

## Information Society and the Internet in Brazil\*

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### Abstract

We are living through a great cultural and historical mutation. A new way of thinking, working, seeing the world and ourselves. Our identities and our notions of space and time are being changed. Thanks to the information and communication technologies, human beings are closer to each other, in a marvelous and dramatic diversity. The political, cultural, economical and subjective mutations which we are experiencing today, and the virtualities contained in these mutations are amazing. Brazil is the leader of one of the most important regions in the world. Politically, the electoral process in Brazil is totally computerized. Taxes are mostly organized in the Internet. Economically, it is being quickly digitized. All large enterprises are being interconnected through the Internet and intra and extranet. Although much of the population is excluded, the most important social sectors are entering or are already in the Information Society. Brazil has made a big jump to Information Society in the past ten years, starting commercialization of Internet in 1995. In Brazil the ways we do things are being changed fast. But, as in other countries, it brings about dramatic and hard situations of social and cultural marginalizations. Information Society can change most of these situations. Information Society is very rich, because knowledge is its core commodity and knowledge is a very powerful commodity. It is a source of wealth that can be shared and is not destructible. We are entering a digital knowledge society. Knowledge engineering became strategic in the social, political and economical development, because all life in the planet depends on it.

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## Information Society

*We are living through a great cultural mutation. A new way of thinking, working, seeing the world and ourselves. Our identities and our notions of space and time are being changed. Thanks to the information and communication technologies, human beings are closer to each other, in a marvelous and dramatic diversity...*

The Information Society is an integrated and complex society. It is revolutionary compared to the industrial society. Because we have crucial changes concerning our ways of social *communication* and *production*, ways of *thinking* and *deciding*. Information Society is situated in the post-industrial - maybe we could say post-capitalist - society context.

a)

For the first time Mankind is unified, not only by industry or commerce, but mainly by communication. It is a world society integrated by language. The human digital ***trofolaxe*** (*communication*) is an emergent phenomenon with no return. It institutes a new way of communication that is characterized by “intercreativity”, not merely “interactivity”, and by decentralized and transversal communication of the “all-to-all” type, not of the “one-to-all” type like radio, newspaper and television.

b)

In the Information Society we are also living a new relationship between Work and Capital. On the one hand, Capital is being *molecularized* by *immaterial Capital*, like information, knowledge and subjectivity and by *material Capital*, like computer machines. In other words: much of the intellectual and machinery Capital are molecular, nowadays.

On the other hand, we are seeing a *dematerializing* of work and production, that is, a new way of working in which cybernetics and subjectivity are essential. The immaterial Work, such as information, knowledge and subjective Work, became Capital. So Workforce is Capital, too. In a way, Work and Capital have the same power in the Information Society.

c)

One of the most important transformations in course relates to specific transformations in the *way of thinking*. In the domain of the emergent integrated electronic media, the text is a sector of the cultural industry that is particularly affected. A true revolution of knowledge and thought is under way.

It is a new experience of thinking. Hypertext configures a new way of researching and constructing knowledge: transversal, moving, multimedia, interconnected, on line, permanently updated. The human intellectual adventure is moving from the relatively static writing of the heavy industrial printing to the more strongly dialectic writing. Hypertext is a new dialectical

reasoning, new dialectical collective intelligence. A new dialectical sculptural writing: digital *Wiki-writing*.

d)

Another very important change implicated in the Information Society concerns our decision taking, that is, our political life. New Virtual Agoras are taking shape around the World. They institute new ways of making decisions and exchanging ideas and commodities. Thus contemporary Information and Communication Technologies (ICT) create nowadays a new *polis*: a World Wide *Polis*.

Globally interconnected, this cyber polis integrates in a complex way all human beings that exist on the planet, though sometimes indirectly. This new polis is characterized by the ever more imperative presence of new and unusual political actors, such as the omnipresent cybernetic machinery and all the natural beings that are today dependent on human action. It is also characterized by the ever more decisive presence of women and young people in the public space. A new *Digital Republic* is coming.

