Definitional Mission to Evaluate the State of São Paulo Intragov and Datacenter Projects

Final Report

Submitted by
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The U.S. Trade and Development Agency

The U.S. Trade and Development Agency (USTDA) advances economic development and U.S. commercial interests in developing and middle income countries.   The agency funds various forms of technical assistance, feasibility studies, training, orientation visits and business workshops that support the development of a modern infrastructure and a fair and open trading environment.

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EXECUTIVE SUMMARY

On behalf of USTDA, Hellerstein and Associates (H&A), an international consulting firm based in Washington, DC, conducted a Definitional Mission (DM) to examine three projects: a State Government of Ceará project to outsource and consolidate datacenter operations (reported on separately in a Final Report to USTDA dated November 14, 2005) and two projects for the State Government of São Paulo to outsource operation and maintenance of an integrated voice, video and data network on a long-term basis, and to upgrade and integrate state datacenters, all three of which are proposed to be carried out under Brazilian National and their respective State Public Sector - Private Sector Partnership (PPP) legislation. The DM sought to determine whether these three projects are suitable for USTDA funding support and to identify the appropriate forms of USTDA assistance, such as Feasibility Studies, Technical Assistance, Orientation Visits or other activities. This present report covers the two São Paulo projects.

São Paulo's projects involve concessioning to the private sector the management of its extensive intragovernmental communications network (voice, video, data), known as *Rede Intragov* and the integration and upgrading of datacenters supporting the state's e-government program – over a period of ten-years or more. If successful, these two projects are likely to serve as models for other e-government infrastructure projects at the national, state and municipal level in Brazil and other countries.

During the period indicated, the H&A conducted meetings with key staff dealing with e-government for the Office of the Governor's Civilian Chief of Staff (*Casa Civil*), notably, Agnaldo do Carmo Lopes, Salete Abrão Iunes, and Eduardo Pontes of the Committee for Quality in Public Management (*Comitê de Qualidade em Gestão Pública* – CQGP) and Strategic Information System (*Sistema Estratégico de Informacoes*). H&A also met with the Director of PRODESP as well as his staff who are responsible for managing the PRODESP datacenter and coordinating the Intragov Network. PRODESP is the State's IT Company, and is the sponsor of these two projects.

Additionally, H&A met with staff from the PPP Unit of the Secretariat of Economy and Planning (*Secretaria de Economia e Planejamento*) and discussed the steps that need to be taken to use the PPP mechanism. A list of all the individuals met in Sao Paulo appears in Annex 1.

To gain additional background and perspective, we visited some important government agencies that are partners in the *Rede Intragov* and/or maintain datacenters – the Secretariat of Education's Knowledge Network (Rede do Saber), the Military Police, State Environment Secretariat and its Environmental Protection Technology Company (*Companhia de Tecnologia de Saneamento Ambiental* – CETESB), and the first one-stop shopping center for government services, the Time Saver (*Poupatempo*) near one of São Paulo's central squares, the Praça do Sé.[1]

H&A also held meetings with six potential private sector partners for the proposed datacenter and *Intragov* projects. We met with Oracle, IBM, Computer Associates, Avaya, TIVIT, and a *Casa Civil* telecom consultant from Guerreiro Teleconsult. Cisco Systems also expressed interest in the two projects but was unable to meet with us while we were in Brazil.

H&A ascertained that the proposed projects fit well within a broader São Paulo State strategy developing its e-government infrastructure using PPPs, with expected savings in both capital and current expenditures. The projects also meet a basic requirement for a PPP under the state PPP law, namely that they be included in the current Multiyear Investment Program (PPA). On the organizational side, PRODESP, with support from the Casa Civil's CQGP, has the technical capacity to manage the public side of the proposed Intragov Network and datacenter PPPs, but could clearly benefit from USTDA-financed international technical assistance to develop a detailed feasibility study which would serve as the basis for developing bidding documents (*editals*) to select private sector partners given the lack of any existing PPP in Brazil or São Paulo at this time. The DM raised the issue as to whether a PPP is the best legal framework for outsourcing datacenter services or managing PRODESP's existing datacenter. A more conventional service contract with a life of 4-5 years may be more appropriate given the fast rate of technological change for datacenters.

The proposed projects appear to offer important economic benefits in the form of reduced unit costs and improved quality for the *Rede Intragov* and for datacenter services, and these benefits would be quantified in the feasibility study. H&A ascertained that the International Finance Corporation (IFC – the investment banking arm of the World

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[1] In October 2005 there were 11 *Poupatempos* managed by PRODESP and the Casa Civil and staffed with selected civil servants from state government secretariats and other agencies and supported by private sector firms operating concessions for photography, xeroxing, etc.).

Bank Group) is interested in financing a private sector partner for this and other e-Government outsourcing projects in Brazil, and arranged for an initial visit to the Casa Civil conducted by an IFC specialist in late-July 2005. The Inter-American Development Bank and the World Bank have both made loans for aspects of e-government in Brazil, and the World Bank is preparing a US$500 million e-governance loan for India, which is to go to the central government and the states. This model has created some excitement in Brazil, including in São Paulo, but the lead-time on new projects is so long that it is improbable that any such project, not yet formally identified, could be ready in time to finance the government side of this project.

