

## Will the Soccer World Cup of 2014 Help Bridge the Social Gap through the Promotion of ICT and E-government in Brazil?

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The development of e-government in Brazil and the full use of information and communication technologies (ICT) by the population mirror the social divide that taints society: one of the most elaborate electronic voting systems in the world and a remarkable online tax return operation coexist with poor broadband penetration and computer illiteracy in many parts of the country, especially among the poor. Progress is being made, though. Two major projects in particular are capturing hearts and minds and may help bridge the social gap with ICT and e-government: the *e-Brasil* Project, which promotes a broad agenda of public policies aimed at building a more equitable and more competitive country through intensive use of ICT, and the 2014-Bis Program, which intends to dazzle the world with developments in the country that are unique in terms of technology, scope, approach, and social impact.

### The last 25 years of ICT in Brazil

In 1984, Brazil was living under the military government of General João Baptista de Oliveira Figueiredo. It was a time of high and variable inflation, high unemployment, debt crises, heavy state involvement in the economy, and a slow, carefully managed transition toward a civilian president elected indirectly by Congress in January 1985.

In October of 1984, during the twilight of the military regime, Congress passed the so-called National Information Technology Policy, also known as the Informatics Law (*Lei 7.232 Política Nacional de Informática*), reserving the national information technology (IT) market for Brazilian firms for the following eight years. The Informatics Law had the support of some nationalist military officers, linked to the Brazilian national intelligence service and working in the Special Secretariat for Informatics (*Secretaria Especial de Informática*, or SEI), under the National Security Council. These military officers had formed an unusual alliance with left-leaning intellectuals and an influential lobby composed of several associations linked to the IT sector (ABICOMP, defending the interests of Brazilian computer-makers; SBC, representing university professors of IT and related fields; and APPD, an unofficial union of computer technicians).

In 1983 there were about 54 Brazilian computer manufacturers, of which only 11 had existed prior to 1974; 25 were created after 1978.<sup>1</sup> These companies mainly produced “clones” of Sinclair, TRS, and Apple computers. Most firms used copied software and operational systems. Peripherals had more local content, since adaptations had to be made in software and keyboards for the introduction of Portuguese language and special graphic signs. Many local companies started producing printers, modems, terminals, and videos.

In Brazil, the word *informática*—usually translated as information technology—defines a broad, albeit vague, sector comprised of industries manufacturing products

that embody digital components. The Informatics Law was applied to computers, scientific instrumentation, electronic telecommunications, terminals, peripheral equipment, and software, but in practice it could cover any high-technology industry.

The law and the SEI were the subject of much debate from the start. With the transition to civilian governments, the power of the alliance that supported them was reduced. Domestic and international opposition to the existing policy mounted,<sup>2</sup> with growing evidence of better performance by the IT industries in other emerging economies (e.g., Korea, Rep. (Korea), Taiwan) using different means to promote their IT sectors.<sup>3</sup> A new Informatics Law (*Lei 8248*) was approved by Congress in October 1991, during the government of Fernando Collor, the first president directly elected by Brazilian citizens since the end of the military regime. In addition to changing in the previous Informatics Law, the Collor government adopted a number of other measures to liberalize international trade.

The new Informatics Law changed the definition of *Brazilian company* in order to attract foreign capital, and created new fiscal incentives. But the “market reserve” policy was maintained and expired as per the previous law, in October 1992. Under the new law, the SEI was replaced by the Secretariat for Information Technology and Automation Policy (SEPIN), an entity within the normal government structure. The market reserve policy, although criticized by many people, had the effect of establishing the infrastructure for education at all levels in the country: technical courses became available everywhere, hundreds of undergraduate computer science courses were inaugurated in all major universities, and a sophisticated network of laboratories and graduate programs in computer science was established. Large numbers of IT professionals became available for the growing industry and for the new IT programs that succeeded the old policy.

It was also in 1992 that the National Research Network (now the National Research and Teaching Network, or RNP) was established with support from the Ministry of Science and Technology (much along the lines of the National Science Foundation’s support for Internet development in the United States). Along with the RNP, the Ministry created a program to promote Brazilian software development and exports (Softex) under the National Council of Scientific and Technological Development (CNPq), and promoted the development and online publishing of the first websites of federal government agencies.

Access to the Internet was limited to the government and academic users through the RNP until 1995, when it became available to the private sector. Growth was slow at first, with several government institutions trying to control the Internet. Telecommunications was then a monopoly controlled by the state company TELEBRÁS. Both TELEBRÁS and its long-distance

subsidiary EMBRATEL wanted to control the new service. It took courage from the then Minister of Communications, Sérgio Motta, not only to open the new service to the private sector but to explicitly prohibit the two state companies and their subsidiaries from entering the new business.