## The Internet

*Thanks to the information and communication technology, we can see the world and our own inner world through a new perspective. We can control our actions on our planet and our actions and emotions in our everyday life, because we can simulate the result of most of these actions...*

a)

The Internet is one of the most important cultural expressions of contemporary culture. Internet is the means through which Information Society achieves its cultural organization. Internet, through World Wide Web, is a great tool of cultural workforce. It means: Cybernetic knowledge, cybernetic information and cybernetic culture. It is a cybernetic way of exchanging ideas, money and commodities. Intercreative cybernetic relationship between human beings themselves, and between human beings and machines. These material conditions of development of the culture create a more *autonomous* environment to the intellectual development of the individuals in a new global *hypermarket*.

The Internet became one of the most important means of human communication on the planet. It is very strong. But it will be stronger when it surpasses television and, then it will consolidate its communicative mechanical and intellectual hegemony. This new way of social communication is hybrid. As McLuhan said: hybrid means open new ways of seeing the world.

It will make possible for us to see things in a new way. So we will be able to step out of the sensory narcosis operated by mass media, mainly by television. It represents a communicative revolution of great consequences.

Then, this way, now people have new powerful tools of communication and working. This important new immaterial capital - knowledge and communication - and material capital - tools and cybernetic machines which characterize the Information Society create, in fact, *a new social power*.

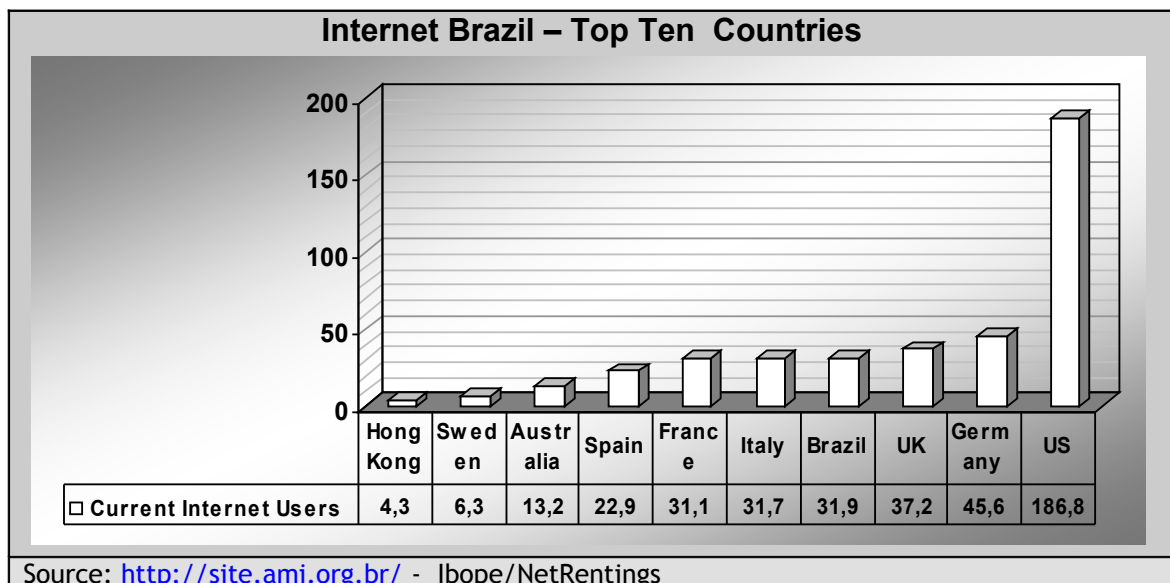
## Brazil in the Information Society

*Brazil is the leader of one of the most important regions in the world. It is a very beautiful, wealthy and promising country, in spite of its enormous and dramatic socio-economical contradictions. Its wealth is based on the great intellectual, musical and physical creativity of its people, on its natural beauty, and on the great power of its environment. It is also based on the power of its industry and agriculture, on its accelerated integration in the Information Society, and several other aspects. Because of this, Brazil will surely play a capital role in the future of the planet...*