The State of São Paulo annual budget has been allocating on the order of US$45.5 million per year for the *Rede Intragov*, and PRODESP contracts with government agencies have been running at about US$6.3 million per year (both based on 2005 data converted at R$2.5 per US$), though not all this is on datacenters, and not all São Paulo state government datacenters are operated by PRODESP. This level of expenditure can be expected to be continued as a payment to a private sector partner in a PPP for the *Rede Intragov*, and part of the resources spent on PRODESP contracts would most likely be channeled to a private sector partner in a PPP for upgrading and integrating state data-centers, though a higher quantity and quality of services would be expected. H&A also spoke with staff of the Inter-American Development Bank (IADB) and Inter-American Investment Corporation (IIC), the private sector financing arm of the Inter-American Development Bank (IADB). The IADB has financed e-government projects totaling over US$1.2 billion and the IIC is interested in financing the private sector partners in PPPs. H&A also consulted with staff of Brazil's National Social and Economic Development Bank (BNDES), but a leading official dealing with PPP finance there indicated that for PPPs BNDES' priorities are roads, railways, buildings and that e-government infrastructure such as the datacenter and Intragov Network were not likely candidates for BNDES funding.

H&A believes that funding of technical assistance to conduct a detailed feasibility studies on behalf of PRODESP meet the USTDA funding criteria and would represent a good use of USTDA resources. The *Rede Intragov* Study would validate the current framework and the reference prices and coefficients used in the current contract with Telefónica as well as create new coefficients that would account for future applications and services to be included in a PPP contract. The datacenter feasibility study would estimate future demand for voice, data, and video network and datacenter services, propose service level agreements, suggest equipment to meet the projected demand. Both studies would analyze whether the project in question could be implemented under the PPP legislation, However, the feasibility study for the Datacenter project, would also examine whether a more conventional shorter-term service contract might be a better option. H&A also believes that the proposed *Rede Intragov* and datacenter upgrading and integration projects present significant export opportunities for US suppliers, and that the model of outsourcing to be pioneered in this project is likely to lead to similar projects in other states.

Accordingly, H&A recommends that USTDA fund the two feasibility studies in question, under the conditions set forth in the accompanying Terms of Reference, at a total budget level of $211,260 for Phase One and $93,055 for Phase Two of the Intragov Network project. For the datacenter project, we recommend funding of $264,990 for Phase One and $108,083 for Phase Two of the datacenters project if a PPP structure is used and $97,583 for Phase Two if a 8666 contracting framework is used instead of a PPP structure.

A. THE DEFINITIONAL MISSION

The Definitional Mission for São Paulo (DM) was conducted in São Paulo, Brazil from September 19- 23, 2005. A preliminary meeting with the Principal Commercial Officer and the Commercial Specialist for the ICT Sector in the US Consulate in São Paulo was held on June 29, 2005 and a post mission briefing meeting conducted on September 23, 2005 with participation of the new Consul General, the new Economic and Political Officer, the Principal Commercial Officer, and the Commercial Specialist for the ICT Sector. The general purpose of the DM was to examine two projects included in the current São Paulo State Multi-Year Plan (*Plano Plurianual* – PPA) – one for the long-term outsourcing of the operation and maintenance of the state government's voice, data and video network linking all government agencies (*Rede Intragov*), the other for upgrading, integrating, operating, and maintaining state datacenters. The project proponent, the São Paulo State IT Company (PRODESP) proposes that these two projects be carried out under Brazilian federal and State of São Paulo Public - Private Partnership (PPP) legislation. The DM sought to determine whether these two projects were suitable for USTDA funding support and to identify the appropriate forms of USTDA assistance, such as Feasibility Studies, Technical Assistance, Orientation Visits or other activities.

Although the overall e-government strategy for the State of São Paulo is developed within *Casa Civil* and its Strategic Information System (*Sistema Estratégico de Informacões*), through a high-level interagency committee,PRODESP, supervised by the Committee for Quality in Public Management (*Comitê de Qualidade em Gestão Pública* – CQGP, is the project proponent. For operational purposes the Deputy to the Secretary of the CQGP and Coordinator of its Support Group (*Núcleo de Apoio*), Agnaldo do Carmo Lopes, is the key person. His Assistant, Eduardo Pontes, scheduled all H&A meetings and accompanied H&A consultants to all the Government and agency meetings scheduled.

H&A also met with the technical specialists in the government's technical groups that are responsible for managing the *Rede Intragov* and several of different state agency datacenters (including those of PRODESP itself, the Military Police, and the Secretariat of the Environment) as well as with an external consultant to the *Casa Civil* who provided more insight and in-depth knowledge of the telecom market in Brazil.

The request for USTDA funding originated with the former Deputy to the Secretary of the CQGP and Coordinator of its Support Group, Roberto Meizi Agune. His successor is Agnaldo do Carmo Lopes, who served as the DM's primary contact in São Paulo.

During September 19-23, H&A conducted meetings with the staff at the *Casa Civil* notably, Agnaldo do Carmo Lopes, Salete Abrão Iunes, and Eduardo Pontes of the CQGP and the Strategic Information System (*Sistema Estratégico de Informacões*). H&A also met with the Director of PRODESP as well as his staff members who are responsible for managing the PRODESP datacenter and coordinating the *Rede Intragov*. PRODESP is the State's IT Company,

Additionally, H&A met with staff from the PPP Unit of the Secretariat of Economy and Planning (Secretaria de Economia e Planejamento) and discussed the steps that need to be taken to use the PPP mechanism. A list of all the individuals met in Sao Paulo appears in Annex V.