The development of the information society in Brazil was the subject of a pioneering effort by the same Ministry of Science and Technology from 1999 to 2000. A team coordinated from that Ministry produced a report known as the *Livro Verde* (Green Book) in the year 2000.<sup>4</sup> Then, in 2004, the subject of e-government in Brazil was treated in a ground-breaking way in *E-gov.br – a próxima revolução brasileira* (E.gov.br – The Next Brazilian Revolution).<sup>5</sup> Contributions by 44 specialists documented and analyzed Brazil’s achievements in building an information society and conducting a wide range of e-government activities in education, health, public safety, justice, elections, legislation, and public administration. Brazil’s major regions and the federal, state, and local governments were covered. Shortly after this publication, another book appeared, *E-government – o governo eletrônico no Brasil* (E-government – Electronic Government in Brazil), with contributions by 30 specialists.<sup>6</sup>

The major boost to e-development in Brazil came from the judiciary: the establishment of full electronic voting in 2000. A very sophisticated system was implemented and has been in operation since then (see Box 1). That system gave a particular boost to the Brazilian IT and software industry, especially after the international exposure of the subject during the disastrous display of incompetence by the state of Florida in the United States during the 2000 US presidential elections.

Another major e-government achievement was the system for income tax returns. The banking systems were very elaborate in Brazil because of the rampant inflation up to 1994 (interest had to be credited to individual accounts on a daily basis). In view of the above, the government developed a system that initially accepted declarations on disks and then was updated to accept online declarations on the Internet (see Box 2).

### Brazil in numbers

Brazil has a population of around 200 million, of which 85 percent live in the cities. Most of the population is concentrated in the metropolitan areas of state capitals—mega cities such as São Paulo, Rio de Janeiro, Salvador, and Belo Horizonte. GDP per capita is around US\$7,000, and has been recently growing at an annual rate of 4 percent.<sup>7</sup> International trade amounted to US\$300 billion in 2007, with a positive balance of US\$30 billion. Half the country’s exports are now manufactures.<sup>8</sup> The trade surplus allowed the country to amass US\$188 billion in foreign reserves up to 2008 and helped the government face the turbulent waters of the

### Box 1: Brazil's electronic voting system

Brazil's Supreme Electoral Court (TSE) supervises 27 Regional Electoral Courts that in turn run elections in Brazil's 2,886 electoral zones. In 1986, the TSE initiated a process that led to entirely electronic elections throughout Brazil in the 2000 municipal elections. Since that year, all Brazil's federal, state, and municipal elections have been conducted on electronic voting machines, with the full results of elections becoming available on the same day the elections were held. In the last municipal elections in October 2008, the electorate numbered almost 129 million, voting at 400,558 voting sites. The sophisticated system, which provides for many controls to prevent fraud, has not resulted in any serious questioning of its security and validity by any of the country's major political parties. No fraud has been detected in the 12 years since its introduction. Nevertheless, there have been improvements to the ballot boxes in each election: in 2008, for the first time booths with biometric identification (using electronic fingerprint readers) were tested in three municipalities. The TSE's objective is to extend this system throughout the country by 2018.

Source: TSE, available at [www.tse.gov.br/internet/eleicoes/votoeletronico/sumario.htm](http://www.tse.gov.br/internet/eleicoes/votoeletronico/sumario.htm); Camarão, 2004.

### Box 2: Brazil's electronic tax filing system for personal income tax

Almost all personal income tax declarations in Brazil are filed online. Even in 2003, 95.6 percent of declarations were filed electronically, either online or on a disk. In 2007, 23.9 million declarations for the calendar year 2007, or 98.8 percent of the total, were filed over the Internet, using a program available for download from the federal tax agency (*Secretaria de Receita Federal*) at [www.receita.fazenda.gov.br/principal/Informacoes/InfoDeclarar/declaraPF.htm](http://www.receita.fazenda.gov.br/principal/Informacoes/InfoDeclarar/declaraPF.htm). In 2007, the latest year for which household computer and Internet statistics are available from the National Household Sample Survey, there were 11.4 million homes with computers with access to the Internet and 15 million with a computer. Assuming 15 million homes had a computer with an Internet connection in 2008, as many as 62.8 percent of the declarations filed over the Internet could have been filed from homes. Many returns may have been filed over the Internet by professional tax preparers, at workplaces, or from public Internet access points.

Source: For declarations filed in 2003, *Receita Federal*, 2007; for declarations filed in 2008, [www.receita.fazenda.gov.br/AutomaticoSRFsinot/2008/04/30/2008\\_04\\_30\\_21\\_36\\_05\\_137597168.html](http://www.receita.fazenda.gov.br/AutomaticoSRFsinot/2008/04/30/2008_04_30_21_36_05_137597168.html); and for households with computers having an Internet connection in 2007, <http://www.sidra.ibge.gov.br/pnad/pnadpb.asp>, calculations for Table 2387.

recent economic turmoil in a much better position than it has in previous crises.<sup>9</sup>

In the last 50 years, the economy has changed quickly from agricultural to industrial and to services-based. The services sector now accounts for two-thirds of the country's GDP and is still growing in proportion to agriculture and industry.

