companies. Some of the Station users have computers in their homes, but lack Internet access, while a few have both but still prefer the Stations for their pleasant atmosphere, the speed of the broadband connection, and the guidance provided by the staff.

Young people and adolescents have discovered chat rooms, and today the most trafficked sites for users in their age group are the chats at the commercial portals UOL, iG, and sites for romantic encounters such as "Soul Mates" and "The Perfect Match". Chats have a special value for these youth; in them, it is possible to converse without necessarily introducing oneself, saying where one lives, or what one is like. Many young people, who still suffer from their own and others' preconceived notions about living in *favelas*, prefer to omit their origins during the conversations. There are cases of relationships and even marriages over the Internet. In Rocinha, an interesting case came to the attention of the Future Station staff. A female resident met a Spanish man during Carnival. Once back in Spain, the man, in love, asked the girl to find the cyber cafe nearest her so they could communicate via e-mail, he himself suggesting the Future Station. The episode indicated the need for Viva Rio to invest more in publicizing the stations and the services they offer.

Most publicity is still word of mouth. Users end up bringing friends and family to the Stations. During the school year, the largest demand is for research-related websites; in some cases, the Stations themselves have produced a list of research sites on certain subjects. During vacation, the most commonly accessed sites are game- and entertainment related, such as the Cartoon Network, Fox Kids, Dragon Ball Z, and MTV. Other popular sites are

religious portal such as ELNET – for members of evangelical churches – and the ICP – for followers of the Assembly of God.

The Stations have struggled to become self-sustaining. To accomplish this, Viva Rio has been studying the possibility of making the Future Stations into a franchise operation. Today there are already 12 Future Stations throughout Rio de Janeiro, in *favelas* such as Rocinha, Maré, Ramos, and in outlying communities such as Praça Seca, Campo Grande, and Santa Cruz.

Future Stations – Users

The Future Stations were created and designed to offer services to low-income communities, and, once installed, to adapt to local needs by diversifying their services. For example, in Rocinha, there has been large demand for courses in typing and web design. To meet this demand, Viva Rio has developed courses using language that is more colloquial, and hence more efficient explaining how to use these programs. In all the Stations, the users are mostly adolescents and youth between 13 and 29 years of age.

With 5.000 registered users existing Future Stations have an average of 2.000 users per-month. 49% of the registered users are man and 51% females. Viva Rio organizes monthly meetings on use of the Future Station, fidelity programs, and publicity for the services offered. The Internet access service can be either pre- or post-paid. Viva Rio's original thought was that with a post-pay system, users would feel more comfortable navigating, and thus would remain on-line for longer. Unfortunately, many users accessed the Internet and then left without paying for the service, which eventually created some losses for the first Station, in Rocinha.

Today, the Rocinha Future Station users still show a preference for the post-paid system, but with the implementation of a registration and monitoring system, the problem of non-payment has disappeared. The number of clients registered has risen considerably. In January of 2003, the Maré Station was the most successful, registering 130 new clients in that month alone. The Cesarão Station, inaugurated in July 2002, has already registered 646 clients, 59% of whom are female.

The average access time varies by month. During the school year -when schoolchildren use the Internet to do school projects- the average access time is higher than during the summer months of December, January, and February. In November 2002, for example, the users at the Ramos Station spent an average of 33 minutes each at the computers. In January 2003, the average fell to 29 minutes. The gender distribution of users also varies for each Station. While in Rocinha the split is nearly equal (49% men to 51% women), in Ramos the figure is far more lopsided (66% men, 34% women). Viva Rio direction and the Station managers have discussed alternatives for diminishing this gap.

In 2002, nearly 7,000 students have graduated from Future Station courses throughout the state. The Rocinha Future Station stands out for the large number of students enrolled in its

courses: 2,000 in 2002. In the same period, Praça Seca and Maré also registered many students, with 564 and 711 respectively.

Radio Viva Favela

Even with the arrival and popularization of TV, radio continues to have an important role as a medium of communication. Available at very low prices, radios can be easily transported and listened to at home, in the street, and at work, independently of listeners' literacy levels.

The democratization of communications media, starting with the end of the military dictatorship in Brazil, opened a space for new radio stations, many of a strictly community nature. In 1989, a nationwide movement of radio broadcasters fought to transform free radio stations into community stations, producing information on local themes and publicizing local artists and attractions. In only three years, broadcasters' union had registered 3,000 new community stations.

The number of community stations has rapidly grown, and today there are more than 15,000 throughout Brazil. Nevertheless, the market is dominated by commercial stations, which maintain tight relations with record studies, interested in publicizing their products. The executives of commercial stations have pressured the government to create regulation limiting the expansion of community radio stations, with some success: community radio stations are, for example, prohibited from forming national networks.

According to the study by the Favela, Opinion, and Market team, 64.2% of listeners in *favelas* tune to FM stations, while 20.9% listen to AM; of these 60.7% listen to the programming of community stations. Among community radio listeners, 62.5% found the programming good, 17.6% found it excellent, 17.6% found it average, and only 2% found it to be bad. 52.6% of this same audience said they listen to community radio because it provides news about the community, 23.9% because it plays music not heard on commercial stations, 10.5% because local artists can show their talent, and 10% because the broadcasting station isn't privately owned, so anyone can participate.

Social Radio

Viva Rio decided to invest in a community radio project to stimulate debate and communication between the *favela* and the "asphalt". Created toward the end of 2002, Radio Viva Rio AM 1180, whose slogan is "The Community: Here and Now", features programming that gives weight to the problems and needs of the city's poorest populations and content that can then be broadcast by other community radio stations.

Viva Rio's long-term goal is to develop a national network of community radio stations using the Internet. Such a network would lead to more diverse programming and better content,

increasing audience size, which in turn would attract more sponsors and investment. To get around the legal difficulty in creating national networks, Radio Viva Rio has sought out new methods for sharing content and information among community radios, without formally creating a national chain. To make the project viable, Viva Rio three major goals: to help other community broadcasters obtain the equipment and technical training needed for Internet transmission and training radio journalists; to create a production center for content and programming that is extensive, diverse, and focused on excluded communities; and to create a common space where community radio stations can meet and exchange ideas.

Radio Viva Rio first step was to transmit its programming on the Internet in such a way that it can be accessed and retransmitted without difficulty by other community stations. Today, it is possible to access Radio Viva Rio and other community stations through the Viva Favela web portal. The station is only five months old at the time of this writing, but it already reaches the entire greater metropolitan Rio area, and trains and maintains community correspondents in various *favelas* and poor neighborhoods. The correspondents give hourly news reports on their communities.

The technology used is accessible, and it is relatively easy to train professionals in maintaining programming on the air. Through community radio, listeners discover new and old values and talents from their own community, as well as gaining access to a medium in which they can actively participate.

Citizen Defense

Community stations frequently receive denunciations and complaints from the local population. Government authorities are more responsive to denunciations that reach the general public, and tend to take action when problems are transmitted by radio. One example of this was the case of a convalescent woman from the town of Queimados, in Rio de Janeiro state, who decided to turn to her community station to ask for the prescription drugs she needed. The radio announcer read her prescription on the air, and within a few hours, public health officials had delivered the medication to her. During elections, the judges of Brazil's Regional Electoral Court[16] also rely on community radio stations to organize political debates and educate the public about the importance of voting.

Public Security organs also work in partnership with community radio in combating urban crime. Police battalions have begun basing their patrols in part on the information gathered from area listeners' denunciations. In some municipalities, the crime rate has fallen in the wake of these partnerships between the military police and community radio.

Cultural Plurality

[16] An independent Judiciary body that oversees Brazil's electoral system.

Without an obligation to the record industry, Radio Viva Rio has been able to create programming entirely dedicated to its target audience. It has invested in journalism focusing on local stories of use to the community, the cultural rescue of older songs and genres, and the discovery of new, native talents. It also offers, on a daily basis, a service to audiences often excluded by the mainstream media, such as blacks, *nordestinos*, and, to a lesser extent, women. Women prefer variety shows (40.41% of all female listeners) and music programs (71.5%) while men are in the majority when the theme is news (31.2% against 28% of women) and sports (19.5% against 4.94% of women). The morning hours have the largest audience. 18% of listeners tune in between 6:00 and 9:00 AM, 20.4% between 9:00 and 12:00. The first hour of programming is dedicated to the *nordestino* public. Traditionally and contemporary *nordestino* music is broadcast, in addition to coverage of events like the picturesque fairs and markets of São Cristóvão, Caxias, and São Gonçalo. Following this is programming dedicated to women, to housewives, featuring popular music, journalism, interviews, job tips, and community services.

When Radio Viva Rio was inaugurated, afternoon ratings were perpetually low. Over time, the programmers realized that there was a strong demand for alternative rhythms like Hip-Hop and *black music*[17]. Today, the afternoon slot is entirely dedicated to young audiences, and the programs have already begun to get higher ratings thanks to the many tribes who listen to everything from reggae to Hip-Hop, with *black music*, rock, samba, MPB[18], and calypso in between.

In all, there are 17 programs produced by a staff of 20, including coordinators, electronic engineers, audio operators, announcers, and community correspondents. The station currently receives support from the Globo Radio Network and the firm .comDominio, and is searching for partnerships with other large companies. One idea is to create public service spots from public and private companies. One of the more successful experiments was during the dengue fever epidemic that struck Rio in 2001. The station created and sold to the Ministry of Health a 30 second *spot* on preventing the spread of dengue, which eventually was broadcast by community radios throughout the state.

Radio Viva Rio has listeners all over the world. The producers have received e-mails from such far-flung places as South Africa, where one listener tunes in over the Internet, and Finland, where an amateur broadcaster discovered the station by chance and now never misses the hip-hop programs. Many expatriate Brazilians tune in for contact with their native culture.

Children's Hope Space

[17] The English-derived phrase *black music* signifies, in Brazil, a standard though inclusive genre that covers Soul, R and B, Rap, and other forms. As with many English loan words in Portuguese, its functional meaning in Brazil goes beyond its original denotation.
[18] *Musica Popular Brasileira*, or Brazilian Popular Music.

The building tat houses the Children's Hope Space was initially built to house an enormous luxury hotel known as the "Hotel Panorama". The building was erected on the top of a hill on the site of an old quarry in Ipanema, one of the wealthiest neighborhoods of Rio de Janeiro, and right next to the hillside *favela* Morro do Cantagalo. Along with the hotel, two elevators were built that would carry guests from street level up to the hotel, which was to have a spectacular view of the Rodrigo de Freitas Lagoon and Ipanema beach. Various problems led to the eventual abandoning of the project when it was already in an advanced stage, with both the main structure and the elevators built.

After years of legal battles, part of the space was used for the construction of a public school. The building was outfitted by UNICEF, and in conjunction with the Globo Television Network, the Children's Hope Space project was created, and eventually extended to São Paulo and another Rio de Janeiro location. Viva Rio assumed responsibility for the execution and administration of the project, which offers artistic and sports activities for children and adolescents from low-income communities. The goal of the program is to fill the after-school free time of these children with healthy and productive activities.