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H&A also held meetings with six potential private sector partners for the proposed *Intragov* and datacenter projects -- Oracle, IBM, Computer Associates, Avaya, TIVIT, and a *Casa Civil* telecom consultant from Guerreiro Teleconsult. Cisco Systems also expressed interest in the two projects but was unable to meet with us while we were in Brazil.

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B. BACKGROUND

1. Brazil and São Paulo State

With 184 million inhabitants (2005 estimate, Brazilian Institute of Geography and Statistics[3]), Brazil is the world's sixth largest country in terms of population, the world's tenth largest in terms of GNP, and the third largest food exporter. Per capita GDP in 2004 (at Purchasing Power Parity) was estimated at around US$8,100. But Brazil's income distribution is one of the most unequal in the world, exceeded only by a few African countries. There are also significant and deeply-rooted regional and social inequalities dating from Brazil's colonization by Portugal and the extensive practice of slavery, which was abolished only in 1888.   Brazil's agricultural and industrial modernization in the 20th century and the rapid urbanization which accompanied it has not reduced these inequalities, despite the existence of many government programs which claim to have this objective, including those specifically directed at the poor Northeastern region.

According to Anatel, the Brazilian telecom regulator, there were approximately 80 million mobile subscribers in Brazil at the end of September 2005, up 1.3 percent from 78.94 million at the end of August.

The State of São Paulo is Brazil's most developed state, producing 40.4 percent of industrial output and 31.8 percent of the country's GDP in 2003, the latest year for which regional accounts are available.[4] São Paulo State had an estimated 40.2 million inhabitants in December 2005, around 22 percent of the Brazilian population, residing in 645 Municipalities (*municípios*) out of a total of 5,561 in all of Brazil. The state includes the São Paulo Metropolitan Area (population estimated at 18.3 million in 2005, the fifth largest metropolitan area in the world, and the largest in the Southern Hemisphere)[5], and has 9 *municípios* with more than 500,000 population, led by São Paulo *município*, with an estimated population of 10.9 million in 2005. If São Paulo state were a country, it would be the most developed one in South America. Sao Paulo's growing urban, agricultural, industrial, and service industries are among the largest and most competitive in the world. São Paulo covers an area of 248,000 kilometers. In São Paulo's state government there are 20,000 administrative units and 700,000 public sector employees, with an annual state budget of $18 billion and an IT budget of $160 million. Currently there are 230,000 teachers and 70,000 educational agents, some as far as 1,000 kilometers apart, within the 645 municipalities.

The present Governor of São Paulo, Geraldo Alckmin, has been working to consolidate a new more modern, democratic, transparent, and efficient state. His administration is based on four major guidelines: the government must be educative, be enterprising, be caring, and function as a high quality service provider. Education does not take place through understanding content alone, but also through concepts and values implicitly expressed in the way it is carried out. Education is not restricted to classrooms, but reaches in all areas of the school, the community, regional directorates, youth correction facilities, and other areas of the Education Department, and other departments and Agencies with the state government.

2. e-Government in Brazil and São Paulo

Brazil is a recognized leader in e-Government in Latin America and among major emerging market economies worldwide. An important aspect of e-Government in Brazil is that, in keeping with Brazil's strong federal system, not only the national government, but all state governments and an increasing number of municipal governments have expanding e-Government programs, of increasing sophistication, with more interactive features and even full transactions possible.[6]

Increasingly powerful, flexible, and economical, ICTs present formidable new opportunities for social and economic integration, including when used for e-government services and infrastructure. ICTs are not a panacea for all

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[3] Source: http://www.ibge.gov.br/home/estatistica/populacao/estimativa2005/estimativa.shtm?c=1.
[4] Source: http://www.ibge.gov.br/home/estatistica/economia/contasregionais/2003/default.shtm. Data on industrial output are for *ïndustrias de transformação.*
[5] 2005 projections from United Nations, World Urbanization Prospects, The 2003 Revision, Data Tables and Highlights available at http://www.un.org/esa/population/publications/wup2003/2003WUPHighlights.pdf.
[6] For an extensive treatment of Brazil's e-government, including at the state and municipal level, see Chahin, Cunha, Knight and Pinto, e-gov.br – a próxima revolução brasileira (São Paulo: Financial Times Prentice Hall/Pearson Education do Brasil, 2004). English translations of parts of this book are available at http://www.tedbr.com/projetos/e-dem.br/e-gov.br-english.htm.

Brazil's problems, but they can provide increasingly powerful tools for achieving key objectives like improving governance, connecting with citizens, increasing social inclusion, facilitating lifelong learning, improving public health and safety, streamlining judicial processes, creating competitive knowledge industries, and drastically reducing transaction costs across the economy. In the area of e-government, much has been accomplished, but much remains to be done. A detailed analysis by Chahin, Cunha, Knight and Pinto published in 2004 concluded that:

- When Brazil has devoted enough political priority and economic resources to achieve a goal, the country has become a world leader – examples are the electronic elections, the Brazilian Payments System, and the federal tax service (*Secretaria de Receita Federal*), where over 95 percent of returns are filed over the Internet. Great progress has also been achieved in e-procurement, distance education, and the computerization of the legislative branch, where the development of laws may be followed over the Internet.
- Administrative reform is needed – it is not enough to make anachronistic bureaucratic processes more efficient.
- The Achilles heel of electronic democracy in Brazil is social and digital exclusion – this exclusion applies to citizens, businesses, and governments. There are isolated successes in the fight against digital exclusion, but to make real progress and leapfrog requires that digital inclusion be a priority State policy.[7]

Electronic government strengthens democratic institutions because it facilitates social control of the state apparatus by citizens and by organized civil society. The issue of digital inclusion is critical to achieving these goals. Brazil's online income tax filing service is the most utilized in the world, with over 95% of the filing population having their taxes filed online, elections are conducted by unified electronic voting system, government purchases are increasingly carried out by electronic auctions (though much more can be done), and the financial system is amongst the most electronic and sophisticated in the world.