After the privatization of the state telecommunications companies in 1999, the basic IT infrastructure grew rapidly. The country has over 150 million mobile lines in 2009; that number is still growing at the incredible rate of 1,300,000 a month (as of January 2009), despite the economic downturn occasioned by the global economic crisis. Although the number of computers has increased dramatically, aided by government credit programs and (until the last quarter of 2008) favorable exchange rate developments, access to the Internet is growing at a slower pace. Only 20 percent of the households have access to the Internet today, of which half are high-speed broadband connections. But there are large differences in household Internet access by both region and income class, as revealed by 2007 data from the National Household Sample Survey (Table 1). Households are grouped into three classes of income: those earning more than 20 times the monthly minimum wage, those earning between 10 and 20 times the monthly minimum wage, and those earning less than 10 times the monthly minimum wage.

Another important survey, from the Brazilian Network Information Center, provides a broader look at Internet use by the urban population.<sup>10</sup> Together the two surveys reveal the principal factors associated with Internet use in Brazil: geographic location, income, social class, education, age, and—to a lesser extent—gender. Therefore, in designing digital inclusion policies, these differences need to be taken into account.

The Brazilian Network Information Center survey also provides a wealth of other interesting data on Internet use by both individuals and businesses in Brazil.

**Table 1: Households with Internet access by level of income, 2007**

Region	Households		Total percent	Households with an Internet connection		
	Number (thousands)	Percent		> 20 times monthly min. wage	10–20 times monthly min. wage	< 10 times monthly min. wage
<b>Brazil</b>	<b>56,344</b>	<b>100.0</b>	<b>20.2</b>	<b>83.0</b>	<b>68.7</b>	<b>14.1</b>
Southeast	25,151	44.6	18.9	85.2	72.4	19.9
South	8,879	15.8	16.9	83.2	67.3	17.8
Central-West	4,163	7.4	12.1	83.6	66.0	10.8
Northeast	14,252	25.3	5.4	76.6	62.0	5.9
North	3,900	6.9	4.4	70.0	50.9	5.2

Source: IBGE, 2008, Table 2.387.

One of the most striking trends is the important and rapidly growing role of public access points, especially those operated as private-sector businesses, called *lan houses* or *cybercafés*. In 2007, almost half of all reasonably frequent Internet users patronized these establishments; more than had access to the Internet at any other location, with the percentage being significantly higher for the poorest regions, the Northeast and North. These usage patterns also provide useful input for the design of digital inclusion policies.

The rollout of digital television broadcasts began in São Paulo in December 2007 and is scheduled to reach the capitals of all Brazil's states by the end of 2009. Beginning in 2013, no new conventional (analogical) channels will be authorized; at the end of June 2016, analogical transmissions will be completely phased out. Limited interactivity is already possible with one-way transmissions.

Digital TV should stimulate developments (already underway) and the use of powerful new tools for education (t-learning), interaction with governments (t-government), commerce (t-commerce), and banking (t-banking). Given the high cost of telephony and both satellite and cable TV in Brazil, the availability of free or low-cost wireless Internet is likely to be critical in developing interactive applications.

It remains to be seen what incentives for the development of such new applications will be provided by government policies and the market. Furthermore, there are issues concerning business models that need to be solved if private broadcasters, which command the largest TV audiences, are to make heavy use of the potential for two-way interactivity.

### Main obstacles to IT use in Brazil

There are a number of obstacles to a wider IT diffusion in Brazil, as follows.

#### Education and training

Although the personal computer (PC) is pervasive today in every office in Brazil and around the world, we tend to forget that this has not always been the case. The IBM PC was launched in 1981, so the one-computer-per-desk landscape has been with us for only the last 20 years or so. That means the generation that graduated in and before the 1980s may not be computer-savvy and, in many cases, not even computer-literate. Many people of that generation hold government positions today and they may not promote—in some cases even resist—the adoption of new, unfamiliar technologies.

The government raised salaries and contracted, through highly competitive admission programs, hundreds of thousands of new employees. These are well-educated and bright young people who will help change the ways government is practiced. However, the government needs to start large training programs for existing

executives who hold the responsibility of managing government programs today. One possibility would be direct incentives, such as government financing of home computers and Internet connections.

#### "Petty power"

We all know the type: "Mr Souza" is the only guy in the government office who knows how to fill in the blanks in that particular paper-form 37-B. He is very important because of this. Then one day the new guys arrive and start to plan a move toward the Internet by which all the information that applies to using form 37-B will be online. What does "Mr Souza" do? He boycotts the change, obviously, since this threatens his powerful position in the office.

This is no stretch of the imagination, it happens often! And cases such as "Mr Souza's" are not the only problems. The Internet switches command from the tool builder to the user of the tool—in other words, from the computer people in the government office to the citizens. Employees in computer support groups are sometimes major hindrances to change. And they may be particularly dangerous, since they are the ones who have to implement many of the changes. There is always a reaction against change, particularly in government. Things tend to be left as they are, even when many people think the way they are does not make sense.

Once again the solution is training, but one should also involve the legacy employees directly, from the beginning, and share decisions and action plans with them. Both "Mr Souza" and the computer specialists must feel they are integral parts of the process of change.