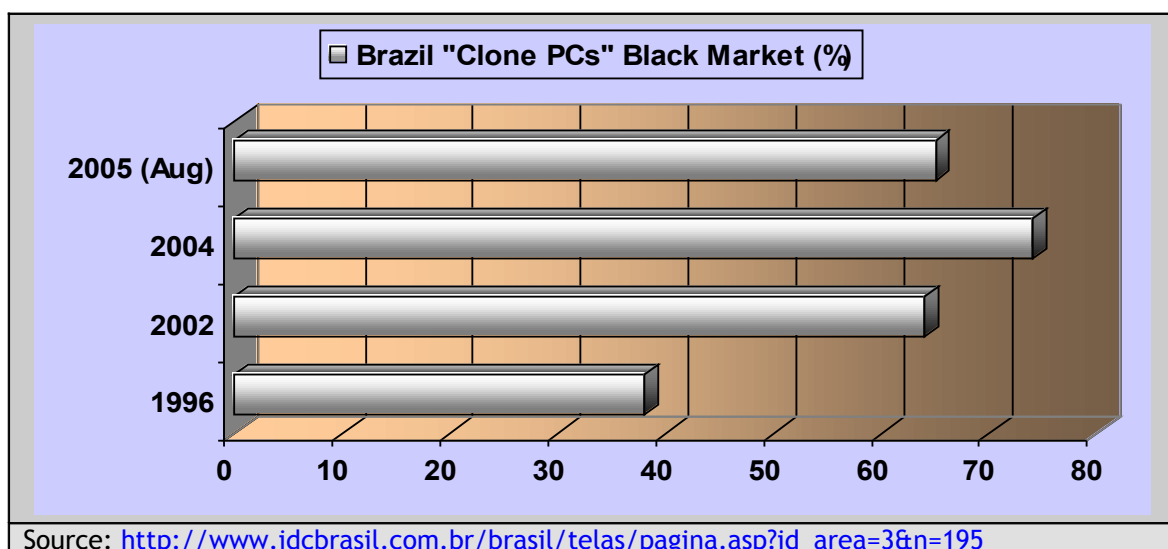
a)

Brazil has a very interesting and complex position in the Information Society. Information business has developed quite considerable productive forces in different ways: in the industrial sector and in the service sector; through industrial and managerial automation; in the communication and education, and in the public and private administration; also in the accessories and consulting enterprises; Internet service provider and Internet hosting; in the production of personal computers and commercialization of software. But a good part of this development has happened made or is still happening in the black market. Although this *digital cannibalism* has helped in the development of the principal productive forces of the Information Society in Brazil.





In fact, Brazil has made a good jump to Information Society in the last fifteen years, starting free and massive production and commercialization of personal computers from the late 80's and of World Wide Web from 1995 on. No doubt, the increasing of production and commercialization of PCs are in a great part due to the expansion of the Internet. But, Brazil had had a law of "protected market" for fourteen years, from 1977 until 1991. Nowadays, we can estimate in 30 million the computers installed in Brazil.



Taxes are mostly organized in the Internet (about 95%). And all large enterprises are being interconnected through the Internet, intra and extranet. The electoral process in Brazil is totally computerized. With a population of about 200 million and about 120 million electors, Brazil uses "voting machine" to define its executive and legislative government and carry out plebiscites. In October past, for example, in a plebiscite there were over 300 thousands (exactly 325.458) "electronic ballot box".

Scientific research in Brazil is also greatly informatized. All researchers have their electronic *Curriculum* on the Web, in a database of National Center

of Research ([CNPq](#)). Where all proceedings for budget to research are on line. But, surely, it has no money for all demands of research of academic community. Brazil applied only about 1% of its GDP in research. It has about tree thousands courses of post graduation from which about two thousands are recognized for Coordination for Improving of Personal of Superior Level (CAPES), office of the Minister of Education.