On the other hand, in 2004, only 16.3% of Brazilian homes had a personal computer. In São Paulo State 25.6% of homes had a PC, and as shown in Table 1 20% had a PC with an Internet connection, though as for Brazil, homes with less than 10 minimum wages in income had the lowest percentage of home Internet access (10.1% for São Paulo State). But for homes with the greater than 20 minimum wages of income São Paulo's Internet access rate was 77.5%, higher than the average for the United States, and in the São Paulo Metropolitan Area home internet access for this income group was 79%.[8]

Table 1: Private Homes and Internet Access by Household Income Level, 2004

Location	Total Homes	% Total Homes	% Total Homes w Internet	% Homes >20 MW w Internet	%Homes >10-20MW w Internet	% Homes 0-10 MW w Internet
Brazil	51,752,528	100.0	12.2	72.0	49.6	5.9
Southeast Region	23,157,114	44.7	16.8	74.6	54.5	8.5
São Paulo State	11,802,313	22.8	20.0	77.5	58.3	10.1
São Paulo Metro. Area	5,617,513	10.9	22.7	79.0	60.0	11.1

Source: IBGE, PNAD 2004, special tabulations calculated from http://www.sidra.ibge.gov.br/.

If the definitions are broadened and Internet access from home, the workplace, school, and other collective access points (telecenters, internet cafés, etc.) are added, perhaps as much as 30% of the Brazilian population has access to the Internet, and in São Paulo state the percentage may be as high as 50%.

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[7] Ibid, page xvii.
[8] Data from the Brazilian Institute for Geography and Statistics, accessed through the IBGE System for Automatic Recovery (Sistema IBGE de Recuperação Automática – SIDRA) which allows creating special tabulations of data from the National Household Sample Survey for 2004 (Pesquisa Nacional por Amostra de Domicílios – PNAD) over the Internet. See www.sidra.ibge.gov.br/.

Two major routes for increasing digital inclusion are decreasing the cost of connectivity and providing public access points (public, private, and NGO financed *telecentros*; Internet cafés; and one-stop shops for government services which can provide mediated access to e-Government services). Rapid technological change and increased competition among providers of telecommunications services promoted by Brazil's successful privatization and liberalization of this sector help reduce the cost of connectivity.

São Paulo's e-government was selected as the best in Brazil in a competition run prior to the World Summit on the Information Society (Tunis, November 2005) by Camara e-Net, a Brazilian e-commerce interest group, chosen to select candidates for the World Summit Award. The São Paulo state portal (www.saopaulo.sp.gov.br) is the principal entry point for the whole state public administration, giving access to more than 1900 public services. The portal is organized from the perspective of the citizen, and promotes broad access to information and adoption of online government services. It consistently applies best practices in design focused on the user and providing a convenient and interactive online experience. Even citizens without Internet access can use its services through public access points called Infocenters which are serving about 25,000 users per day throughout the state. The development and management of the portal is the responsibility of the Official Press of São Paulo State in partnership with the Communications Advisory service of the Government and the Strategic Information System of the Casa Civil and the technical support of the São Paulo State Information Technology Company (PRODESP).

One of the most developed areas of São Paulo's e-government is the Secretary of Finance's Electronic Tax Office (*Posto Fiscal Eletrônico* www.pfe.fazenda.sp.gov.br), which seeks to simplify the life of taxpayers as well as save in administrative costs. Here it is possible for citizens, businesses, accountants, and tax preparers to deal with a wide variety of individual and corporate taxes and related information.

An electronic employment office (Balcão Eletrônica de Empregos – www.emprego.sp.gov.br/balcao/) helps workers find jobs and businesses to find workers online. Employment opportunities are classified by a wide range of critieria, and searches can be narrowed by both parties using these criteria.

An important part of the São Paulo's e-government is the Electronic Purchase Exchange (*Bolsa Eletrônica de Compras* – BEC), which was established in September 2000 and now includes 747 Executing Managing Units (*Unidades Gestoras Executoras* – UGE). BEC allows the purchase of standard goods through electronic reverse auctions over the Internet by aggregating the demand of various government agencies to obtain better prices. An estimated R\$110,445,415 in cost reductions have been achieved to the state during the calendar year 2005, while savings to firms submitting bids for the same period are estimated at R\$9,013,193. The savings garnered in these reverse auctions and other actions are updated daily and available through a facility accessible from the São Paulo State Portal called the "Economy Clock" (Relógio da Economia – http://www.relogiodaeconomia.sp.gov.br).[9] The Economy Clock also measures cost savings to the state and firms through the use of face-to-face auctions (R\$1.9 billion in 2005). Since its inception, the BEC and electronically supported auctions are estimated to have saved a total of R\$3.5 billion as of 17 February 2006. The savings have been increasing sharply over time as these procedures are used for an increasing range of purchases.