#### Cultural change

Even a couple of centuries after becoming a federation of independent republics, Brazil still seems to see its governments as the royal family. This phenomenon has many historical explanations, but what is important here is the effect that feeling has on the actual government members and officials. They are separated from the population and they often seem to think they are in fact royals upon whom some deity laid the mantle and transferred power to govern the people. Even discounting exaggeration, many government officials do think they do not have an obligation to serve the people who pay their salaries. They may even think that they are doing a favor to the citizens! This absurd mindset prevails in many aspects of government and must be tackled head on in order to implement successful e-government initiatives in Brazil and in many countries around the world.

#### The e-Brasil Project

Brazil has lacked a unifying vision of its development objectives. The country suffers from deep-seated social problems rooted in a highly unequal distribution of income, wealth, and access to education and health

services, among many other issues. These inequalities not only threaten social cohesion and undermine public safety, they also cut economic competitiveness. How can Brazil, with large contingents of functional illiterates, compete with countries such as Korea and China, which are building electronic lifelong learning systems for their labor forces?

Public frustration with crime, corruption, unresponsive political institutions, tortoise-like judicial systems, and lack of economic opportunities is widespread. Throughout 2008 there was still no real consensus on development strategies among key elites or the public at large. The federal and state elections of 2006 provided an opportunity to discuss these problems and promote a national debate on how to accelerate socioeconomic development, improve competitiveness, and induce much-needed massive investments—from domestic and international sources. To a certain extent this happened, but in general the necessary debate was derailed by political scandals that captured headlines and dominated national attention. With a discussion centered on long-term projects by the government teams that took office in January 2007, and now that the municipal elections of October 2008 are over, there are many opportunities to raise critical development questions and propose new solutions in a systematic manner.

There is a need for a new development vision with a mobilizing power similar to the one that inspired late Brazilian President Juscelino Kubitschek's campaign slogan in the "Fifty years of progress in five" and his Plan of Goals (*Plano de Metas*) for his government (1956–61). Building the automobile industry, a national highway network, and a new capital, Brasília, in the nation's heartland together were central to Kubitschek's vision. JK, as he was known, remains one of Brazil's most popular presidents.

Innovative governments—such as those of Canada, China, Finland, Ireland, Korea, and Singapore—have shown that ICT can help accelerate economic and social development. Countries in South Asia, with India and Sri Lanka in the lead, have begun formulating national e-development strategies and attracting financing for their implementation from the World Bank and other international and domestic sources of funding.

### Definition and scope

The *e-Brasil* Project seeks to raise awareness first of politicians and then of the population at large about the advantages of a coherent e-development strategy. This will help build a more equitable society and a more competitive economy—goals widely accepted in Brazil. The Project team reviewed international and Brazilian experience and produced recommendations for public policies to achieve these twin goals.

The Project, built on pioneering efforts such as the Green Book of 2000 and the publications on e-government in 2004, is a collective effort by a

network of over 61 Brazilian and international practitioners and specialists with diverse institutional and political affiliations supported by an advisory council. They are united by the conviction that, with an intensive use of ICT, it is possible for Brazil to overcome the obstacles that prevent it from being a developed first-world country. These obstacles are most notably its highly unequal distribution of income, wealth, and knowledge as well as factors such as corruption and excessive bureaucracy.

### Main programs and current state

By 2008, the *e-Brasil* Project had published three books, two of them before the state and federal elections of October 2006, and the last and by far the most complete in September of 2007.<sup>11</sup> The last two books include chapters on the *e-Brasil* Project of policy recommendations and the "10 commandments" program—a concise summary of these recommendations—for *e-Brasil* candidates (see Box 3).

An interactive, bilingual (Portuguese and English) Web portal promoting the *e-Brasil* vision and policy program and offering links to institutions of the Brazilian ICT sector was established in 2006.<sup>12</sup> The portal is part of a broader strategic communication campaign that seeks to raise general awareness, through the electronic and print media, on ICT opportunities.

What have been the results of the *e-Brasil* Project through 2008? Progress has been visible at the political level, especially in important states such as São Paulo, Rio de Janeiro, Ceará, and Minas Gerais. At least two states, Acre and the Federal District, have initiated programs to make broadband Internet available to their residents free of charge while enhancing their e-government offerings. A nationwide movement to create more digital towns and cities is developing. In the municipal elections of 2008, candidates for mayor in many *municípios*, including the largest in the country, São Paulo and Rio de Janeiro, called for adoption of some of the key *e-Brasil* policies, such as free or low-cost Internet connectivity for their populations.

At the federal level there have been important initiatives to expand computer ownership and public telecenters in all the country's 5,564 *municípios*, to bring broadband Internet and computers to all the nation's schools, and to support the rollout of interactive digital television with a huge development potential for education, health, e-government, and e-commerce applications as well as entertainment and information. These programs are expected to accelerate in 2009.