The Children's Hope Space team in Rio de Janeiro is made up of 40 professionals, among them schoolteachers, coordinators, and educational agents, all trained by Viva Rio. The project benefits 15,000 residents of the Cantagalo and Pavão/Pavãozinho communities. One in every two children from these communities has already participated in Children's Hope Space activities, and 90% of all program participants are from these communities.

The Space posses a "Future Library", created with support from the National Library, the Post Office, and the Division of Libraries and Documentation of the Pontifical Catholic University of Rio de Janeiro (PUC-Rio). In the Future Library, residents have access to a video library, language lab, and 32 computers with Internet access. The Library has a Children's Space for encouraging reading in children from 5 to 12, and promotes lectures and visits from prominent literary and artistic figures. Expositions, debates, lectures, video sessions, and visits from storytellers are common. There is also the Mothers' Club, which receives 350 mothers every month for athletic and artistic activities, as well as classes in sewing, crochet, and elementary education review.

Today, the Space boasts 2,000 students between the ages of 4 and 18 enrolled in its sports classes and art workshops, and a total of more than 7,000 visitors per month. In all, there are 86 different classes in activities such as soccer, indoor soccer, basketball, volleyball, swimming, drama, dance, and environmental discussion groups. Another 500 youth over the age of 18 have formed soccer teams that compete in weekly tournaments. The space also promotes art exhibitions from both residents and outsiders, as well as field days and "peace tournaments" with the participation of businesses, universities, and public schools.

Recently, 45 youth from the project entered a new system to monitor the first job project at the Space. The monitors are scholarship winners 14/15 years old, 16/18 years old, and all are students of the project from the previous year. They will work 20 hours a week, and will continue to visit the school and activities at the Space. Their performance in the school and

in their project activities will be used as a criterion for renewing their contracts the following year.

Box J – Experiences at the Future Stations and the Children's Hope Space

The Cabbage

In the *favela* of Maré there was a curious case: a boy, with no money, showed up at the Future Station with a cabbage. He wanted to trade the cabbage for a few minutes of Internet access. He got to surf the web – for the first time in his life – without paying, and took the cabbage back home. Today, the boy is a faithful Station client.

Internet Shopping

Until his first visit to the Future Station, supermarket cashier Antonio Manoel, 35, had never sat in front of a computer. He learned to surf the web with the help of the staff, and today he goes on-line three times a day. He uses the Internet to visit chat rooms, exchange e-mail, hear music, and shop. "It's cheaper and more practical. I don't have to go down the hill to buy what I need," explains Manoel, who has already introduced his children Simone, 8, and Marcelo, 4, to the Internet. Marcelo has already learned to play computer games and navigate the Cartoon Network site.

The View from Outside

Alexander Salvador, a student of 21, traded Buenos Aires for Rio de Janeiro. Rocinha, to be exact. Resident of the *favela* for one year now, he uses the computers of the Future Station to read Argentine newspapers and maintain contact with family and friends back home. What most impresses him at the Future Station is the demand for chats. "It is incredible the need to communicate with the outside world. Even if the outside world means 'over in Copacabana'," jokes Alexander, who is always helping new internauts get their bearings.

Virtual Chat

Aline, 18, is addicted to chat rooms. She learned of the Future Stations from friends and became part of a clique that frequents chat rooms. There, Aline likes to get creative with her appearance: "You don't have to show yourself, say who you really are, so you can kind exaggerate a little," confesses this otherwise timid girl. Besides MTV's website, Aline also uses the Internet to visit job search sites like the Worker's Aid Center (CAT) and the electronic magazine of the Viva Favela web portal.

Office

With only six months as manager of the Campo Grande Future Station, young Aline Ramos, 23, is already proud of the numbers she has produced. "400 people pass through here, on average, every day," says Aline. The demand for the Information Technology Club courses and Internet access is so high that the staff are hardly able to keep up with all the requests to post their résumés with the CAT. "Our Station is located right in the center of the town, and this explains the intense demand. Just in résumés we receive about 50 a week," explains the manager. She says that many Station regulars are workers, who use the Station as an office. "They send faxes, print up reports, do research, and exchange e-mails," she reports.

Sewing Class

Member of the Mothers' Club, young Andréia Antunes, 30, saw in the sewing classes at the Children's Hope Space a chance to learn a trade. "It's difficult finding a job, so I decided to enroll in the course," she explains. In her class there are 12 students of all ages, all hoping to find work. After 3 months, Andréia is already making her first pieces. "This skirt came out crooked, but you have to start somewhere. I am training to be a professional seamstress," she adds.

10 e-education/e-training

Tele-classrooms

The principal problem of the younger generations in Brazil's large cities is not illiteracy - though this *is* present in significant percentages in older age groups- but rather high drop-out rates from primary and secondary schools, where they receive, in general, low-quality teaching. In the state of Rio, 1,102,509 youth between the ages of 15 and 24 have dropped out of primary school during the 5th to 8th grade[19], which corresponds to 29.2% of the total. In the Rio metropolitan region, 757,613 (26.5%) youth are out of school, and in the city of Rio 332,043 have dropped out (22.2%). The majority leaves] school so that they can work and help their families. As time goes by, they end up not going back to school and, without a diploma, they remain outside the job market, which increasingly requires, at a minimum, completion of secondary school. Unemployed, and with little chance of entering the labor market, these youth are easily attracted by drug trafficking, becoming likely targets of violence.

One of Viva Rio's main projects is the "Community Telecourse" program, based on the Telecurso 2000 long-distance education program developed in Brazil by the Roberto Marinho Foundation, with funding from the São Paulo State Federation of Industries (Federação de Indústrias do Estado de São Paulo, FIESP). Telecurso 2000 is a made up of a series of videos, accompanied by textbooks, and was originally designed for television broadcast. The Viva Rio Community Telecourse was launched in 1995 in partnership with the Roberto Marinho Foundation, as well as the National Confederation of Industry (Confederação Nacional da Indústria, CNI), the National Service for Industrial Learning (Serviço Nacional de Aprendizagem Industrial, Senai-DN) and the Brazilian Ministry of Labor. Later, the project was expanded to include partnerships with municipal and state governments. Viva Rio's role is in training course monitors, providing pedagogical supervision, identifying local partners, and providing general administration.

The classes are administered in classrooms within the target communities, in partnership with local institutions. The only required materials are a television, a VCR, and the videotapes containing the classes. The classes cover topics such as citizenship, sex education / AIDS, and advice on entering the job market. More than **60,000** students have benefited from the

[19] As indicated previously, in Brazil, pre-college education is divided into two levels: elementary (*ensino fundamental*, previously known as *primeiro grau*), which has eight "series" or grades and corresponds to elementary and middle school in the U.S.; and secondary (*ensino médio*, or *segundo grau*), which corresponds to high school and/or prep school in the U.S..

initiative. A Learning Guide, who provides individual help to students and oversees the exercises provided in the tele-classes, administers the classes, which are given daily between 6:00 and 10:00 p.m.. The Learning Guide also promotes student integration by encouraging group work. The complete elementary education course lasts ten months; the secondary education course lasts eleven months. The Community Telecourses are open to students age 15 and up.

To complement the tele-classes, Viva Rio has created, in partnership with the Roberto Marinho Foundation, the Telecurso 2000 On-line Question Database for Primary Education, aimed at projects for both youth and adult education. With the Question Database, Viva Rio also hopes to detect areas in need of reinforcement and revision. It offers students access to general and subject-specific tests to check their knowledge. The program evaluates the learning process of students, and also permits them to perform self-evaluations over the Internet. In addition to on-line tests in the disciplines Mathematics, Geography, History, Science, and Portuguese, the program produces certification examinations that are compatible with the telecourses. By taking an examination organized by the Ministry of Education, the students can obtain diplomas for elementary and/or secondary school.

The success of this undertaking is precisely in the simplicity of the program. Normally the initiative comes from within a community itself, through the requests of local representatives. The first step is to choose a physical location for the tele-classroom. The space must be large and open enough to accommodate the students, but other than that will depend largely on the specific conditions in each community. Tele-classrooms have been installed in community centers, lunchrooms, churches, residents' associations, sports centers, libraries, public schools, and private homes. Once a space is chosen, the basic materials must be installed: tables, chairs, a blackboard, a television, and a VCR.

The students who enroll tend to come from all walks of life: construction workers, manicurists, servants, etc. The classes, which have about 30 students each, are largely composed of the unemployed or those working in precarious conditions in the informal sector. Between 1999 and 2001, the participants of the Community Telecourse program for primary education were divided nearly equally between men (50.7%) and women (49.3%). The best-represented age group was students between the ages of 21 to 29 (34.2%), followed by youths under 21 (30%), 30 to 39 (19%) and over 39 (16.8%). According to survey of participating students, 38.1% describe themselves as mixed[20], while 37.5% describe themselves as white. 21.7% described themselves as black, while only 1.9% described themselves as Asian, and 0.9% as indigenous. 56% were single, 23% married, and another 21% described their marital status as "other". 36.5% described themselves as heads of families, 49.1% as dependents, and 14.4% as contributors to family income.

[20] It is common in Brazil to ask poll-takers to identify themselves racially. The categories usually presented are: *branco* (white), *negro* (black), *pardo* (mixed), *amarelo* (asiatic) and *indígeno* (indigenous), but there are more than one hundred denominations to identify ones skin color. In national censuses, *pardo* is consistently the most common category.

Among the students who participated in the survey, 41.3% reported having a monthly income, while 58.7% reported no steady income. Of those with a monthly income, the following income levels were reported:

150 – 200 R$* per month	9.8%
200 – 300 R$ per month	14.8%
300 – 400 R$ per month	14.8%
400 – 500 R$ per month	11.7%
500 – 750 R$ per month	12.5%
750 – 1000 R$ per month	9.8%
not reported	26.6%

* 1 R$ = around 0.30 U$ dolar

Of those students who passed in all five subjects, 56.3% were women, while 43.7% were men. 32.1% of those who passed identified themselves as white, while 67.9% identified themselves as non-white.

In 2003, at least 250 Community Tele-course classrooms will be installed in 18 municipalities in Rio de Janeiro states, benefiting some 6,200 youth. Thanks to a joint effort between Viva Rio, CNI, Senai-DN, the Ministry of Labor, The National Plan for Professional Education (Plano Nacional de Educação Profissional, PLANFOR), the Worker's Aid Fund (Fundo de Amparo ao Trabalhador, FAT), the Roberto Marinho Foundation, and the Supplementary Education Center (Centro de Estudos Supletivos, CES) of the Rio de Janeiro State Secretary of Education, this new phase of the Community Telecourse program also offers 50 course hours of computer classes. Viva Rio has prepared the first Future Stations to receive students from the Community Telecourses, so that when they finish the course, they already have a basic understanding of programs like Windows, Word and Excel.