The *Poupatempos* (Time Savers) are another key component of São Paulo's e-government strategy. Most of the existing *Poupatempos,* as one-stop shops for government services are called in São Paulo, have associated telecenters called *e-poupatempos*, which offer free access to the Internet and have trained civil servants who help, observe and mainly encourage citizens to use e-government services. In these *e-poupatempos* it is possible for citizens to report crimes, see what they owe for their car tax, traffic fines, and mortgage payments, obtain duplicate copies of electric bills, and many other services.

To deal with the issue of digital inclusion, as of December 2005 São Paulo State has established 179 *Infocentros* or telecenters under the *Acesso São Paulo* Program offering free Internet access. They are of three types:

- Community, run in partnership with community organizations (like residents' associations, "friends of the neighborhood (*amigos de bairro*) and so forth;
- Municipal, run in partnership with city governments, which provide the space and indicate assistants (*monitores*) to assist clients; and

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[9] For methodology used to calculate savings using the BEC, see www.relogiodaeconomia.sp.gov.br/BEC/metodologia_bec.asp.

- Public Internet Access Points *(Postos Públicos de Acesso à Internet)* set up in partnership with state agencies where there is a substantial flow of people (*Poupatempos*, public restaurants (Restaurantes Bom Prato), bus stations, the Youth Secretariat, Centers for Integration and Citizenship, etc.

3. The role of Public-Private Partnerships (PPPs)

Brazil's commitment to macroeconomic stability and already high tax burden have made it difficult to increase public financial resources for e-Government-related investments, including telecommunications and IT infrastructure, public digital inclusion programs, connectivity, distance education programs, and the like.

PPPs offer a new instrument for both increasing the efficiency of public resources and for mobilizing private sector management, technology, and financial resources to the areas where investments are needed most. Through PPPs, which now have governing legislation at the national and, in some cases (including São Paulo), state level, governments can specify a set of objectives, offer access to public resources over a defined number of years (usually 10 or more), and then promote competition of private sector partners to help meet these objectives through a process of competitive bidding.

C. THE INTRAGOV NETWORK

1. Origins of the Intragov Network

The Intragov Network (*Rede Intragov*) is the State Government of São Paulo's communication's network for data, voice and video traffic (multimedia). In 1999, the Government decided to try and integrate and consolidate the communication's infrastructure of various agencies within the Government. The network was first designed to save on communication's costs, but it soon spread beyond this into helping the agencies plan and organize their IT investments. In the past each agency signed its own contract with the incumbent operator, Telefónica, and often multiple agencies purchased the same communication equipment or software without the discounts that can often be obtained with large purchases. Instead of each agency purchasing their own communication services, the goal was to have all agencies come together and aggregate their information and communications needs into one package and get a significant discount on the cost of service. This was the genesis of the Intragov Network.

In the beginning, early 2000, only a few Agencies participated, but gradually others were won over and by 2004 all the Government Agencies, the Military Police, and the Judiciary joined the Network.

2. The Intragov Network today

Today's Intragov Network integrates the networks of all Secretariats and Agencies of government allowing better use of material, human, financial and budgetary resources by all participants. All of the State Secretariats and Agencies of the Judiciary and Legislature have integrated their networks with over 4,500 communication lines installed (schools, police stations, penitentiaries, hospitals, health centers, *Poupatempos*, state tax centers, courts of justice, universities, subway stations, agricultural centers, environmental control and water agencies, etc.) into the Intragov Network.

The State Government of Sao Paulo has 20,000 administrative units in 645 municipalities. A large number of municipalities have also joined the Intragov Network to communicate with the State Government and to access the Internet. The General Plan of the Intragov Network is shown below in Figure 1.[10]

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[10] FAPESP is the Foundation for the Support of [Scìentific] Research of São Paulo, which also handles domain name registration for the recently created Internet Management Committee. FAPESP played a crucial role in the development of the Brazilian Internet.

Figure 1: Intragov Network, Schematic Diagram
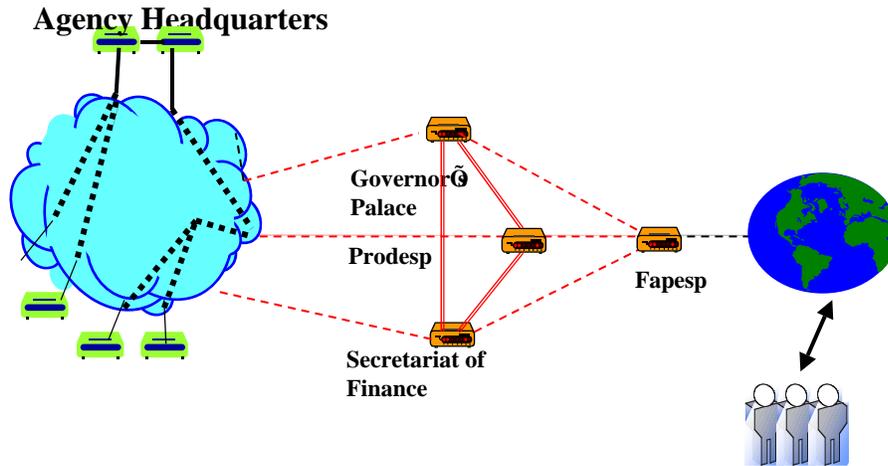
A high priority project of the State Government is to guarantee the safe and high quality links to all 20,000 administrative units, 303 installations in Prisons, and other Judiciary installations, and the 645 municipalities.