### E-government at the state level

The widespread use of ICT has been affecting the state governments for a number of years. However, it has only been in the past few years that they have accepted the concept that ICT could be used not only for their internal benefit but also for the benefit of society,

### Box 3: Main pledges in *e-Brasil's* "10 commandments" program for e-candidates

The *e-Brasil* Project launched a campaign to identify *e-Brasil* candidates in 2006: politicians that would pledge to try to implement the 10 activities listed below. The idea was to make each person aware that with his or her leadership it would be possible to implement public policies, programs, and projects that would not only achieve their goals but would also win recognition from the population and votes in the future. These "commandments" would of course be different for candidates for president, governors, mayors, and legislators. But they would all have common elements.

1. **Digital inclusion and e-development.** It is crucial to accelerate the access of all the population to broadband Internet, using, for the poorer members of the population, alternative models of sustainability that exempt them from paying access fees. Using these models, remuneration of the supplier comes through advertising, public budgets, and/or resources from federal funds. Priority should go to schools, telecenters, and other collective access points.
2. **E-education and lifelong training.** Education and training are the highest sectoral priority: they are a means for democratizing access to knowledge to improve opportunities for employment, income distribution, and national competitiveness in an ever-more knowledge-based world economy. Governments should accelerate the computerization of public schools, giving them broadband Internet connections.
3. **E-public safety.** Governments should interlink databases and promote inter-operability of all the public safety agencies: the prison system; the federal state, civil, and military police forces; the information system of the Ministry of Justice; and civil guards at the municipal level.
4. **E-health.** A health-care network with broadband connections should be created, interlinking all the health units (federal, state, and municipal), creating an environment conducive to training, fostering medical consultations, making appointments online, obtaining second opinions, and practicing telemedicine.
5. **E-public services and management.** Improve the delivery of public services to citizens through the construction and operation of integrated service centers (one-stop shops), such as the *Poupatempo* program in São Paulo, the *SAC* in Bahia, the *Vapt Vupt* in Goiás, the *Super Fácil* in Amapá, and the *Tudo Fácil* in Rio Grande do Sul. The master rule should be "never ask a citizen for information that the state already has about him or her or their companies."<sup>1</sup>
6. **Government e-procurement of goods and services.** Establish or improve Internet portals for procurement, allowing for easy access to information about government future needs and for electronic bidding. Early implementation has demonstrated a drastic reduction in expenditures by state governments.
7. **E-justice.** Promote the simplification of procedures for judges and court personnel that result in speeding up the handling of cases. Some measures may involve a new legal framework for electronic judicial processes.
8. **E-commerce.** Promote the widespread use of electronic transactions by providing incentives for the use of digital certificates in commerce and in relations with government. This will reduce costs and diminish many obstacles still in place for international transactions.
9. **Encouraging development of the ICT sector.** No country is trying to produce every component of the IT supply chain. There is a need for a national plan for the sector stating very clearly what is and what is not to be produced locally. Hesitant policies for semiconductors, for instance, have resulted in little investment and poor results. The software sector, on the other hand, seems very promising and should have carefully designed incentives that range from lowering taxes to promoting government purchases locally.
10. **Strategy, coordination, and leadership.** Electronic government policy should enter the priority agenda of the federal, state, and municipal governments and be aligned with other e-development policies. Leadership is fundamental and should begin at the highest level of the executive branch, the President of the Republic for the federal government, the governors for the states, and the mayors for the municipalities.

#### Note

- 1 Costa 2007b.

making the activity of government more responsive to the citizens' needs. With the arrival of the Internet and the growth of electronic businesses in the private sector, the public sector had to rethink its hierarchical and bureaucratic models and change its way of conducting business.<sup>13</sup>

Brazil is a federative republic with 26 states plus 1 federal district. In the past 10 years, some of these states' governments have started to promote e-government initiatives to increase the transparency of the administration, promote citizens' participation in the surveillance of public power, and provide information and public services through electronic means.

Effectiveness of these local initiatives varies widely from one state to another. One of the authors recently conducted a survey of the development stage of e-government initiatives in 19 states.<sup>14</sup> The survey focused on the official governmental website of each state, and checked 30 information and government provision services divided into three groups: e-governance (6 services), e-democracy (4 services), and e-information (20 services). Respondents of the survey were chosen

from two groups: the local managers in government who were responsible for the services and academics in the field of electronic government. They were asked to rank each service in terms of the quality of the offering and its level of importance, using the following questions:

1. Service offer OK? (0 = not offered; 1 = partially offered; 2 = offered in full), and
2. Level of importance? (0 = not important; 1 = some importance; 2 = medium importance; 3 = high importance; 4 = top importance)

The results of the survey are shown in Table 2, suggesting this set of services was an interesting set to focus on. One can notice that quality of service is poor and many basic services—such as access to public libraries, school enrollment, and information on public health issues—are on average not offered at all.<sup>15</sup>

This survey may be useful both for the federal government and for the states. On the federal level, government can determine which services are considered