Through a partnership with Senai-DN, Community Telecourse has also invested in professional courses; students with the best grades in the primary and secondary education courses are invited to participate in professional training courses in technical areas. Community Telecourse students can also use Future Stations to access on-line libraries and the Telecurso 2000 website, where they can find answers to frequently asked questions, print course exercises, read additional material on the themes covered in the classes, check the date and locations of tests and exams, and learn how to obtain a Ministry of Education-certified diploma.

A partnership with Telemar and the Multiplar Institute has allowed Viva Rio to award those professors who have stood out in the Community Telecourse project. The initiative, called "The Test of Success" seeks to provide recognition of and incentives for the efforts of professors in the education of students from low-income communities. For each student who passes a discipline with an above-average grade, the professor receives a bonus of 20 *reais*. In 2001, R$700,000 were distributed among 316 professors.

Another important partnership was with the *O Globo* newspaper during the first quarter of 2003. The "Social Subscription" program contributed a portion of each subscription fee to the Telecourse program, providing one student's funding for every two subscriptions.

Recently, Viva Rio was responsible, at the request of the Brazilian Ministry of Foreign Relations, for the training and installation of a Community Telecourse-style program in East Timor.

Information Technology Clubs

Before the Future Station program was conceived, the Information Technology Clubs were Viva Rio's first effort in the fight against digital exclusion. In 1998, the IT team from Viva Rio developed and administered, as part of its Civil Service Volunteer and Opportunities for the Future projects, the first courses in Windows, Word, Excel, Access, Publisher, and the Internet. At that time, 6,200 youth were trained.

In light of the warm welcome the project received in low-income communities, Viva Rio invested in the area, and created the first Information Technology Clubs, which have trained, on average, 20,000 students per year. To make the project possible, Viva Rio sought out partners in the communities themselves. Representatives from a community institution take responsibility for choosing and preparing the building that will house the Information Technology Club. The spaces chosen are of all shapes and sizes. In the Morro do Alemão *favela*, the IT Club is located in the residents' association headquarters -a common arrangement-, while in the community of Sepetiba a day-care center houses the IT Club. There is an IT Club based in a Spiritualist Center[21] in the Ingá neighborhood of Niterói, and others based in Catholic, Methodist, and Presbyterian churches. In Queimados, the IT Club functions year-round with an average of six classes per semester, operating in partnership with the Citizenship and Solidarity Institute (Instituto Cidadania e Solidariedade), a philanthropic organization.

In order to ease the implementation of the program and adapt it to the financial and physical conditions of each community, Viva Rio developed three basic program options. The first, Basic or Minimal, has a small infrastructure -an average of five computers- and is focused primarily on professional qualification. Only basic courses and printing services are offered. Internet access is only available on Club computers during class hours, or when they are otherwise available.

The second option, the Plus or Expanded model, offers a 10-computer classroom, a separate space for building and repairing computers, and regular Internet access. In addition to basic courses, advanced courses are offered in specialty software such as AutoCad, Linux, PageMaker, Photoshop, HTML, Front Page, Delphi, Visual Basic, Corel Draw, Networking, and Web Designer).

[21] Spiritualism, as introduced by Frenchman Allan Kardec, is relatively widespread in Brazil.

The third option, the Master model, led to the creation of the first Future Stations. In this model, the Club functions as a true center for integrating services that go beyond computing, often housing other community projects managed or implemented by Viva Rio, such as Fair Trade, Electronic Commerce, Micro-credit, and the Citizen'Counter.

In all of these models, Viva Rio acts as manager, assigning a professional to oversee administrative functions. Viva Rio supervises Club activities, trains and evaluates professors, offers consultation on how to build and equip an IT Club, prepares timelines for Club courses, provides teaching materials, and provides certification for graduating students. The courses, which last about a month (16 course-hours), use a simplified language so that students new to the world of computing can learn quickly and easily. The prices of both the courses and Club Internet access are accessible to low-income students: 10 to 20 *reais* (US$3-US$6) per course, plus books, which are sold at cost.

Like the Future Stations, the IT Clubs were designed to be self-sustaining. Viva Rio conceived the project, from its inception, as a business that could be transformed into a franchise. Easy to position, with personalized service and an attractive infrastructure, IT Clubs have the characteristics of a product that can be transferred over private initiative.

Cisco Networking Academies Project – Network Technician Training

One of Viva Rio's newest programs is the Cisco Networking Academies (CNA) project – a high technology laboratory that is part of a training and education program for youth from low-income areas. This partnership with Cisco, with the support of the Inter-American Development Bank, was designed to work together with the Viva Rio project Viva Micro, which facilitates the purchase of computer and equipment by residents of low-income areas. The program is due to be inaugurated in 2003.

The goal of the CNA project is to train, with the help of the Internet, the most qualified and motivated students from the IT Clubs to work with computer networks. Students who have completed computing courses at Future Stations and IT Clubs will be able to continue their education through e-learning, i.e. web-based courses. In this way, students will obtain professional training at low cost and without having to leave their communities. As a form of incentive, Viva Rio will offer scholarships to outstanding students in the basic and advanced courses at Future Stations so that they can become network technicians.

Excellence in Education Program for Low-Income Youth

Youth from low-income areas have few chances to be selected in the highly competitive entrance exams at Brazil's public universities.[22] When they do enter, they often find themselves unprepared for the level of study expected of them, and perform poorly. A new Viva Rio program, just launched with the support of Light[23] and the Rio de Janeiro State Secretary of Education, aims to improve their academic performance both during entrance exams and at university. The program will select from 66 public schools in 7 municipalities a total of 200 students between the ages of 15 and 18. They will receive scholarships of R$60 (twenty dollars) and tutoring for the university entrance exams. This educational reinforcement will be offered by 50 university students, also chosen on a merit basis, who will receive R$400 (130 dollars) each. The funding for the program has been guaranteed by Light, and Viva Rio will, among other things, oversee the selection of the scholarship winners, and monitor the quality of the tutoring.

Virtual Libraries/Future Libraries

In the tele-classrooms of the Community Telecourse program, and on Viva Rio's website, students are urged to complement their education using the city's 21 public libraries. In addition, the city also possesses two "libraries on wheels", known as the Monteiro Lobato and Carlos Drummond de Andrade libraries, which circulate through low-income communities, as well as on-line libraries.

Viva Rio is a partner in the Virtual Library Project of the Brazilian Ministry of Science and Technology's Information Society program. The goal is to stimulate the habit of reading and learning as a part of good citizenship and a complement to education and professional training.

The Future Libraries provide research facilities, public Internet access for research, professional support, special resources for the handicapped – such as an extensive Braille section – and a large collection of works available for use by local schools. The first Future Library was inaugurated at the Hope for the Children Center in the Cantagalo *favela*, and Viva Rio's goal is to build other Future Libraries, with all the same services in infrastructure, in other low-income communities throughout the city.

Another Viva Rio project in this area is the Brazilian Students' Virtual Library, developed in partnership with the AT&T Foundation and the School of the Future at São Paulo University

[22] In Brazil, students' score on an extensive entrance exam known as a vestibular solely determines entrance to public universities, which are tuition-free and in general considered to be the best in the country. The exam is so difficult, and the stakes so high, that most middle- and upper-class students will spend up to a year on expensive courses aimed at improving one's score on the *vestibular*. On the other hand, low-income students cannot generally afford these courses. Their family environment is likely to be less conducive to academic success and they normally have the handicap of coming from public schools, which offer generally lower quality education than the more expensive private schools attended by middle class students. For these reasons, their rate of acceptance at public universities is extremely low.

[23] The state electric company.

(Universidade de São Paulo, USP). With the support of the International Council For Distance Education (ICDE), the Roberto Marinho Foundation, and the São Paulo State Federation of Industries (FIESP) the Brazilian Students' Web Portal (www.portaldoestudante.com.br) offers a number of distance learning services.

With a simple and practical design, the Brazilian Students' Web Portal can be accessed, without charge, by students and professors from secondary school to university-level. Within the portal, they can find the full text of over 3,800 works of Brazilian and foreign literature, periodical and academic articles, official documents, images and sounds. In line with the program's goal of facilitating distance learning, the textbooks and examinations of the Telecurso 2000 courses are also available on-line, offering the same labor market-oriented curriculum as in the tele-classrooms.

Through this agreement between the Virtual Library and the Roberto Marinho Foundation - which develops the telecourses -, the tele-classroom students can consult previous courses, clear up their doubts, do research, and complete exercises and examinations using the Internet. This allows them to receive quality education from their own homes, or from the Information Technology Clubs and Future Stations located in their communities.

Virtual libraries are also very important resources for those studying low-income communities themselves. The Cultural Studies Virtual Library, for example, maintains a large collection of texts, periodicals, academic articles, and other publications, as well as a list of researchers, publishers, and books that deal with issues of contemporary culture. Organized by the Advanced Program in Contemporary Culture (Programa Avançado de Cultura Contemporânea, PACC) at the Federal University of Rio de Janeiro (UFRJ) the Cultural Studies library is part of the National Research Council's (CNPq) Prossiga program. Within the library, one can learn about, for example, the history of the Hip Hop Movement (a rhythm adopted by youth from low-income communities, especially those on the periphery of São Paulo, as a form of social expression), and find links to the website of Real Hip Hop!, an organization that uses the VivaFavela.com portal to publicize its tribe's philosophy and news. In this way, a resource that was originally intended for students of contemporary culture can also be accessed by people interested in learning more about the cultural history of their own communities.

Distance University

A consortium of Rio de Janeiro state's public universities, with the support of the Rio de Janeiro State Secretary for Science and Technology and the State Center for Science and Higher Education through Distance Learning (Centro de Ciências e Educação Superior a Distância do Estado do Rio de Janeiro, CECIERJ), have developed a higher education distance learning program for the state's rural municipalities.

Viva Rio has joined this effort, proposing that these distance-learning courses be held in highly visible public spaces. A pilot version of the project has been installed in an unused railroad station space in the city of Campo Grande. Viva Rio's intention is to transform and adapt under-utilized but heavily trafficked public spaces into centers for higher education. Christened the Candido Portinari[24] Center for Higher Education Distance Learning, this distance university offers undergraduate courses in Mathematics, Education, Physics and Biology. Viva Rio hopes to expand the project to other spaces, such as shopping centers on Rio's periphery, and, by the end of the year, to have created a completely digital, web-based, integrated distance learning program.

Villa Lobinhos / Nós do Cinema (We in the Movies)

Among Viva Rio's special projects are the Villa Lobinhos project, which promotes high-quality musical education for young instrumentalists from low-income families[25], and Nós do Cinema, which offers classes in film production and journalism for low-income youth. Both programs were created in 2000.

Villa Lobinhos offers young people from ages 12 to 20 extra-curricular classes in music theory, as well as individual and group lessons. With support from the Moreira Salles Institute and the Villa-Lobos Museum, the program has enlisted professional instructors, and aided some 25 students at an average monthly cost of 780 *reias* per student.