The Intragov Network is the largest public network in Brazil and is also one of the largest Government communication's networks in the world, connecting all the state governments departments, agencies, and other public agencies in a high-speed network thereby enabling the rapid interchange of information, decision-making, and delivery of public services.

According to the Government statistics as of July 2005, the Intragov Network connected 72 different agencies and covered over 6700 access lines at a cost of R$9.5 million per month. As of July 2005, the yearly expenditures for the Intragov Network were R$113 million. Below is a breakdown of the number of access lines, both low speed and high speed covered as well as the number of routers used in the network.

Table 2: Intragov Network Data (July/2005)

72 Participating government bodies	
6.700 Installed lines	
Types of Installed lines	R$ monthly
15 high velocity	350.000
6700 access lines	6.800.000
6700 routers	1.600.000
2000 low capacity lines	630.000
Total	9.480.000
US$	3.792.000 (@2.50 US$/R$)
Annual expenditures on the Intragov Network	R$113.160.000
US$	45.504.000 (2.50)

The data costs in Figure 2 do not include the telecommunication costs for fixed lines. Theses costs are as follows.

Annual expenditure on landline telephony (*telefonia fixa*)

Jan - Dec/2004	Jan. - April/2005
R$ 103.113.242,00	R$ 34.900.849,00
US$ 41.245.200	US$ 13.960.000

Table 3: Monthly expenditure on lines

Secretariats	Public Enterprises	*Autarquias*	Foundations
4,941,700	2,382,600	1,323,700	176,000
56%	27%	15%	2%
Total Expenditures	on lines & services	**R$ 8,824,755.13**	**US$ 3.530.000**

Education.	35%	Sabesp.....	52%	USP	50%	FEBEM.......	44%
Pub Safety	28%	Prodesp....	23%	Unicamp	13%	Padre Anc..	16%
Health.	12%	Metrô........	5%	DER	12%	Pró-Sangue	14%

3. Goals for the Evolution of the Intragov Network

The goals of the agencies that make up the Intragov Network is to move all voice traffic to a next generation IP-based network. They calculated that they spend R$200 million on internal long distance calls between agencies. Their goal here is to gradually move all voice calls off expensive fixed landlines and onto an IP network, thereby saving over $200 million annually in internal long distance calls between agencies.

One of the goals of the Casa Civil and PRODESP for the Intragov Network is to eliminate the internal communications costs between agencies, so that calls from one agency to another would stay on network and costs for these calls would be minimal. Consolidating each agency's telecom needs allows the Intragov Network to obtain a better price for these services from the incumbent Operator.

Another goal of the Agencies is to create an enterprise IT architecture, a roadmap that showed what IT investments will be used to better improve performance. An Information Technology (IT) Architecture is a blueprint that is developed, implemented, maintained, and used to explain and guide how an organization's IT and information management elements work together to efficiently accomplish the mission of the organization. An IT Architecture addresses the following views: business activities and processes, data sets and information flows, applications and software, and technology.

The best reasons for having an IT Architecture are the benefits it brings to the organization. Benefits have included the improved ability to share and efficiently process information, the ability to respond faster to changes in technology and business needs, and reductions in costs because of economies of scale and resource sharing.

The São Paulo Government sought to gain an order of magnitude improvement in the value of services to the citizen – with decisions in minutes or hours rather than in weeks or months. They sought to unify and simplify government processes by using digital technology to transform government operations and thereby improve efficiency, effectiveness, and service delivery. Moreover, they sought to accomplish this through a consolidation of redundant and overlapping investments, customer focus for the government, and through a better management of Government resources.

In 1997, the São Paulo government launched an ambitious e-government project when it opened up its first *Poupatempo*, one stop shopping for many Government services and documents, in São Paulo. As of February 2006 there were 11 *Poupatempos (including a mobile unit))* operating offering 320 types of services from 15 different agencies (Federal, State, Local) and complementary private services within a single location[11]. On peak days, anywhere from 16,000 people use one of the 11 *Poupatempos* around the State. These *Poupatempos* are

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[11] See www.poupatempo.sp.gov.br/index.htm for details on the services offered, evaluations and awards by third parties, and a detailed description of the different units.

managed by PRODESP and staffed with selected civil servants servants who help, observe and mainly encourage citizens to use e-government services.. The 11 *Poupatempos* offer numerous Federal, State, and municipal services to the public without the necessity of an intermediary or middle-man. The *Popupatempos* significantly reduce the time it takes for citizens to get the required documents from weeks to a few hours. The goal of these centers was to create a new paradigm for public service by offering public services with efficiency, quality and speed. Some *Poupatempos* also include a government telecenter or *e-poupatempo*, In these *e-poupatempos* it is possible for citizens to report crimes, see what they owe for their car tax, traffic fines, and mortgage payments, obtain duplicate copies of electric bills, and many other services. These *e-poupatempos* are part of the state-wide program called *Acesso São Paulo* and offer computers with high-speed access and printers.