**Table 2: Survey of e-government in the Brazilian states**

Group	Service	Government managers		Academia
		Quality of service (Question 1, average)	Importance (Question 2, average)	Importance (Question 2, average)
<b>E-governance</b>	1. State budget and planning	1.46	3.51	3.46
	2. Results of actions	1.30	3.62	3.62
	3. Performance indexes	0.48	2.87	3.27
	4. Policies, rules, and regulations	1.39	3.36	3.32
	5. Ombudsman and State Attorney	1.50	3.79	3.62
	6. Official newspaper and government news	1.82	3.46	3.05
<b>E-democracy</b>	1. Complaint and suggestion box	1.63	3.73	3.57
	2. Live contact, opinion polls	0.62	3.04	2.95
	3. Participatory budget	0.73	3.28	3.57
	4. Shared planning	0.33	3.10	3.35
<b>E-information</b>	1. Procurement	1.84	3.88	3.76
	2. Suppliers	1.41	3.34	3.24
	3. Automatic receipts	1.67	3.48	3.62
	4. Tax forms and automatic form filling	1.43	3.57	3.68
	5. Information on the judiciary and state congress	1.38	2.85	3.11
	6. School enrollment	0.68	3.42	3.38
	7. Distance learning	0.74	3.18	2.73
	8. Online issuance of documents	0.86	3.68	3.46
	9. Tax collection	1.52	3.29	3.57
	10. Job opportunities	1.06	3.22	3.00
	11. Motor vehicle registry	1.51	3.54	3.57
	12. Driver license	1.22	3.38	3.41
	13. Reporting of crime	1.39	3.45	3.38
	14. Address updating	0.68	2.91	3.19
	15. Opening/closing of companies	0.96	3.45	3.27
	16. Environmental licenses	0.93	3.22	3.22
	17. Public health	0.55	3.68	3.76
	18. Information on private pension funds	0.86	3.40	3.51
	19. Public library	0.26	2.84	3.19
	20. Economic and social statistics	1.31	3.16	3.19

Source: Magalhães, 2008.

Note: The quality of service question was not answered by academic respondents because they were summoned at the national level, and some of the local (state) services were accessible only with a local presence (address, ID, driving license, etc.).

important and, of those, which are not being offered by the states, and plan accordingly. For an individual state, it is possible to check its position on a single service and compare it with the national average. This information, together with the perceived level of importance of each service, may indicate the best way for local governments to plan their investment strategically as they go about implementing their own e-government initiatives, along with considerations of cost, political impact, and ease of implementation.

It is important to note that in any implementation of e-government strategies, governments have to tackle several other processes, such as e-literacy and access to the services by poorer citizens (see Box 3).

### The future and the 2014-Bis Program

Soccer—*football* in some countries—is arguably the most popular sport in the world. In Brazil it is *the* sport, overshadowing any other by far. *Fédération Internationale de Football Association* (FIFA)'s 20th World Cup will be held in Brazil in 2014. The World Cup is rivaled in importance and audience only by the Summer Olympics, which are also held every four years. Separated from the Summer Olympics by two years, the Cup is a major undertaking by the host country; it is contested in several rounds involving 80 games in different cities. Brazil expects to receive between 600,000 and 1,000,000 foreign tourists for the 2014 event, along with internal travelling in large numbers. Furthermore, 3.3 billion people are expected to watch it on television (digital and analog), cellular, computer screens, and other means. The necessary infrastructure for the World Cup is huge and includes the capacity of the stadiums, transport between cities (the internal flux of tourists depends upon the preliminary results and cannot be predicted beforehand), airports, and accommodation in the cities. Several private and government bodies in Brazil are involved in planning the organization of the event.

The Brazilian Innovation Agency (FINEP), another government agency, is planning a parallel program to show Brazil in a different light: not only the land of Carnival, beaches, football, and Samba, but also the land of creativity, of well-being, of friendship. The program has been dubbed the “2014-Bis Program,” a pun with the first plane ever to fly: the 14-Bis, piloted by Brazilian inventor Santos Dumont in Paris in 1906.

### The 2014-Bis Program

The Program motto is “How to dazzle (fascinate/amaze/touch) the World in 2014.” The idea is to show everything in Brazil that is creative/innovative coming from two sources: novel initiatives every country is attempting to do and where Brazil is on par or leading the way, as well as projects that exist only in Brazil.

In the first category, there are several major breakthroughs to be demonstrated by the country. One internationally famous geneticist, Dr Sergio Pena, perfected a theory that states that there is no such thing as race: DNA studies of ancestry prove scientifically that we are all equally different or... we are all the same.<sup>16</sup> Besides that, according to Dr Pena, if there were races, Brazil would be the miscegenation champion in the world. Following this concept, the country will launch the World Cup of 2014 under the motto “we are one and the same” by analyzing saliva samples from the 22 players of each of the 32 teams. Another Brazilian researcher, Dr Miguel Nicolelis, now working at Duke University, developed a means of detecting the electrical commands of motion on the cortex of monkeys. That scientific breakthrough may now be used to command motion for people with all sorts of motor disabilities. One of them might even shoot the kick-off on the inaugural game! Other top research in Brazil is related to the search and extraction of deep-water oil. All of these developments may be shown in the games and will convey the idea of a scientifically developed country.