<b>Brazil - Post Graduation Programs Recognized by CAPES (nov 2005)</b>									
GREAT AREA	Post-graduation Programs and Courses					Total of Post-graduation Courses			
	Total	M	D	F	M/D	Total	M	D	F
AGRARIAN SCIENCES	232	89	3	1	139	371	228	142	1
BIOLOGICAL SCIENCES	202	46	2	8	146	348	192	148	8
SCIENCES OF THE HEALTH EXACT AND OF THE EARTH SCIENCES	413	121	19	32	241	654	362	260	32
HUMANITIES	233	91	2	8	132	365	223	134	8
APPLIED SOCIAL SCIENCES ENGINEERINGS	311	148	4	5	154	465	302	158	5
LINGUISTICS, LETTERS AND ARTS	259	137	0	32	90	349	227	90	32
OTHER	259	111	1	28	119	378	230	120	28
TOTAL	124	59	0	1	64	188	123	64	1
	174	95	10	40	29	203	124	39	40
	2.207	897	41	155	1.114	3.321	2.011	1.155	155

M-

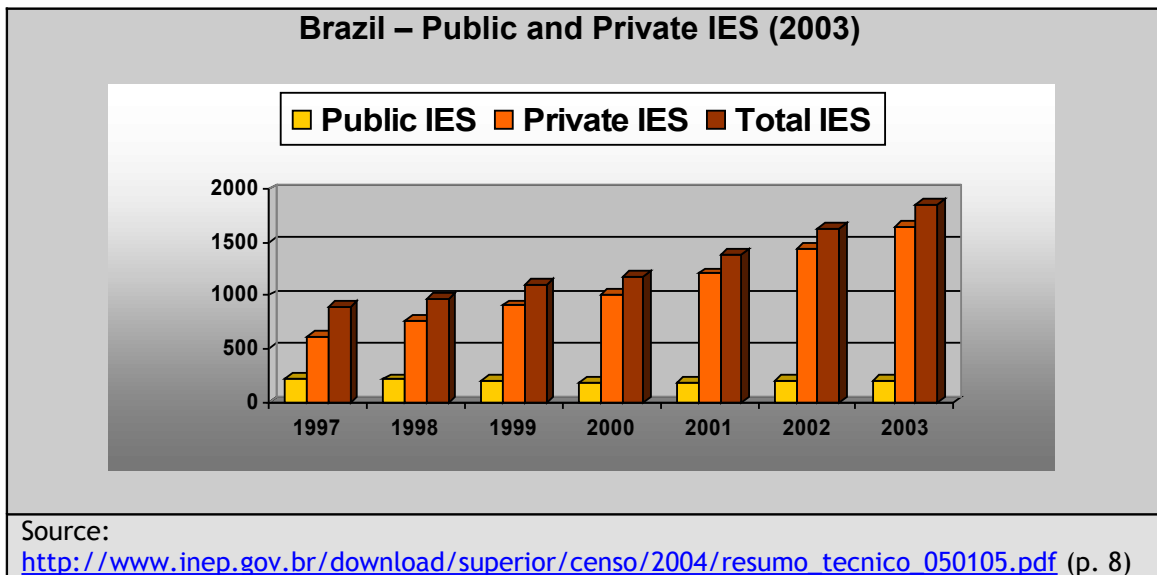
Master D-Doctorate F- Professional Master

Source: <http://www.capes.gov.br/capes/portal/conteudo/10/ProgramasReconhecidos.htm>

Academic researchers also have a public database on line for publication and access of doctoral thesis and master dissertations at Digital Library of Thesis and Dissertations (BDTD) of Brazilian Institute of Information in Science and Technology (IBICT) that assembles about 30 Universities and Research Institutions. ([See](#))