Public acceptance of the Poupatempos is consistently good. For example, the respected Brazilian public opinion survey company, IBOPE, interviewed a sample of 1300 users of the Poupatempos in December 2005 and obtained the following results:

IBOPE 2005 *Poupatempo* Survey	
It's a service I approve of	99%
The *Poupatempo* respects the citizen	94%
It provides good service to the user	94%
It's something São Paulo can be proud of	95%
It's well organized	94%
It has well-trained staff	93%
It has attentive staff	90%

Source: http://www.poupatempo.sp.gov.br/pesquisas/pes_ib_2005.htm

4. The Current Intragov Network Contract With Telefónica And The Transition To An IP Network

The continuous growth of the programs within São Paulo's e-government requires an ever more modern and efficient infrastructure (higher speed, more security, etc.). In the State Government's Multi-Year Plan for 2004-07, R$ 2.1 billion was allocated for investments in Information and Communication Technology, indicating the priority status of investment in the area of infrastructure and principally in communications.

From March through June 2005 a technical committee composed of the major users of the Intragov Network worked closely to write a new bidding document (*edital*) for the new and expanded Intragov Network. While the network had saved the Government significant sums of money through consolidation and integration of services, it fell short on the more advanced type of information services the Government sought to deliver. Most of the data connections were old and needed upgrading. The network was also bandwidth-constrained and was constantly running short of bandwidth. The fastest links were only 2 mbps, while, the slowest links were less than 64K. Moreover, there was only one connection to the outside world and when that went down there was no back up.

The Government wanted a next-generation Internet and an Internet Protocol (IP)-based network that combined voice, video, data, and other Internet services into one network. Today, IP Networks and Voice over IP (VOIP) are the wave of the future. Data, voice, video, and broadcast networks are converging and there is no way to stop the global avalanche that is occurring. The trend is irreversible. It is the beginning of disintermediation of the applications from the transmission. Throughout most of Europe, Asia, and the US, major carriers offers, or claim to offer, a VOIP-based transmission service. Carriers that have not adopted a VOIP strategy by 2006 are unlikely to be in business in 2010. Today, global operators are faced with a choice to either adapt their technology and business models to support fully-converged, IP-based services, or stand still and risk being "relegated to commodity players." This reality became inevitable when operators learned how to fully digitize the industry.

IP-based networks have become an important engine for growth in the world economy. Data traffic is growing rapidly compared to voice traffic and consequently, the past concept of separate networks for voice and data is outdated. IP is the platform of choice for today's telecom networks. Many major operators and global carriers are shifting to packet or IP transport for the whole or parts of their networks.

IP represents a massive technology shift in communications networks, separating the application layer from the infrastructure layer. Within a few years all networks will be 100% IP-based and all traffic will flow across IP-based networks.

From an economic perspective, the use of IP-based networks promises to reduce prices to consumers, as well as reducing the cost of entry for operators. From a technical perspective, IP-based networks hold the promise of providing multimedia telecom services and new applications, merging voice & data. The flexibility of IP technologies resulting in the integration of voice and data networks, allows suppliers to take advantage of synergies and cost reductions and allow them to bring innovative services and applications to the market. IP represents a technology shift in communication's networks, separating the application layer from the infrastructure layer. The type of network (cable, wireless, satellite, fiber, wireless) no longer dictates the applications or services that can be offered, such that telephone providers can offer video and broadcast TV over their IP backbones. IP networks enable multiple players to enter the market and compete, stimulating innovation, encouraging investment in the country, and advancing the development of the economy.

The development of IP-based networks and applications benefits consumers, industries, and the economy because it fosters technical & market innovation, diversity and growth in the economy. New enhanced communications capabilities are essential for the development of other service sectors and for the production and distribution of goods in the economy. Internet and IP-based networks, (including, but not limited to, the public Internet) are increasingly being used as alternatives to the traditional circuit-switched networks. The transmission of voice over IP-based networks offers both challenges and opportunities, namely voice, video, and data integration. IP Telephony and other IP-based applications will speed up the process of convergence of communications and technologies and help countries evolve their networks to expand availability and use of a broader range of modern communications.

Technological developments are creating new opportunities and challenges for both incumbent and competitive operators. Disruptive technology can quickly develop into a competitive threat, dramatically transforming the marketplace. It is these disruptive technologies that are being deployed in Next Generation networks. Voice over IP (VOIP) is just one example of a disruptive technology.

Disruptive technologies shake up business models by eliminating barriers inside organizations; Accelerating the bundling of competitive services as a substitute for legacy services; altering the growth equation of telecom service and telecom operators; forcing changes in network architecture by accelerating the depreciation of legacy plant; and lastly, creating opportunities to market and sell new products and services. Voice is just an application very similar to Microsoft Excel, Microsoft Word, E-mail, or music and video clips. VOIP applications can be located anywhere on the network.

VOIP is still an early-emerging/evolving technology, so it is speculative to develop a complete picture of what a mature worldwide VOIP network will look like. The emergence of Session Initiation Protocol (SIP)[12] shows that new technologies and new protocol designs have the ability to change VOIP. The situation is analogous to the state of the Internet in the late 80s and early 90s when competing protocols and designs for the infrastructure of the net flourished, but as the purpose of the Internet became more defined, the structure and protocols became standardized and interoperability became much easier.

The São Paulo State Government's vision for a next-generation Intragov Network is an all IP-based network. The existing network was not capable of meeting the visions of the State Government. Each Agency had a check list of what it wanted to see in the network and all the agency representatives worked together to create a new framework for the network. They set out to write an *edital* to cover their needs for the next 2-3 years.