Nós do Cinema grew out of the making of the 2002 film *Cidade de Deus* (City of God). Before pre-production began, the films' directors, Fernando Mereilles and Katia Lund, set up an acting workshop, offering a four-month course to 200 youth from low-income communities, and eventually selecting the films' actors from this pool. When filming ended, they created the Nós do Cinema Center as a permanent cinema school for low-income youth. There are currently about 50 students enrolled at the center, where they receive classes in script writing, directing, photography, cinematography, production, sound, art direction, wardrobe, set design, editing, and post-production. With the help of Viva Rio, the project plans to create a Journalism Center integrated into the Viva Favela Web Portal. The idea is to produce news reports for television based on articles researched by Viva Favela's community correspondents.

Education through Sports

Youth from low-income communities often have little or nothing to do with their free time. With this in mind, Viva Rio has invested heavily in projects that spur young people to

[24] Portinari is Brazil's most renowned modern painter.
[25] Named after Heitor Villa-Lobos, Brazil's greatest classical composer. *Lobinhos* means, literally, "little wolves".

practice sports of all types. In conjunction with the Rio de Janeiro State Secretary for Social Action and Citizenship, as well as the Globo Television Network's "Children's Hope" campaign, we have created the "Hope Games" and the "Peace Games": a series of state-wide athletic championships. This program also receives support from UNESCO, the Ayrton Senna Institute, Coca-Cola, Unibanco, and the Federal Secretary of Human Rights at the Justice Ministry.

The Hope Games are open to all youth. Once teams have been formed, matches can be held in all types of locales: in public squares, sports clubs, schools, or even police and army barracks, always under the supervision of a professor of physical education connected with Viva Rio. Medals and trophies are offered as a form of incentive. In its first year, 1999, the Peace Games had 49,000 participants, with 20,000 youth present at the opening ceremonies, and 2,508 matches organized in 5 events. In 2000, there were 72,000 participants in 3,499 matches. The Hope Games, held throughout Brazil in 2001, had a total of 250,000 participants. Unfortunately, the 2002 games were cancelled due to a lack of sponsors, but it is expected that the games will be held again in 2003.

Luta pela Paz (Fight for Peace), another of Viva Rio's sports projects, with support from the AfroReggae Cultural Group and the Parque União Residents' Association, consists of a boxing academy, registered with the Brazilian Boxing Federation, with some 40 students age 12 – 25. In addition to training in pugilism, students receive weekly lessons in citizenship and peaceful conflict resolution.

Box K - Information Technology in the Community

Higher Education

19 years old, Renato Vasquez, a Literature student at Rio de Janeiro Federal University (UFRJ), has been supervising the students of the Community Telecourse at the São Cristóvão Future Station for a year now. Determined to volunteer, Renato took Viva Rio's tests for Telecourse supervisors, and now monitors 25 students between the ages of 15 to 50, all enrolled in the Elementary Education course. "They are short on attention. They arrive tired from work, but they leave motivated by the lessons," says Renato, who considers himself an educator. "They have to understand the lessons, not just memorize them, so I try to teach in the most dynamic way possible," he explains.

A New Beginning

Community Telecourse student Silvio Diniz never misses a class. "I arrive on time and always study the lessons well," says Silvio, who likes to sit in the first row and is considered one of the best students in his class. Silvio's story is a sad one: he suffered from alcoholism and drug addiction for years, and dropped out of school at an early age. Today, he manages a treatment center for drug addicts, and has gone back to school. "Nobody grows in life without an education," says Silvio.

Dream Internship

Augusto Cesar Bonfim, 17 years old, saw in the Information Technology Club his chance to improve his résumé and get a job. "You need to know how to use computers to get anywhere in life, don't you think?" he argues. After completing courses in Windows, Word, Excel, Access, and Internet, Augusto ended up winning an internship at the Future Station where he took these classes. A dedicated student, Augusto now dreams of working in computer maintenance. "I am going to enroll in the Cisco project's Maintenance course and learn to install programs, fix hardware, and make a living off it," he says. When he isn't working, this youngster likes to enter chat rooms and talk with friends. "I did these courses, and my friends came and did them too, so now we all have e-mail. We talk by computer," he says.

A Place to Study

The Future Station in Macaé offers more than just computing courses and Internet access. Located next to the bus station, what draw the attention of passersby are the 38 tele-classrooms there. "Before, people looked at this place with suspicion, trying to figure out what it was. Now people hang out all day," says Paulo Dias, who works in the city's petroleum industry. "We come here so often, to study, to take classes, to use the Internet, we end up making friends with the staff," he jokes.

11 - e-jobs/e-business

Viva Cred

One of Viva Rio's pioneering projects, today entirely self-sustaining, is Viva Cred, an autonomous unit within Viva Rio that offers lines of credit to entrepreneurs and small business owners in low-income communities. Created in 1996, Viva Cred was originally inspired by the experience of Internationale Projekt Consult (IPC), a German micro-credit consultancy, which advised Viva Rio during the implementation of the project. Unlike most so-called 'popular banks', where credit is guaranteed through joint surety, the methodology developed by IPC is oriented toward individual loans.

Viva Cred has accumulated a great deal of expertise in the area of micro-credit management. A computerized administrative and portfolio-management system, developed by Viva Rio, which includes information on clients' families, evaluations of business viability, and payment tracking, not to mention the ability to analyze the performance of the program as a whole, has made Viva Cred an international reference point. The software developed by Viva Cred has been made available throughout Brazil through a partnership with the Brazilian Small and Micro- Business Support Service of Rio de Janeiro State (SEBRAE/RJ).

The goal of Viva Cred is to offer credit to entrepreneurs and professionals who are often excluded from the formal financial market. Unlike banks, which demand a series of prerequisites and guarantees before granting loans, Viva Cred has already granted more than 11,600 loans whose only criteria were the viability of the business to be opened and the ability of a client to pay off the loan, without formal guarantees.

To kick off the program, Viva Rio received help from the private commercial bank Fininvest, which specializes in small loans. Besides maintaining a line of credit for Viva Cred clients, the bank also provided R$100,000 (US$33,000) for Viva Cred's startup costs, which, along with support from the National Bank for Social and Economic Development (BNDES) and the Inter-American Development Bank (IDB), made the project possible. In 2001, Fininvest signed a contract for R$600,000 (UDS$200,000) with Viva Rio, giving Viva Cred complete freedom to offer credit to small businesses in the municipality of Rio de Janeiro, followed by a second contract. Today the Viva Cred project is completely self-financing, with very low rates of default and non-payment.

The first Viva Cred agency was opened in the Rocinha *favela* in 1997. The second, opened the following year, benefited the residents of the Rio das Pedras community in Jacarepaguá, in Rio's western zone. In 2000, Viva Rio signed a cooperation agreement with SEBRAE/RJ, which provides support to many micro-businesses. Currently, four Viva Cred agencies attend

an average of 10 neighborhoods each. On average, 50 people pass through Viva Cred agencies every day. The loans range from 500 to 10,000 *reais* (US$16 to US$3,300), and the interest rate is 2.9% per month, with an administrative fee of 1.5% per month, (significantly lower than interest rates on loans from commercial banks, currently at about 6% to 10% per month -and not available for micro-entrepreneurs-).

Workers' Aid Center (CAT)

Within the Viva Favela web portal, the "jobs" page, with its constantly updated lists of offers and job market profiles, is one of the most frequently accessed. To help fight unemployment, Viva Rio has created a partnership with the Workers' Aid Center (CAT), an initiative of the trade union Social Democracia Sindical (SDS) in conjunction with the Ministry of Labor and Employment. Intermediary between unemployed and under-employed workers and employers in need of labor, the Workers' Aid Center helps workers to obtain and maintain employment. Launched in 1999, the Center registers both workers and companies throughout Rio de Janeiro state, offers databases of job offers and job seekers, and provides advice on opening one's own business.

At the Center's headquarters, in the São Cristóvão neighborhood in Rio, the huge demand for jobs has led to long lines that form at dawn. To resolve this situation, reduce transportation costs for unemployed workers, and offer a better quality of service, the Center joined forces with Viva Rio to expand its points of service. The idea is to offer the Internet to workers as a resource for registering at the Center and staying up-to-date on job openings without having to go physically to the Center's headquarters.

Today, workers who live near a Future Station don't even have to leave their neighborhoods to access the Workers' Aid Center. Registration can be done on-line, free of charge, from any of the ten Future Stations. By registering, workers provide potential employers with their personal info, their educational background, work experience, special qualifications, and desired salaries and positions. Each week, Center staff visits the Future Stations and pick up the résumés of workers who prefer to fill out registrations forms manually. Once registered, workers can access the Center's website at Future Stations to stay up to date on job offers. The Center also provides advice on unemployment benefits: recently laid-off workers can find all the documentation needed to obtain benefits on-line.

The partnership with the Center is responsible for bringing in many new users to the Future Stations; about 150 résumés are sent in per month at each Station. Frequently, people come to the Future Stations for the first time to register free of charge at the Center, then come back to check for job offers on the Internet. For just one *real*, less than the cost of one-way bus fare to the Center's headquarters, a worker can access not only the Center's website but many other employment agencies.

On-line registration has amplified the Workers' Aid Center's efforts, benefiting not only unemployed workers but also employers, who can search the website for potential hires. With a simple design and easy navigation, the Center's website offers bulletins, articles, news on job markets and professional training opportunities, as well as basic information on workers' licenses[26], professional opportunities for the handicapped, internships, selection processes, retirement and other social benefits, and unemployment insurance.

Fair Trade

Fair Trade is still not widely known in Brazil. Created in the developed countries of the Northern Hemisphere, the concept proposes a policy of giving value to products imported from developing countries. The goal is to sell products under the "Fair Trade" seal that have been produced by workers paid a just wage, with a portion of the profits reinvested in the communities where the products were made. So far, this international experiment has been mostly limited to food and handmade artisan items. Viva Rio has sought to bring the Fair Trade concept to urban products, specifically textiles, by forming and developing cooperatives, family businesses, and producers' associations. The first to benefit from the Fair Trade program have been small clothes-making businesses and autonomous seamstresses.

With a long tradition of textile manufacturing, Rio de Janeiro has a number of experienced workers in the field. Viva Rio registers seamstresses with cooperative work experience, and then analyzes their work case by case, investing in training and equipment through Viva Cred, and finally making contacts between seamstresses and companies. Currently, the Fair Trade program produces about 150,000 pieces per month for small and large companies, while paying seamstresses about double what they normally receive.