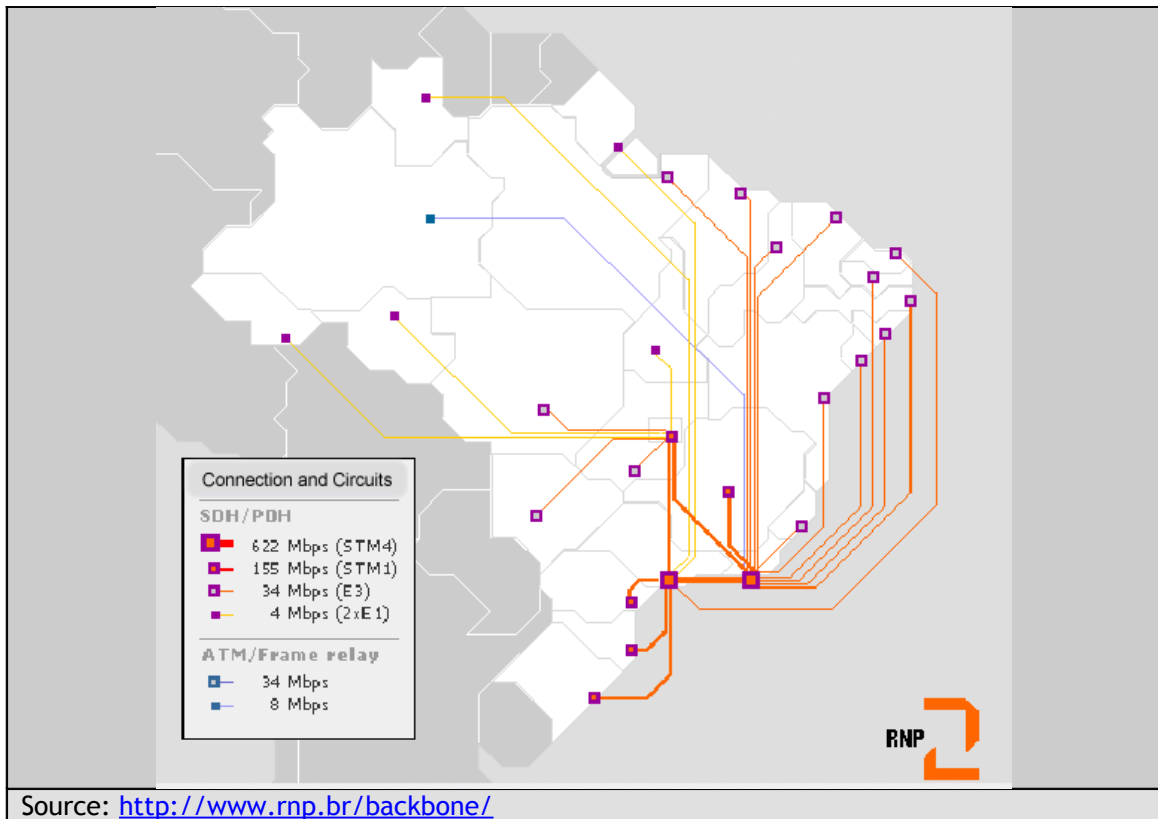
At the same time, Brazil has about two thousands (exactly 1859) Superior Education Institutions (IES). The great part of superior education became private (about 88,9%). So great part superior learning is realized in

private sector. But, academic research is realized in great part in the public sector, corresponding 86% of Post Graduation Programs (2002).



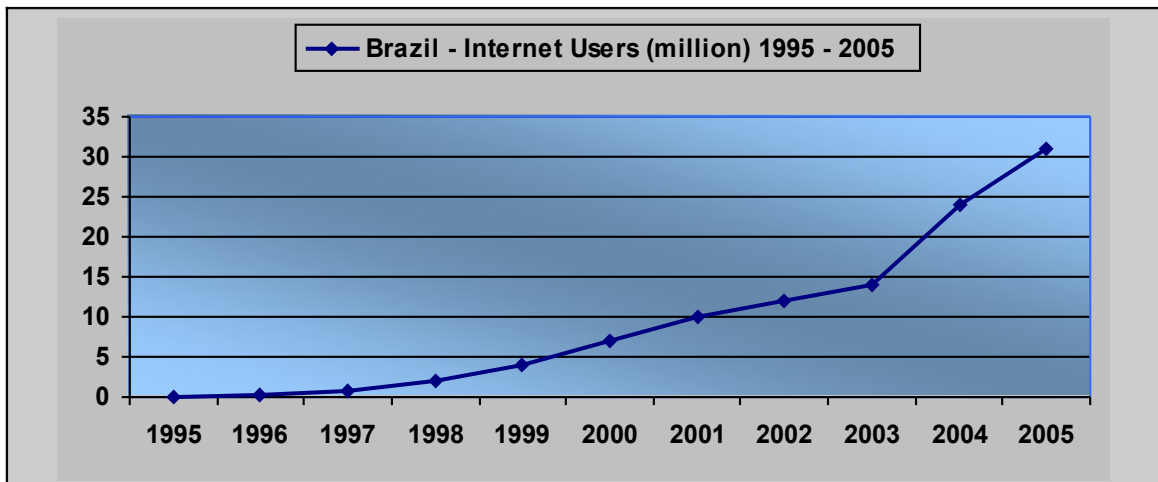
Basic infrastructure of Internet in Brazil is developed by National Net of Research (RNP). All states of federation are connected through Backbone with speed between 8 Mbps and 622 Mbps. In 2003, it has connections with speed between 8 Mbps and 311 Mbps.