As for things uniquely Brazilian, Brazil has, in the Amazon, the world's largest rainforest, one fifth of the world's drinking water reserves, and a biodiversity that is a real treasure and not yet fully measured. This natural wealth will be experienced by both the tourists and the world audience through the modern means of ICT (see Box 4).

Though Brazil's scientific development and natural resources will be highlighted in the 2014 World Cup, the most relevant aspect of the Cup in the context of this chapter is the ICT program and the impact it might have on the country's infrastructure.

### Promoting ICT and e-government

Many of the projects in the 2014-Bis Program are related to ICT. The Program focuses on three different audiences: the 1 million foreign tourists, the 200 million Brazilians (total population), and the 3.3 billion viewers worldwide. For the foreign tourists, the most interesting project is the “electronic passport” (see Box 4 for a list of the Program's projects). This device, to be handed out to tourists either at a Brazilian consulate abroad or at the port of entry, will be able to identify its user unequivocally through some kind of biometric data (fingerprints, iris scan, or other technology) and will be his or her companion during the entire stay in Brazil: to go through customs without stopping, to buy tickets for the games, to book hotels, to find medical help, to get information about tourist destinations, to buy travel tickets, to look for help, to call home, to play games, and many other daily activities.

For the Brazilians who will not be at the games, there will be easy and free access to the transmission through high-quality digital TV, traditional TV, and several forms of public venues, where the population can watch the games in large, high-definition displays placed in *praças* (public squares). For the international viewers, all sorts of games and gimmicks will be offered—such as a virtual tour of the Amazon, where the viewer will experience the scenery, watch birds and other animal life, get information about the trees and the geography, and learn about the local ecosystem.

All of these developments will not be for the games alone, of course. Many sorts of positive side effects are expected in addition to economic development. Among these is a major social development through social inclusion and upgrades of infrastructure, which many people are hoping for. For instance, if the electronic passport is to become the tourist companion, all the guides will have to be proficient in the workings of the device. One of the projects in the Program will train, beginning in 2009, 13- to 14-year-olds from deprived communities in the 12 cities (1,000 each) where the games will take place, so that they become computer savvy and learn language skills in English and Spanish. These youngsters, who will be 18 or 19 by the year of the Cup, will be tour guides during the games and will have a much better chance of securing good jobs afterward. In the 12 cities that will host the games, all the areas the tourist will pass through will have to be “illuminated” by high-speed wireless access to the Internet, a basic infrastructure that will remain after the games and benefit the local communities. Mobile phones, already used widely in the country (there are now 150,000,000 lines), will be upgraded by the operating companies to include better displays to enable video viewing and other services. These devices will have an impact on productivity and access to services. Government services can be improved by access to these devices, and many people predict even today that the mobile phone will become *the* device for e-government in Brazil.

A fortunate coincidence with the political calendar will help the deployment and acceleration of these projects. Presidential elections are held in the country every four years, and the President can be re-elected once. President Lula is already in his second term and cannot run again in the next election, in October 2010. Whoever is elected in 2010 will probably be running for re-election in 2014, and the open campaign runs from July to September: the World Cup will happen at the beginning of the political campaign. Presidential hopefuls today for the 2010 election all know the importance of the event and will do whatever they can today and after 2010 to have a major success in 2014—not only for the games themselves but also for their impact in the country. To that end, it is expected that major emphasis will be placed on the 2014-Bis Program from 2009 onward.

#### Box 4: Main projects in the 2014-Bis Program

- **We are one and the same.** Saliva samples taken from each one of the 22 players in the 32 teams will be studied for DNA ancestry: the idea is to prove scientifically that we are one and the same people, regardless of skin color, geography, or religion.
- **The electronic passport.** A device will be issued to visitors that is capable of high-speed access to the Internet and that (1) unmistakably identifies its user through personal biometric data and (2) is capable of doing irrefutable transactions in the name of the user.
- **The Amazon experience.** A virtual tour of the Amazon will be available where the user will be able to navigate rivers, stop and identify birds and animals, learn about trees and their importance in terms of biodiversity, and learn about geography and climate change.
- **The virtual soccer game.** A massively multiplayer online game (MMOG) will allow players to compete against other soccer players anywhere in the world, choose player characteristics, devise game tactics, and have an almost live impression of playing the game.
- **Virtual hang gliding.** In a virtual experience of hang gliding over the 12 towns in Brazil where the games will be held, such as Rio, São Paulo, Brasília, the user will strap him- or herself to the actual wings and watch the scenery through special glasses; arm and body movements will determine the actual flight course.
- **The green game.** A special study will be undertaken for the feasibility and the physical implementation of a green game, in which every aspect of the realization of a game in a stadium, including transport of the audience and lighting, involves no carbon emission.
- **The green football.** Development of a special football built with “vegetable leather,” with exactly the same characteristics of the leather or plastic balls in use today, will allow the extension of the concept to other “green leather” products.
- **Social guides.** This program encompasses large-scale in-site five-year training of 1,000 guides for the games in each one of the 12 cities where the games will be played. Boys and girls who are 13- to 14-years old today will take lessons and become knowledgeable in English, Spanish, and computers.
- **Peladão.** Some of the tourists enjoy playing soccer as well as watching it. A special tournament will be organized for them, one *Peladão* (*pelada*) is a slang for a friendly soccer game in Brazil) game for each official game. Teams will be drawn and the games will be transmitted on the Internet.
- **Brazilian music for all.** Brazilian music can be heard all over the globe, sometimes without the listener aware that it is Brazilian. This project will make all sorts of Brazilian music freely available to all, ranging from *samba* and *bossa nova* to classical.