The principal problem for the Fair Trade movement in Brazil, and internationally, is product flow. Part of the problem is in the current limiting of the fair trade market to food items and regional handmade goods, since the global markets for these goods are nearly saturated. Viva Rio believes that the Fair Trade movement can be reinvigorated by expanding the concept to include new semi-industrial products produced by a more professional workforce; these products, besides being "politically correct", should have market appeal, an aesthetic based on current fashions. Viva Rio has worked in this direction, always seeking to create high-quality products that appeal to the taste of the consumer. Although the international market continues to be a target, it is possible that Brazil will provide the project's principal market, as a new culture develops of products associated with socially conscious brands and chains of specialty stores. Viva Rio has opened various shops in shopping centers, malls, and airports, and plans to include in its shop products from other regions of Brazil.

Viva Rio is a member of the Latin American Secretariat of the International Fair Trade Association (IFAT) and is developing a project in partnership with SEBRAE to create a

[26] In Brazil, all legal employment is registered in an official *carteira* or license.

national Fair Trade website. The site will provide on-line support for producers interested in participating in Fair Trade, as well as an on-line catalogue of Brazilian Fair Trade products sold nationally and internationally.

Business to Business – B2B

Business to Business, B2B, has advanced quickly in Brazil, but its effects have not reached low-income communities. In many *favelas*, the cost of living is higher than in traditional urban areas; the same product is more expensive for the city's low-income population than in the supermarkets where the middle class shop. Why? Because small businesses in the *favelas* do not have access to the big wholesalers: the logistic of access is complicated, the purchases are small, the businesses do not have credit, and many of them are not legalized, and so cannot emit legal receipts.

Viva Rio began its B2B project by negotiating with a large electronic trading company. The original idea was to make purchases via electronic auction; however, initial investment in software development proved inadequate. Instead, Viva Rio began negotiating directly with big wholesalers, acting as an aggregator of demand and a guarantor of credit. Viva Cred in turn offered credit to local businesspeople, offering revolving credit lines in proportion to the potential of each business. Orders would be gathered using the Internet and sent to wholesalers, eliminating middlemen. As a start, Viva Rio created a partnership with a wholesaler who offered some 3,000 items to retailers.

An initial study proved that the potential aggregate demand of *favela* businesspeople was quite large, and that the project was widely approved of, with some 90% of owners interested in participating. The credibility of Viva Cred with businesspeople helped the idea win people over.

Viva Rio's B2B program relies on community agents, residents of the communities in which they work. After being trained by Viva Rio, the agents visit the commercial establishments of their neighborhoods, looking for new clients and taking orders on palm-tops outfitted with software especially designed for the project. Each agent transmits the orders from his palm-top to a Future Station, where they are processed by the manager there and redirected to wholesalers and distributors, who send the products within 24 hours.

In its initial phase, the B2B program registered some 430 clients, with an average of 5 orders per day in each community. The most common products were basic foodstuffs like butter, sugar, and biscuits, as well as alcoholic beverages.

After functioning for one year, the project suffered an interruption due to the problem of issuing receipts, not always possible for the many *favela* businesses that have never been legalized. A solution is being negotiated with the State Treasury[27] through a special

[27] *Secretaria da Fazenda*

authorization that will allow the B2B program to continue. In spite of these difficulties, the B2B program represents one of Viva Rio's most creative projects, for its use of the Internet and its potential to improve quality of life for people in low-income communities.

"You Never Forget Your First Business"

One of Viva Rio's most recent projects is "You Never Forget Your First Business", launched in August 2002. The pilot program is aimed at the businesspeople and entrepreneurs of the Rocinha *favela* and the surrounding areas, offering training courses in ownership and administration, as well as loans -through Micro Cred- for creating one's own small company.

Created by Viva Rio in partnership with ISER and Viva Cred, and financed by the European Commission, the course (one week long, three hours per day) teaches people interested in learning how to create and maintain their own business, evaluate the potential of a project, calculate risk, and draw up a business plan, as well as topics such as marketing, market research, and how to legalize a micro-business. The course is based on study carried out four years ago in Rocinha by Viva Rio and the Fluminense Federal University (UFF)

The "You Never Forget Your First Business" courses are administered at the Rocinha Professional Center by the NGO Campo. Eventually, ten such centers will be opened, with a target of 1000 new entrepreneurs trained by the end of 2003. Viva Rio has chosen successful local entrepreneurs from the course to be trained as new instructors, giving students the chance to learn from people from their own community.

As of April 2003, 100 people have participated in the course, 60 of whom have already received loans to start up their own companies, which, according to Viva Cred, are all doing well. Most of the business plans were for bars, pubs, and luncheonettes, but there were also ideas for franchises in diverse areas such as beauty salons, day-care centers, accessories shops, video rental, gold-plated jewelry stores, pet shops, dry cleaners, and even a cyber café inspired by the Rocinha Future Station itself. (The project was approved, a loan made, and the micro-entrepreneur is presently outfitting the café.)

The loans given vary from R$500 to R$5,000 (US$165 to US$1650) and are generally made 48 hours after a request is made. For graduates of the "You Never Forget Your First Business" course, Viva Cred offers a special credit line with lower than normal interest rates. As of this writing, there have been no problems with any of the micro-entrepreneurs, and the rate of non-payment has been zero.

Entrepreneurs also receive support from a specialized team of economists and historians from the Fluminense Federal University (UFF) for 12 months after opening his or her business. Though the course is currently only offered in Rocinha, residents of any community may enroll in the course and seek a loan for opening a business.

Many businesspeople enroll in the course simply to acquire skills and improve their businesses, without seeking loans. To facilitate access, Viva Rio will soon offer the course in all its Future Stations. As a way to make the classes more dynamic, Viva Rio is developing a CD-ROM to be used in the Future Stations, also available in Viva Cred agencies to students who have completed the course.

Neighborhood Gardeners and Ecological Projects

The environment is a central problem affecting the quality of life for *favela* residents. Created in 1997, the Neighborhood Gardeners project was developed to train youth in gardening and in environmental education. Participants receive professional training and begin working in public gardens, as well as schools and private residences. In 2003, the project was expanded to include an IT-training program for 16 youths. The students learned how to use Windows, Word, and the Internet, carrying out research on landscape design and increasing their knowledge of environmental issues.

For a period of one month, youth participate in workshops on environmental questions and, at the end of the course, receive a "Neighborhood Gardener" diploma. Since its creation, the program has graduated 130 neighborhood gardeners. The project, which is supported by the Parks and Gardens Foundation, the Cooperative Training Program (Programa Capacitação Solidária) of the National Urban Cleaning Company (Companhia Nacional de Limpeza Urbana, Comlurb), British Petroleum, and the Globo Television Network, among others, is already active in the parks and plazas of the Botafogo, Saúde, and Leblon neighborhoods.

The neighborhood gardeners also collaborate on other Viva Rio projects. During 2002, when the city was suffering from an epidemic of dengue fever, 200 youths from the project received special training and became public health agents, teaching their communities about the dangers of the disease and methods to combat the mosquito that transmits the disease.

Greening the West, another Viva Rio project, is helping to recuperate Rio's West Zone by planting seedlings of native Atlantic Rainforest plants and raising environmental awareness among local residents. Another interesting project is in the poor neighborhood of Ramos, where an artificial beach has been created using treated water from the Guanabara bay. Originally administered by the state government, the project was transferred to Viva Rio, which trained 38 youth from its Neighborhood Gardeners program to act as Environmental Agents in the cleaning and conservation of the space. Viva Rio project aims to transform the area into a Nature Park and expand its social services to include separate trash collection for recycling for the local community and the colony of fisherman who live in the neighborhood. To stimulate local fishing, a system of artificial reefs will be planted. Due to the lack of government resources, Viva Rio recently left the administration of the project.

Volunteer Civil Service

According to the Brazilian Institute of National Statistics and Geography (Instituto Brasileiro de Geografia e Estatística, IBGE), only 10% of all young men in Brazil are effectively called up for obligatory military service. As a way of offering guidance to the millions of youth who are not approved for military service, Viva Rio has proposed to the Ministry of Justice the creation of Volunteer Civil Service (SCV). SCV was conceived as an educative alternative for youth who reach 18 years of age without completing elementary school. The program is aimed at youth from low-income communities who have not completed elementary school, do not have a job, and live in conditions of poverty. One of the goals of the project is to spur youth to complete elementary and secondary school, to enter university, and to develop notions of citizenship. With funding from the Workers' Aid Fund (Fundo de Amparo au Trabalhador, FAT) and the support of some150 NGOs in all of Brazil, the program reached 13,000 youth in 2000. The following year, the number doubled, and the goal for this year is 50,000 youth.

In Rio de Janeiro, the program is coordinated by Viva Rio, which trains youth throughout the state to develop community service projects in their own communities. As of 2002, **the program has benefited 12,165 youth from 31 municipalities throughout the state**. They are offered courses in citizenship, professional skills, information technology, community action, human rights, and how to manage small businesses. Volunteer Civil Service is not obligatory, but many youth seek out the program on their own. Once enrolled, they receive 682 class-hours of a period of six months.

To better comprehend the reality of these youth, Viva Rio has carried out studies on those students enrolled in Volunteer Civil Service. The idea is to profile the target public in terms of their values and experience. The latest study, in 2002, was of some 414 youth from low-income communities between the ages of 17 and 21. More than 71% identified themselves as black or mixed-race; 44% had not completed secondary school; and those who are still in school -bout 75% - have not yet completed elementary school. For them, a job is something to be hoped for, since their family income is very low – 60% come from families with a total income below three times the minimum salary.[28] Despite the great interest in finding work, only 17.5% percent perform some kind of remunerated activity.

In the daily routine of *favela* life, these youth live in close proximity with the question of violence: 57% have been victims of illegal police searches, 43% report having been humiliated by legal authorities, and 39% have suffered aggression. The majority of these youth consider it important to inform oneself about one's rights as a citizen; 65% believe that human rights should be a priority for the government; and 86% think that citizens who know their rights are likely to be better respected.

Once trained by the Volunteer Civil Service, the youth become 'Community Caretakers', and are eligible to participate in the social and environmental projects overseen by Viva Rio in

[28] In Brazil, the minimum monthly salary is currently about US$80.

their communities. Many of them take further courses to learn how to preserve public assets and spaces, as well as participate in campaigns and studies carried out by ISER. The Caretakers also act as reserves for the professionals of Civil Defense, the Military Police, and Municipal Guards. Civil Defense, for example, trains these youth so that they can act as lifeguards at the safety posts along the cities seashore. Other youth are trained to orient local populations in the fight against the Dengue mosquito. There are innumerably diverse projects that employ Community Caretakers, and once a Caretaker is involved in one of them, he or she receives a stipend of 100 *reais* per month.

The project has grown over the years, becoming national in scope, and has recently expanded to include imprisoned youth. Through a partnership with the Santa Cabrine Foundation, Viva Rio has begun to work in the Vicente Piragibe Penal Institute – which is part of the Bangu Penitentiary Complex. Some 1,400 prisoners are attended, between the ages of 18 and 30, serving sentences of anywhere from one to eight years.