**Brazil – National Backbone Map RNP (2005)**

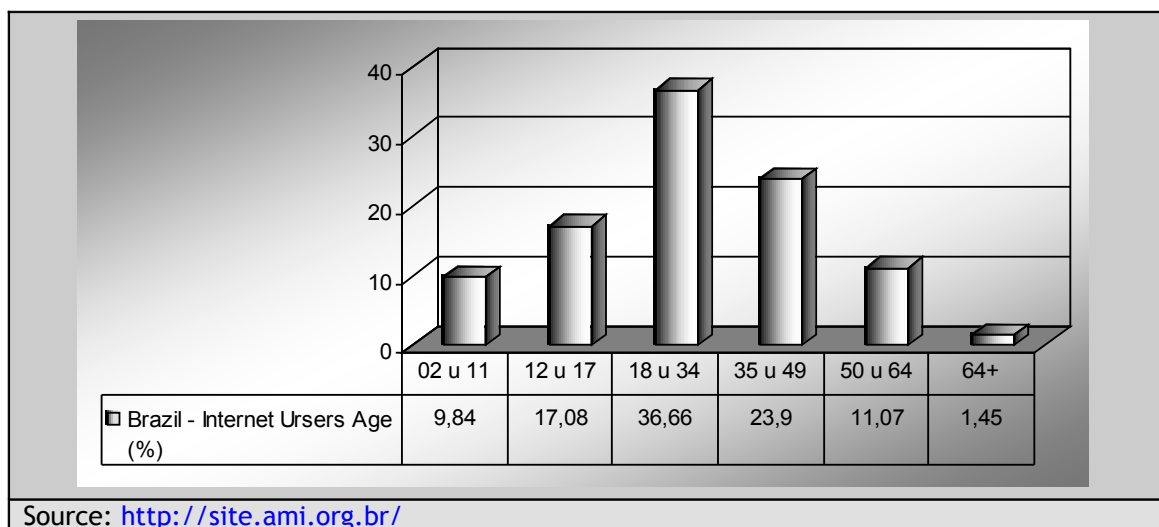


b)

Remarkably, in January 1996, Brazil had about two hundred thousand people connected to the Internet. In 2000, they were about ten million. Nowadays, late quarter 2005, Brazil has about thirty million people connected to Internet.

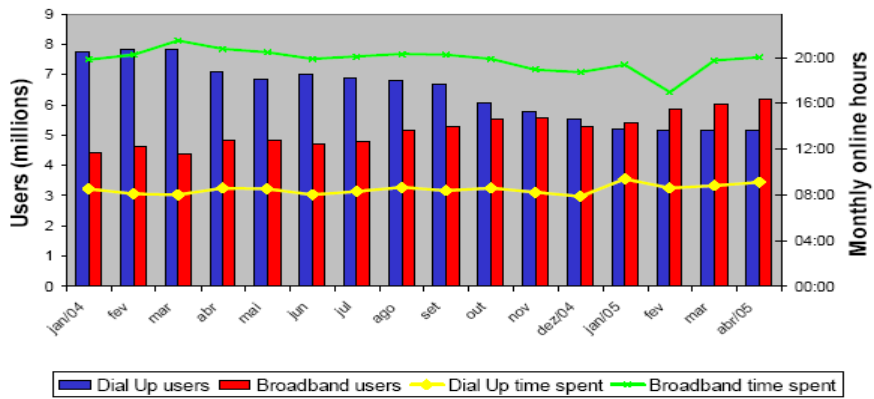


Young people account for an expressive appropriation of Web in Brazil. About 37% are between the ages of 18 and 34 years old. This generation has a great participation in virtual communities like Orkut, instant messaging, sent/received e-mail, in chat-room. It has a great participation in the creation of blogs, fotologs, web sites, and so on.