## Conclusions

The achievements, challenges, and programs discussed above are bound to have a number of important impacts on people and human resources as well as on social and economic issues affecting Brazil's society.

## People

As a result of growing globalization and expansion of the private sector, ICT issues in government go increasingly beyond execution in the direction of regulation and policymaking. This requires even more sophisticated competences in ICT and process management, for which executives have to master additional areas, such as development economics, standardization, and international relations. In particular, ICT executives have to be able to interact with and influence partners from the private sector and other governments and supranational institutions that tend to be highly competent, and they will have to deal with complex issues in diversified environments.

Thus a crucial area for the future of Brazil's e-development is the training of future e-leaders, who ideally combine a good knowledge of public administration, economics, political science, and ICT. Unfortunately, the Brazilian educational system, like that of many other countries, has been slow in adapting its curricula and approaches to develop the well-prepared, network-savvy leaders needed to realize the full potential of the ICT revolution. The existing programs still favor traditional disciplinary "silos," leaving it mostly to the individuals to develop these new competences.

Building on Brazil's experience and that of other countries, the *e-Brasil* Project and the *Fundação Dom Cabral* seek to join forces with other institutions in the BRIC economies to develop an international Executive Masters in Public Administration program for future e-leaders and a central academic institution (perhaps a consortium) in Europe or North America.<sup>17</sup> It is possible that other groupings, such as South Africa and the Arab countries, may also be included. This is envisaged as a one-year to 18-month program for promising civil servants in subnational and national governments and private-sector representatives (initially 25 from each country), selected in national competitions.

The program would be kicked off with a one-week seminar in a partnering institution in Europe or North America, possibly jointly with the World Bank Institute. The participants would then return to their countries and pursue a blended (web-based and face-to-face) learning program and conduct their research in-country. The program would take candidates from either the public administrator stream or the ICT specialist stream and give them interdisciplinary training in both fields. At the end of the program, there would be a competition to select the best theses, which would be presented by their authors at a final seminar in the central location, with all participants present as well as the incoming

cohort for the next program cycle. Funding for the program would come from participating country sources, ICT multinationals, foundations, the World Bank, and other international development agency-supported projects in the field.

## Impact on Brazilian society

The Internet and all the related ICT may bring about an opportunity to tackle long-standing problems in Brazilian society. For instance, providing good education in remote parts of the country was previously almost impossible. With the Internet, there is a fighting chance to achieve it. Control of the Amazon forest: it is now possible, even considering the huge geographical area involved. Good quality medicine to rural areas: this is now possible. For this reason, we claim that there should be no reference to a "digital divide": the expression conveys the wrong idea that something bad happened because of the Internet, as if everything was well before and suddenly the Internet came about and caused a problem. Nothing is further from the truth. We believe the focus should be on digital inclusion of the entire population and the intensive use of ICT to accelerate Brazil's socioeconomic development.

The *e-Brasil* Project, which has been pushing the concept for almost four years, and the 2014-Bis Program, which is now starting, both point to a wealth of real possibilities to promote e-development. An energetic and inspired leadership; strategic communication through all the mass media, but especially television and the Internet; and catching the imagination of Brazil's highly creative population are the key.

Brazilians are certain Brazil will come out top in 2014. But in the unlikely event that Brazil does not win the title in the 2014 World Cup, at least we can all go back home and say proudly that the 2014-Bis Program was worth the effort, for all its originally unintended consequences for the country.

## Notes

- 1 Schwartzman 1985.
- 2 Garcia and Roselino 2009.
- 3 Luizo 1996.
- 4 Takahashi 2000.
- 5 Chahin et al. 2004.
- 6 Ferrer and Santos 2004.
- 7 IMF 2008.
- 8 See Brazil at a glance, available at [http://devdata.worldbank.org/AAG/bra\\_aag.pdf](http://devdata.worldbank.org/AAG/bra_aag.pdf).
- 9 IMF 2008.
- 10 CETIC.BR 2008.
- 11 See Knight 2006; Knight and Fernandes 2006; and Knight et al. 2007.
- 12 See [www.e-brasil.org.br](http://www.e-brasil.org.br).
- 13 Costa 2001.

- 14 Magalhães 2008.  
 15 Costa 2007b.  
 16 Parra 2003.  
 17 Costa 2007a.

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