Box L - Business in the Favela

B2B Agent

Young Victor Hugo, resident of the Maré *favela*, saw in B2B a professional opportunity. Hired by Viva Rio as a commercial agent in the development of the program, Victor never imagined that he would be able to do business in his own community. "Commerce here is only held back by the difficulty that storeowners have in making purchases," he says. Armed with a palm-top, he canvasses the streets of his *favela*, spreading the word about B2B to local establishments. "I'm well-known here, so the community didn't have any problem accepting me. Storeowners want to do business; now it's up to the big wholesalers to bet on this market, which is a good a bet!" he guarantees.

Distance Employment

Unemployed, Demontier Pinheiro, a 24-year-old construction technician from the state of Ceará no longer visits job lines. Two or three times a week, he goes to the Future Station closest to his house and accesses the Workers' Aid Center website. Using the Internet, he posted his résumé and schedules job interviews. With his secondary education completed, Demontier dreams of enrolling in a civil engineering university program. "Once I find a job, I am going to take a pre-*vestibular* course.[29] Until then, I am researching the best engineering courses on the Internet," he says.

Direct Marketing

After gaining experience working on websites and in cyber cafés, systems analyst Carlos Ramos, 34, decided to open his own business in Rocinha: a cyber café with games aimed at adolescents. The entrepreneur sought out loans from a number of banks, but gave up when he saw that interest rates were above 6% per month. He ended up consulting Viva Cred, where he participated in the "You Never Forget Your First Business" program, and requested a loan for 2,000 *reias* to open his business. In the weeklong course, he was able to focus and clarify his business plan. "I learned how to create partnerships and invest in different forms of advertising. I made banners, hired a sound car[30], and handed out t-shirts with my cyber café's logo," says Carlos, who will pay off the loan in 12 installments.

Pet Shop in the Favela

Katia Gonçalves, 31, participated in the "You Never Forget Your First Business" course after requesting a loan for 1,500 *reias* from Viva Cred. "I wanted to open a pet shop because here

[29] A short prep course for the *vestibular*, the extensive and highly competitive entrance examinations at Brazil's universities.

[30] A car mounted with a PA system that repeats the clients' advertisements throughout a neighborhood; common in Brazil.

in the *favela*, there are no services for the dogs and cats of the community," Katia explains. In the course, she learned, among other things, how to research prices. "My prices are the best in the area, and for residents its more practical and cheaper to bring their animals to my shop than to go down to the 'asphalt'[31]."

[31] "Asphalt" (*asfalto)* is common slang for the non-*favela* part of the city, sometimes simply referred to as "down below".

12 e-citizenship

Citizen's Counter (Balcão de Direitos)

With little or no access to police protection and the judicial system, due both to ignorance and the absence of legal professionals, and lacking a culture of negotiation and conflict resolution, the populations of low-income communities often develop a relationship of helplessness and cynicism towards the legal system. Towards the end of 1996, a group of 25 community leadership councils, all partners in Viva Rio projects, called for the creation of a space dedicated to strengthening the citizens' rights of their constituencies.

This was the point of departure for the creation of the Citizen's Counter project, originally funded by the Rio de Janeiro State Secretary for Human Rights, the Federal Ministry of Justice, and the United Nations Development Plan (UNDP). The first of these legal aid Centers were installed in spaces donated by the communities of Rocinha, Chapeú Mangueira and Babilônia, Morro Santa Marta, Maré, and Rio das Flores. Their mission is "To promote the democratization of rights through the diffusion of information and the production of more just alternatives for conflict resolution, thus fostering the open practice of citizenship, and contributing to a plural and cooperative society."

Three years after its creation, with the support of the European Commission and the Ford Foundation, and through partnerships with the National Social Security Institute (INSS), the Criminal Circuit Court (Vara de Execuções Penais, VEP), and the Psychiatric Institute at the Federal University of Rio de Janeiro (UFRJ), Counters had been installed in five communities, offering orientation on citizens' rights and duties, legal aid, and services for filing legal documents with official organs and obtaining IDs and licenses. In addition, the Counters increasingly act as mediators of conflicts that can be resolved without recourse to legal institutions. The Citizens Counters have become a national benchmark for similar experiments in nearly all of Brazil's states. Last year the Ministry of Justice requested that Viva Rio evaluate the Citizen's Counter project on a national level, as well as the development of a website that will serve to help integrate the experiences of all Citizen's Counters and similar legal aid counters that have been implemented throughout Brazil in the last few years.

Citizenship Agents & Community Legal Agents

Each Citizen's Counter core staff includes one 'citizenship agent' who acts as a bridge between the Counter and the residents of the local community. To be a citizenship agent, one must be known in respected as a leader in one's own community; most agents have been with their respective Counters since their creation. Every month, agents receive new training

courses, enabling them to aid residents not only in juridical matters, but to help mediate conflicts and direct residents to specific Viva Rio programs.

The Citizen's Counter also offers training for community legal agents. The courses, which last four months, are open to anyone from the local community, and cover 12 areas including human rights, fundamentals of law, and conflict mediation. Since March 2001, 70 students have graduated from four courses in the communities of Morro Santa Marta, Morro da Formiga, Chapéu Manguiera, and Babilônia. In early 2003, a new group of students from the communities of Ramos, Cantagalo and Pavão/Pavãozinho completed the course and became community legal agents.

Viva Rio has also organized courses at its headquarters on law, citizenship, and conflict Mediation for groups of community leaders from various communities. In the last few months, six such courses have been offered, training 15 leaders each.

Citizenship

The Citizen's Counter mission goes beyond offering legal aid to local residents. It also includes fostering in communities the skills needed to find solutions to day-to-day problems through conciliation and conflict resolution, without the need to engage the formal judicial system. The core staff of a Counter is made up of at least one lawyer, interns (law students, some volunteers and others remunerated), and citizenship agents – local residents who intermediate between community members and professionals.

The Citizen's Counter and Viva Rio have invested in the formation of research teams, responsible for creating and developing seminars, courses, publications, and institutional material. All this material is used to reach out to communities, the media, and institutional networks. The Manual of Human Rights produced by the Training Team of the Community Caretakers and Volunteer Civil Service projects is a good example. The Citizen's Counter also produces pamphlets as a way to effectively inform residents. With simple, engaging language, a series of eight pamphlets called "Fight for Your Rights" explain basic legal concepts and citizens' rights to local residents.

Since their inception, the Counters have attended more than 50,000 cases. Of these, the most important areas of demand were the following: 41% for labor rights conflicts, 23% for legal aid, 11% for dispute resolution, 10% for support during the judicial process, and 4% for judicial action. 69% of all clients were women, and 56% were 36 years old or older. 46% earned between one and two times the minimum salary, while another 46% earned between three and four times the minimum salary. Educational level is quite low among Counter clients: 50% have not even completed elementary education. Most are single (48%) and own their home (74%), though 35% were currently unemployed; only 31% were legally employed, while 9% work at home and 15% work for themselves.

The Civil Rights Counters are also expanding their activities through the Internet. On its website, users can learn how to obtain IDs, work permits, driver's licenses; find formulas for calculating retirement benefits; and get informed about legal issues like consumers' rights and the legal status of children, adolescents, and the handicapped. With an educational tone and language that is simple and accessible, the website deals with questions such as racial discrimination – a common phenomenon in low-income communities – and gives advice on how to react. The goal for 2003 is to achieve 50 on-line consultations per month.

www.desarme.org

Despite its roots in underlying social structures and the conflicts arising from the drug trade, the endemic violence of the *favelas* cannot be disassociated from a factor that, to a certain extent, has a logic of its own: the supply of, and easy access to, a wide variety of firearms. Viva Rio was created in response to a moment of particularly high levels of urban violence in Rio de Janeiro, and has made the fight for disarmament central to its efforts.

Viva Rio's disarmament campaigns are aimed at both the drug trade, which recruits children and adolescents to work in illicit drug sales - thus putting them in situations of armed violence - and common citizens, who are often the victims of their own firearms. To make the population aware of the dangers of having a gun in the home, Viva Rio has launched a number of campaigns that encourage people to get rid of their firearms, often calling on wives and children to mobilize for the cause of disarmament. For example, the national campaign "Choose Gun Free! Its Your Weapon or Me" starred popular Brazilian actresses, who asked women to pressure their husbands and partners to remove guns from family homes. A permanent campaign in partnership with church groups promotes programs for voluntary hand-over of firearms.

Many of these campaigns are local in scope, targeting youth from low-income communities. Quite common are shows and popular activities within communities, with the participation of victims of armed violence and their families. One of the bolder projects Viva Rio has undertaken is the Wall of Pain, an enormous mural made up of photos, letters, poems, and protests in homage to the victims of urban violence. In 2001, Viva Rio collaborated with the Rio de Janeiro state government in organizing the public destruction of 100,000 firearms - the largest simultaneous destruction of firearms in history.

The desarme.org website is central to Viva Rio's disarmament program. Created in 2001 and made up of a group of five researches, it provides databases in Portuguese and Spanish containing a wealth of up-to-date information on all manner of themes related to the arms trade, illicit small arms traffic. The site also offers access to the list of firearms confiscated by the Rio de Janeiro police and held in their deposit; by making this information available, Viva Rio hopes to aid national and international bodies in tracing these seized firearms and analyzing the route they follow from legal production to diversion into black markets and criminality. The police of Latin America have little experience and expertise in tracing

firearms, and often, little interest: many police organizations are themselves involved in illicit arms trafficking.

The desarme.org site receives an average of 40,000 visits per month; only 20% of these are from Brazil, the rest coming from Latin America, the U.S., and Europe. Viva Rio has publicized the website in low-income communities as a way of educating youths of the dangers of armed violence and drug trafficking.

The relevance of the desarme.org website became clear to the public in 2001, when it intermediated in a communiqué between then-Rio de Janeiro State Secretary of Public Security and the Secretary of State Intelligence of Argentina. The document requested the collaboration of the Argentine government in tracing the sale of 20 Argentine-made hand grenades found by police in the *favelas* of Rio. The document also provided a list of Argentine-made firearms seized by Rio police between 1989 and 2000. In 2001, the issue resurfaced at the UN Conference on Illicit Traffic in Firearms.

In the fight against armed violence, the desarme.org research team produced a list of 225,000 firearms seized between 1950 and 2001, and presented it to a representative from the Argentine Consulate in Rio during a public ceremony organized by Viva Rio and the Rio state government attended by representatives of 14 foreign governments. Once again, Viva Rio requested the cooperation of the Argentine government in tracing the route these firearms took before arriving illegally in Brazil, destined for Rio's organized crime factions.

Viva Rio's efforts began to pay off when an Argentine NGO, "Fundación Espacios", arranged a meeting between representatives of Viva Rio and a representative of the Argentine government, a member of the Senate's Defense Commission, and author of a project that has denounced the illegal trafficking of Argentine military-style weapons - the type that have ended up in the hands of Rio's criminal factions. The project reached the executive branch of Argentina and a commission was formed to investigate the denunciations. Meanwhile, the larger newspapers began publishing the lists -provided by Viva Rio- of firearms involved in the illicit arms scheme between the two countries.