In June 2005, Brazil was considered the major in the world when it comes to time of residential navigation (about 17 hours). And on first quarter 2005, 20% of residential navigation are related to virtual communities, and 10% e-mail use. Nowadays the most Internet users has broadband connection. When it comes to Wikipedia, it has about 80 thousands articles in Portuguese language from which about 50 thousands were written in the last eight months.

## Active Home Internet Users and Time Spent Brazil

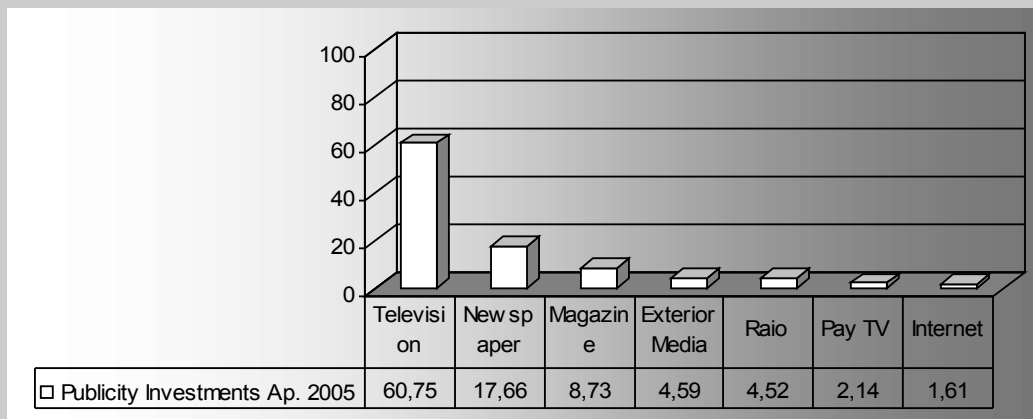


Source: Broadband Report Ibope/NetRatings

Source: <http://site.ami.org.br/>

Publicity investments in the Internet is yet very low, corresponding only about 2% of whole publicity in the *media* in Brazil in April 2005.

## Brazil April 2005 – Media Publicity Investments



So, although much of the population is excluded, the most important social sectors are entering or are already in the Information Society. But industrial and agricultural sectors are yet responsible for about 45% of its Gross Domestic Product (GDP). While the service sector is responsible for about 55%.



*The political, cultural, economical and subjective mutations which we are experiencing today, and the virtualities contained in these mutations are amazing. We see an ever increasing number of Virtual Agoras of youths, political groups, networks of corporations, enterprises, music, education and relationship, game players, writers, intellectuals taking shape...*

c)

No doubt, in Brazil the ways we do things are being changed quickly. But, as in other countries, it brings about dramatic and hard situations of social and cultural marginalizations.

In Brazil digital divide is enormous. On the one hand, because of our immense social divide: Brazil has high social exclusion and high concentration of wealthy. About 10% of population richer possess 40% of income, while 40% of population poor possess 10% of income. Brazil also has a great cultural divide and diversity. It is a country at the same time rich and poor, very rich and very poor, developed and underdeveloped. On the other hand, because there is a misunderstanding in our governmental classes about the role of information and research and knowledge in contemporary society. Though some policy decisions to favored the called “digital inclusion” ([see](#)), “PC connected”, “Free Software”, “Telecenters”, through *Electronic Government* project ([see](#)), they aren’t efficacy to breakdown the digital divide in Brazil.

Brazil have good chance to jump into Information Society and breakdown its digital divide. To this, we need a public and privacy policy of high investment in the research and education, first. To promote movements like *Open Source* and *Free Software* and financing of researching and acquisition of hardware.

But we also need some political decisions more general without that breakdown digital divide in Brazil is impossible. To fight against unemployment and mainly the lack of income and the lack of education. To fight against social misery and marginalisation with a serious policy of *minimum income*, not *minimum wage*. To make clear and just our relationship with our external and internal public debt. How much of this debt is in fact ‘public’ and how much of it is ‘private’? How to face it? This question is, maybe, one of the most important questions to countries like Brazil



nowadays. Brief, we need to fight also against excessive social wealth of some few individuals or corporations. So, to reach a greater social harmony.