In that same year, a new disarmament project was conceived to train NGOs and community groups throughout Latin America and the Caribbean. The project's mission is to form and train a network of information exchange aimed at fighting illicit arms traffic and better control the legal arms trade. The program has three basic goals: train NGOs in publicizing their campaigns and research projects; urge research centers in these countries to develop studies on the consequences of firearms proliferation; and create a web-based network for the exchange of information and experiences. UNLiREC, Small Arms Survey, the Arias Foundation for Peace and Human Progress, Swefor and Save the Children, supports the project.

Another disarmament-related project, in process of being finalized, is the Small Arms Classification Manual, to be distributed among the police of Latin America, which will train

police to identify and classify data on seized firearms in a universal database, aiding international tracing efforts.

One of the central issues raised by Viva Rio's research on the circulation of arms is that a large part of these weapons are produced in Brazil and sold to neighboring countries, and from there re-enter Brazil illegally. The enormous economic interests of the Brazilian arms industry have thwarted, at the Congressional level, efforts by Viva Rio and the federal government to commit to a policy of transparency and control of small arms sales.

Viva Rio is also coordinating a ten-country research project on Children in Organized Armed Violence (COAV) that seeks to understand the mechanisms that lead children and adolescents to participate in armed criminal groups. Viva Rio will host a web-portal dedicated to the issue of COAV, which will also serve as an information exchange network for the researches involved in the project. Institutions and organizations that work in this area will be able to use the portal to share their findings, debate issues, and propose forms of intervention that may reduce the impact of this phenomenon, which has become the leading cause of death among adolescent males in low-income neighborhoods.

Police Training

In 2002, the Rio de Janeiro State Government created the Continuing Education Program for Military Police. As part of this program, a Viva Rio partnership with the Public Security Institute (ISP) created the Community Policing in Practice course. The central aim of the course is to improve the quality of policing by providing a space for reflection upon common police practices and opening up debate on the nature of the relationship between police officers and the communities they serve. Thus, police officers are encouraged to reflect on their role in the community and to supplant traditionally violent and aggressive methods with preventive alternatives. Using some 14 instructional videos and 20 workbooks, the course focuses on actual patrol routines, using real-life examples to illustrate practical problems and to introduce notions of citizens' rights, ethics, and community relations. In the classroom, police officers study and discuss vivid cases from day to day police work, debate pertinent themes, and work in small groups to analyze situations and decide on the best method to resolve conflicts.

Viva Rio is currently training some 100 police sergeants and captains, known as "sergeant-multipliers", since they will then go back to their respective battalions and teach other officers the techniques they have learned.

The objective of the course is to learn how to act preventively, to mediate and resolve conflict situations, to confront the reality of their professional situation, knowing the risks, and to successfully carry out investigations in private homes. Police officers also learn how to decide what situations truly fall within their jurisdiction, and discuss how to deal with the fear many police have of low-income neighborhoods. The classes also foster a discussion about

the vulnerability of the profession and the consequences of involvement in corruption, bribery, and extortion. Controversial themes such as homosexuality, racial prejudice, and violence against women are also part of the course curriculum.

Viva Rio, which often exchanges information and experience at international conferences on reducing armed violence, brought to Brazil a model of community policing adopted in Boston, USA. The goal of community policing is to promote the democratization of police power and to discourage possible acts of corruption on the part of police officers. When local residents feel more secure, they can participate in prevention and the fight against organized crime. The State Secretary of Public Security, with Viva Rio's consultation, has created the GPAE (Grupo de Policiamento Comunitário), a community policing program implemented in the Cantagalo, Pavão, and Pavãozinho *favelas*. In its first year, the program was able to reduce the number of firearm homicides, from about 20 per year before the program began in 2000, to zero in the years since. In this model of policing, the community participates in a very active way, choosing public security priorities and monitoring police work in the region. In all, 100 police have been trained to work in the Cantagalo and Pavão/Pavãozinho, guaranteeing community policing for their 17,000 residents.

When it was realized that part of the solution lay in putting greater value on the function of police and their quality of life, Viva Rio created complementary public policy projects and organized actions that sought to improve living and working conditions for police and their family members. The Generation of Peace project, a partnership with the Globo Television Network, Viva Rio, Fecomércio, the Federation of Industries of Rio de Janeiro (FIRJAN), and the Rio de Janeiro state government, aims to elevate the self-esteem and quality of life of police officers and their families by offering diverse opportunities for education, sports, leisure and culture. For one year, some 2,400 spots in the vocational courses and sporting activities offered by Senac/Rio (related to the Federation of Commerce) will be reserved for police officers and their families, while Sesc/ Rio (also part of the same Federation) will offer 12,000 tickets to plays and concerts.

Box J - Community Rights

In Defense of the Community

Community Legal Agent Robson Umbelino never thought that he could work directly with lawyers. "People always think they haven't got a chance in life, you know?" he laments. Resident of the Maré community, Umbelino is one of the 17 community legal agents at the local Citizen's Counter, opened in late 2002. His job is to mediate conflicts and propose settlements and alternatives for those involved. "There's nothing a good conversation and a cool head can't resolve," he jokes. When he can't resolve a case, he sends the disputants directly to the Citizen's Counter. "There, they will receive proper guidance," says Umbelino, who studied law and citizens rights for six months at the Center before being named a community legal agent. "I became familiar with the official bodies and the professionals that run them, and learned a lot about our rights," he says.

Legal Adoption

Determined to legally adopt his wife's children, Claudio Napoleão, 40, resident of Cantagalo, sought out the Citizen's Counter and discovered that legalizing the adoption was easier than he thought. "It's very common for people in the community to raise other people's children, but everybody believes this rumor that since we are poor, we can't legally adopt," says Claudio. A member of the local residents' association, Claudio ended up becoming a community legal agent, and today works in his community's Citizen's Counter. "The most common problems we deal with are divorce and alimony," he explains. He recalls the early reaction of residents to the Citizen's Counter: "People didn't have any faith in Justice. They thought that since the service was free, it must not work."

In Search of Rights

"People in the *favela* have no idea how to resolve problems of a judicial nature. Things happen and people accept it, accept it, until it becomes an avalanche," explains Gibeon de Brito, President of the Association of Residents and Friends of Chapéu Mangueira. For him, the arrival of a Citizen's Counter in the community helped residents begin to fight for their rights. "They sought out the association, but we have no power to judge, to interfere. There was a lack of professional guidance. Residents didn't know where to turn for advice. Without money, how were they going to go to a lawyer?" asks Gibeon. "Now they go to the Counters, clear up their doubts, ask for advice, and begin to act like citizens."

For Disarmament

Jorge João Silva, known as Jorginho, is president of the Complexo do Alemão Residents' Association. He participates in each of the studies carried out by Desarme, in partnership with ISER, which are published in community newspapers. "But we don't have to read the

papers to know what's happening in the *favelas*. We live close to the effects of firearm use", he laments. He participated in the campaign "Mothers, Disarm your Sons", which brought a number of musical groups to the community in 2001. The musicians joined together to call for peace and speak out against the large number youth killed by firearms. "Bringing the idols of our youth here to speak is a way of showing them that there is another path, that there is a solution. You don't have to enter the world of crime."

13 - Social Innovation, Non-governmental Organizations, Business, and the State

The Lessons of Viva Rio

Like any social experiment, Viva Rio has some characteristics that cannot be reproduced in other environments, while at the same time it indicates models and approaches, which, with adequate adaptation, can contribute to the fight against digital exclusion in particular, and social inequality in general.

The Fight against Violence - Urban violence has become one of the main social and political problems of the new millennium. In this area lies what is perhaps the principal innovation and contribution of Viva Rio: the use of the Internet as part of a repertoire of actions (research, analysis, campaigns, and social projects) aimed at reducing violence.

Urban violence affects citizens around the world, in both developed and developing countries, and has taken a center stage in electoral campaigns. Urban violence has fed racial prejudice against immigrants in Europe, blacks and Latinos in the U.S., and the residents of low-income areas in Latin America. In response, however, the political imagination of political parties and civil society has been inadequate, and **the fight for peace and the fight for development are still treated, in practice, as separate themes by the majority of international agencies, governments, and NGOs.**

One of the biggest problems here is that, in Brazil, as in many parts of the world, the fight against violence has been seen as falling strictly under the jurisdiction of the state security apparatus. This has led to the development of two non-compatible discourses: one that affirms the need to preserve human rights without indicating practical solutions, and another that puts efficacy ahead of respect for civil and rights. Viva Rio's work has been pioneering in combining a discourse of peace and respect for human rights with concrete public security projects that confront specific problems of policing and armed violence, delivering practical results.

Viva Rio realizes that violence must be confronted by acting at a number of different levels: the socio-economic -generating employment and providing access to education- as well as the particular -restricting the circulation of firearms and training police officers. Viva Rio has been very successful in showing that the fight against urban violence is important to all sectors of society, that a culture of peace and the rejection of violence can create a social movement capable of dealing with the many problems of human security without falling into a mindset that relies on police violence and the stigmatization of *favela* residents.

The experience related in chapter 12, in which Viva Rio got the governments and police of Brazil and Argentina to cooperate in the fight against illicit arms traffic, illustrates the importance that NGO networks can have in the fights against crime and international terrorism. The rigid structure of national governments and the lack of institutional systems of international cooperation in the fight against new forms of organized violence both limit the effective exchange of information and flexible, rapid cooperation between state security agencies. NGOs specializing in the fight against violence can play an increasingly important role in defining national security policy, as well as fostering a shift in public opinion away from simple, reactive fear, toward a pro-active vision of cooperation and resolution.

Scaling up - The principal limitation of most NGOs actions is that they are *ad hoc* local actions, undoubtedly relevant for the target communities, but without a large-scale societal impact for the simple reason that they are not replicable. Instead of complementing government action, all too often they end up substituting the state, relieving it of its responsibilities to low-income communities.

Given the rigidity and bureaucracy of the state, NGOs have an important role to play as social laboratories, sources of innovation and new techniques of social intervention, and eventually, as implementers and supporters of government action. But the ability of NGOs to innovate is only relevant to the extent that the experiments they develop are transformed into public policy and/or attract the attention of private enterprise to the potential of low-income communities as consumer and labor markets. For this to happen, NGO action must go beyond homespun programs, whose particularities, functional logic, financing, and management make them non-reproducible. Unfortunately, many NGOs actions sometimes resemble a cemetery of well-intentioned projects.

The relevance of Viva Rio's approach is that its projects have a well-defined format, a managerial structure and evaluation system that can be reproduced on a large scale, allowing them to be taken over eventually by the state and transformed into public policy. Viva Rio's experience indicates that NGOs themselves could benefit from training in how to overcome amateurism and create social projects whose success doesn't depend solely on the good will and sacrifice of NGO staff, by creating prototypes that can be transformed into public policies. Without such training, local efforts will likely result in little more than temporary improvements, or at best, the social mobility of small groups targeted by projects.

The professionalization of NGOs will of course produce some tension in the recruiting of teams, between the demands of a moral ethos that attracts people willing to accept lower-than-market salaries -but not always fully qualified-, and a professional ethos that calls for highly qualified personnel with their accompanying expectations for higher salaries. This is a problem faced by NGOs everywhere: throughout the world, and professionalization of NGOs is well under way, spurred on by new requirements from financing agencies whose bureaucratic systems for evaluation and approval of projects requires more and more specialized staff.

Self-sustainability and Market-Readiness - The legal definition of NGOs as not-for-profit organizations can, unfortunately, often be restated as "institutions with non-sustainable social projects". NGOs need constant external support to create and experiment with social projects, which are all too often cancelled when funding dries up. To have a permanent effect, projects must aim either to be declared of public interest or absorbed by the state, or capable of sustaining their own operating budget. Viva Rio has shown an enormous capacity for success in both senses, developing projects that can be absorbed into public policy, and developing projects with potential to sustain themselves. For example, the Future Stations are different from most other NGOs tele-centers in Brazil because there is a fee paid by the users, helping the program sustain itself and allows users to value their effort in accessing the services.

Improving the self-image of sectors with no self-image – One of the principal arguments for the fight against digital exclusion is the need to value local cultures at risk of losing their ethnic and linguistic identities. This is correct in so far as it doesn't see local culture as being in opposition to global culture; we should not forget that so-called local culture is always a mix of various traditions that can be interpreted in many ways, and that the Internet is a two-way street, through which content flows out to the world and the world can enter in to local communities.

While Viva Rio action in this area celebrates pre-existing identities, ignored or restrained by the dominant culture, the central importance of its projects is in transforming the self-image of *favela* residents -and the negative image that other social groups have of them- by showing how *favelas* have produced **new** forms of cultural and social creativity. Instead of opposing and isolating, the goal is to integrate, to show the positive dimension of *favela* life, its cultural wealth.

Social prejudice, a journalistic ethos of high-impact news, and even the well-intentioned focus on social exclusion all tend to present these communities in a negative light, as places of violence and suffering. Without denying these realities, Viva Rio tries to create bridges with the outside world, showing *favela* life in all its dimensions to local residents and to the rest of society, which in large part has never visited a *favela*.

Community Relationships / Networking – One of Viva Rio's primary characteristics is that it works in cooperation and partnership with local communities, at the same time maintaining a certain autonomy in relationship to each. This aspect is sometimes criticized for not being entirely rooted in the target communities, with social projects arriving "from the outside". This criticism merits detailed commentary, as it is based on several myths of an "alternative" discourse based on local knowledge that has now been appropriated by the majority of large foundations and international organizations.

Viva Rio is structured as a network of face-to-face relationships that is empowered by telematics, but which is renewed constantly through every-day contact. This networking approach allows Viva Rio to be present in many communities, without being linked solely or particularly to any one locale; it permits a global vision of the problems facing the city, and the proposal of solutions and organizational models that go beyond the specific needs of each place. At the same time, by working directly with local organizations, a central pillar of Viva Rio's philosophy, local organizations and NGOs are valued and empowered, allowing them to leave behind a provincial and often narrow vision of their problems and the available solutions.

In the *favelas* of Rio de Janeiro, a large number of community leaders are directly, indirectly, or potentially at risk of blackmail by drug traffickers. This alone would be sufficient reason not to leave the management of projects entirely up to local residents. But those who emphasize the empowerment of communities would argue that this is circumstantial, and thus temporary. This vision relies on an idealized and thus distorted view of the community. These communities are in general controlled by oligarchic structures, which, without external control, tend to back projects that at best reinforce their power, and at worst channel scarce resources into their own interests.

Thus it is important to value the expressions of local community leaders, without mystifying them as the sole source of know-how. In some cases, truly effective leaders do arise in the *favelas*, usually youth who have attained a certain level of educational qualification, who demand for themselves the right to be true spokespersons for their communities. Without a doubt, such leaders are crucial to community development, there work creative and necessary, but their legitimacy is based precisely on the fact that their knowledge has been obtained outside the community.

Size and Diversity – Although some people see NGOs as highly efficient in comparison to the public sector, they are often extremely wasteful of human and financial resources caused by the interruption of projects due to lack of funding.

Viva Rio suffers from symptoms common to the life of most NGOs, in particular financial instability. This not only puts the continuation of its projects at risk, it makes it difficult to recruit qualified personnel, especially when experience in the formal labor market is required. However, the quantity and variety of Viva Rio's projects function, to a certain extent, as an antidote. Through sheer size, Viva Rio has accumulated a critical mass of resources that allows it to maintain a permanent team of qualified professionals throughout fluctuations in cash flow, to sustain projects that run deficits until new financing can be found, and to cover the cost of pilot programs before formal financing has been secured.

Future Stations as Multi-use Community Tele-Centers – One of the principal characteristics of the Future Stations -in contrast with the majority of tele-center experiments associated with so-called solidarity and citizens' networks- is the variety of their sphere of

activities. With a wide range of services beyond simple Internet access and computing courses, the Future Stations represent an experimental step towards the creation of multi-use community tele-centers. As we have mentioned before, given the importance of tele-centers for the democratization of the Internet, it is necessary to constantly evaluate different experiences, their technological, managerial, and financial models, their range of content and services offered, and their relationship with local communities. The creation of multi-use community tele-centers will permit the elimination of redundancy in tele-center investment, at the same time creating dissemination poles of Internet use. .

Press Relations – Viva Rio ability to stay in the news has generated some marginal resentment from some politicians and NGOs, which sees in Viva Rio's media savvy a clever exhibitionism in place of actual work alongside the needy. We believe, and this book has sought to show, that this is a doubly unjust criticism. First because Viva Rio carries out an impressive amount of local work and second because the role of non-governmental organizations is above all, to disseminate moral messages. In the current world, the capacity to reach hearts and minds passes through access to the means of communication. Violence in Rio de Janeiro has an enormous capacity to strengthen fascist attitudes. Viva Rio´s campaigns to improve the image of the *favela* residents and encourage society at large and government in particular to take responsibility for the issue of violence have been a central factor in neutralizing these tendencies by advancing effective propositions for fighting crime while protecting civil rights.

Solidarity and Representation – Viva Rio's approach raises a theme whose discussion is beyond the scope of this work, but which should nevertheless be mentioned. NGOs frequently confuse solidarity and vocalization of the needs of low-income groups with actual representation of these groups. There are all manner of NGOs, and there are certainly many that are direct expressions of social movements, while others have such strong roots in their communities that they can claim to represent them. But in general, solidarity cannot and should not be confused with representation, since no matter how well intentioned, this amounts to a kind of usurpation.

Viva Rio, through its campaigns, seeks to give voice to the desire for solidarity that runs through society, and at the same time develop products that offer answers to specific problems of the urban poor. These projects are, whenever possible carried out in partnership with the government and/or private enterprises, and always in collaboration with local organizations. But this collaboration does not authorize Viva Rio to consider itself a representative of or substitute for local actors. Viva Rio distances itself from a model, still dominant among Latin American NGOs, of radical discourses about an alternative society, in which the NGOs themselves are self-proclaimed delegates of the popular will.

Bibliographic Suggestions

For those interested in the themes discussed in this book and the sources of cited statistics, we present here the principal websites consulted, where up-to-date figures are available. In any case, as we mentioned earlier, the data should be considered a road map of general trends, since there is significant disagreement among the specialized institutions that analyze the Internet universe on even basic topics such as number of users and economic impact. The websites mentioned here often mix quality reports and articles with material of less value, but even in the best academic work and in the official documents of international organization it is common to employ incomplete or undated statistics. There is also a tendency to refer to anecdotal "success stories" in the fight against digital exclusion that in reality were never implemented, or about which there is no effective post-implementation evaluation. Also to deplore is the tendency to use large .pdf files with extensive graphic and photo elements, requiring a powerful computer and a high-speed Internet connection for download within a reasonable time frame. In one case, for example, the website of an international organization offers a handbook on organizing tele-centers in developing countries so data-heavy that, if one wished to download it on a computer without a high-speed connection, it would take almost an hour an a half, supposing that the modem connection does not fail at any point.

Sites About Social Inequality and the Information Society

World Bank www.worldbank.org
European Commission http://europa.eu.int/information_society/index_en.htm
International Telecommunications Union www.itu.int
OECD www.oecd.org
United Nations Development Program www.undp.org
UNESCO www.unesco/org/webworld/observatory/index.shtml
United Nations Information and Communication Technologies Task Force
www.unicttaskforce.org/index.asp
International Development Research Centre
http://www.idrc.ca/media/Connecting_dots_e.html

Sites about Latin America

CEPAL www.eclac.cl/
Red de Telecentros en América Latina y el Caribe http://tele-centros.org

Fundación Redes y Desarrollo http://www.funredes.org/mistica

Sites about Brazil

ANATEL www.Anatel.gov.br
BNDES (National Development Bank) www.bndes.gov.br
CG (Administrative Committee for the Internet in Brazil) http://www.cg.org.br .
Getulio Vargas Foundation
ww2.fgv.br/ibre/cps/mapa_exclusao/apresentacao/apresentacao.htm
Federal Government www.governoeletronico.gov.br/
IBGE www.ibge.gov.br
RITS – Network for Third Sector www.rits.org.br
The Information Society Program www.socinfo.org.br

Principal Sites of Viva Rio

http://www.vivario.org.br
http://www.vivafavela.com.br
http://www.desarme.org
http://www.balcaodedireitos.org.br
http://www.favelatemmemoria.com.br
http://www.cambito.com.br
http://www.vivacred.org.br
http://www.radiovivario.com.br
http://www.lojavivario.com.br

For those interested in printed work on digital exclusion, the work of Manuel Castells is a pivotal reference, though we disagree with his tendency to magnify the importance of social transformations produced by the Internet. His most recent book, *The Internet Galaxy*, (New York: Oxford University Press), 2001, presents a synthesis of his positions and an ample bibliography. Another important reference is Lawrence Lessig, who develops positions about the information society, from a juridical perspective, similar to those of this book. . His more recent work includes: *Code and Other Laws of Cyberspace* and *The Future of Ideas: The Fate of the Commons in a Connected World*. A fine analysis of the digital division between North and South can be found in J.F. Soupizet, "Technologies d'information et de communications dans les pays em développement : une approche en termes d'accès", Thèse de doctorat d'économie, Université Libre de Brussels, 2003.

Finally, those interested in the author's vision of Brazil should consult *A Nova Sociedade Brasileira*, (Rio de Janeiro: Jorge Zahar), 2003, 3rdnd edition; and on the relationship between

the state, NGOs, and human rights: *A Democracia Inesperada – Direitos humanos, Politica e os Impasses da Globalização,* (Rio de Janeiro: in print).