These political actions could seem extraordinary, but they are very important and urgent, because the social tissue in Brazil - especially in the great urban concentrations - is being corroded fast. And it regards not only our relationship with ourselves but with nature too. We must, we can plan other ways of developing our economy and our society.

But we need mainly a new social awareness and a new subjectivity. Human societies must construct a new understanding about themselves and about nature. A new respectable social relationship with one another and a new awareness of nature limits. A new *eidos* of existence on the planet.

**Brazil – Poverty and Violence (Scene Movie “City of God”)**



Source: <http://www2.uol.com.br/tropico/images/cidade%20de%20deus.jpg>

In Brazil there are common problems around the world, with developed and developing nations of the world. We can collaborate with one another. Now, we have to take decisions whose implications are global. We must think in a global way, as human beings, no more oriented by mere national or private interests. We need to know the world in order to act and take decisions; for this, we need an truly intercultural dialog. We now have the means for this intercultural dialog by using Information and Communication Technologies.

## Digital Knowledge Engineering

*We are entering a digital knowledge society. Knowledge is one of the greater goods for human beings in the Information Society. It already brought marvelous and terrible things to mankind. Aviation and... nuclear bombs and warheads...*

a)

So, the present techno-scientific revolution is amazing, because there are many possibilities and potentialities to human beings to explore life. Our medicine, our computing devices, robotics, cybernetics, our genetic engineering, our means of communication and our contemporary cultural expressions promise a new *devir* (becoming) to human species.

Knowledge became the infrastructural base of production, on which the main productive forces of contemporary society developed. In fact, Information Society is very rich, because knowledge is its core commodity and, further more, it is very powerful. It is a source of wealth that can be shared and is not destructible.

Thus, research and knowledge engineering became strategic in the social, political and economical development, because in a way all life on the planet depends on it. This concerns the engineering of social and individual knowledge, that is, the way we create, produce, record, distribute and acquire knowledge and its goods in order to improve our capacity to know and benefit all human beings of the world.

Information Society not only changes the position of knowledge and the role of “intellectual workforce”, it also creates new possibilities of research and production of knowledge itself. It is also in the core of questions for the contemporary epistemology such as *systemic thought* and *simulation* that involve cybernetics and information systems of research and production of knowledge. So, in a context of transdisciplinarity, epistemic science and complex thinking, digitalization of knowledge, shared knowledge, web thinking, knowledge is permanently open, changing and constantly being renewed, reworked, perfected. As Pierre Lévy said, this is “flow-knowledge”.

b)

Thus, researching became a strategic “tool” in the way of production and digital knowledge engineering became a crucial issue for contemporary society. How can we distribute that wealth? What must we make to develop research? To develop our economical and cultural life? How can knowledge overcome our digital divide?

These are no simple to answers to these questions! But, nowadays, there are various movements of great importance in this sense. Movements like *open source* and *free software*; movements for free or cheap hardware; movements peer-to-peer (P2P) of shared memory; movements like *GNU Free License* and *Creative Commons*. Linux, Wikipedia and Web are some good examples of great human intellectual creativity and moral generosity.

Anyway, everything will depend on this emerging Digital Generation. The Digital knowledge generation is one of the most important productive forces of the economical system because, even though they are a minority, their decisions and their actions have implications for the whole social system. They are nuclear today's way of production, and if the Internet is today's *the means of knowledge* so everything will depend on how this Generation uses the knowledge and the Internet. What are the ethical and political premises for their action and their creation of knowledge? How can the Internet help people who are lost to find their way? How can the Internet help underdeveloped nations integrate Information Society? How can the Internet help the educational process in developed nations to conquer a new relation with the environment? How can the Internet help all nations of the World fight the universal destruction? These are also very hard questions.

We need a model for the formal and informal research and education adapted to the digital *knowledge society*, the new digital economy and the new digital culture. We need a universal and planetary new education towards creativity and complexity and the essential knowledge focused on the great questions of human life.

This implicates an Ethics of social and environmental respect and responsibility. It must be the *Ethics of research and digital knowledge engineering*. This is an Ethics to affirm life, justice and beauty.

Choukran,

Thank you.

Brazil-Tunisia, November 2005.