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[12] **Session Initiation Protocol** (SIP) is a protocol developed by the Internet Engineering Task Force (IETF) and is the proposed standard for initiating, modifying, and terminating an interactive user session that involves multimedia elements such as video, voice, instant messaging, online games, and virtual reality. SIP is a peer-to-peer protocol. As such it requires only a very simple (and thus highly scalable) core network with intelligence distributed to the network edge, embedded in endpoints (terminating devices built in either hardware or software). Although many other VoIP signaling protocols exist, SIP is characterized by its proponents as having roots in the IP community rather than the telecom industry. In November 2000, SIP was accepted as a 3rd Generation Partnership Project (3GPP) signaling protocol and permanent element of the IP Multimedia Subsystem (IMS) architecture and is one of the leading signalling protocols for Voice over IP, along with H.323. IMS is an open, standardized, operator friendly, Next Generation Networking (NGN) multi-media architecture for mobile and fixed IP services. Wikipedia definition, www.wikipedia.com.

The participants in the CQGP committee wanted a network that would offer lower costs; allow adding extra bandwidth as needed; and offer different performance, quality of service, and other guarantees that service would meet their strict requirements. They also wanted a framework established so penalties could be imposed on the contractor when performance measurements or benchmarks fell below a certain service level as specified in agreements between the contractor and the state.. Most importantly, they wanted to get out of the business of managing the next-generation network, but still have the ability to monitor the network to ensure that a private sector Operator was meeting all their requirements. They wanted the Operator to be responsible for fully managing all aspects of the network as well as all necessary equipment purchases that will be needed to deliver all the desired services offered.

To ensure that technology did not pass them by, they created a reference-based model where they coded each of their current access points and the service desired and assigned it a rating. They then multiplied the base rating by different coefficients that accounted for the critical nature of the data, the security nature of the data, the type of bandwidth needed, and any other performance guarantees or Quality of Service (QOS) requirements. The coefficients used were FCA (bandwidth coefficient) and FRA (security & critical nature of data coefficient).

The *edital* that emerged included all these requirements and a host of others, such as a new framework for calculating costs that took into account the amount of bandwidth needed, a fixed cost for the bandwidth, and a variable cost that factored in the amount QOS, and critical nature of the data required, and a cost variable.

Class of Service
- Voice
- Video
- Priority Data
- Non-Priority Data
- Internet

Access capacity
- Scaled for the number of simultaneous transmissions
- Access Capacity Factor - FCA-

Redundancy for access
- Level of priority (critical applications)
- Access Redundancy Factor - FRA

Monthly Remuneration = Fixed + Variable
    Fixed by access
- Client Units + Suppliers
- Price = **P_ref (1)** x FRA x FCA

    Variable according to access
- Traffic through the Client Unit
- Price = **PUGB (2)** x Traffic (GB)

(1) Reference Price
(2) Unit Price per Gigabyte

Table 4: Access Capacity Factor Coefficients by Usable Bandwidth

Access Capacity	FCA
64 Kbps	0,5
128 Kbps	0,8
256 Kbps	1
512 Kbps	1,5
1 Mbps	1,8
2 Mbps	3
4 Mbps	3,6
8 Mbps	4
16 Mbps	7
34 Mbps	12
155 Mbps	20
622 Mbps	30
1 G bps	42

PRODESP is responsible for administering the contract and monitoring the network. To assist PRODESP in monitoring the services and ensuring that all services are delivered with the required SLA, QOS, and performance guarantees the committee adopted a pro-activity index, which gives points and penalties if the Operator fails to be proactive in spotting and resolving problems. If the Operator fails to correct a problem or resolve a complaint before PRODESP or an Agency spots it, the Operators is penalized.

One of the main goals of the Intragov Network is that it led to an increased cooperation among and between agencies of the Government who were the heaviest users of the communication's network. As agencies began to work together as a team in deciding on the services to include in the new network, they gained a sense of trust with one another that has allowed new projects to go forward. Prior to the work of the technical committee in creating the framework for the next generation Intragov, the different agencies that made up the Network felt that the other agencies or departments did not understand their Agency's priorities and security concerns. After working closely with the Agency representative on the technical committee they became more comfortable with each other and gained a new found trust in each other. The essential trust that each agency has in the network helps PRODESP better do its job in administering the contract and not having to spend time placating one agency or another.

The new contract is based on services offered and although it is estimated to last about three years it could end sooner or last longer, depending on the amount and type of services that are offered. The new *edital* sought to cover all current and estimated future services and bandwidth needs and to establish a price structure that could work as services, SLAs, QOS, security, and types of bandwidth changed through the usage of variable costs that factor in each of these requirements.

The *Edital* was released in July and Casa Civil/ and PRODESP held a reverse auction.[13] The auction lasts several rounds: participants state how much they are willing to supply at a price that starts high, and that "ticks down". Reverse auctions create an environment that encourages competition with the result that goods and services are offered at their current market value.

The auction drew three bids: Pegasus, Embratel, and Telefónica. Pegasus dropped out after the first round leaving Telefónica and Embratel to battle it out for 46 rounds and almost 12 hours. Telefónica won on the 46th round. Telefónica's winning bid resulted in a 71% reduction in price for the São Paulo State Government.

Table 5 shows the price reductions gained of the access points in the Government network. The most significant price savings came from the high number of low-bandwidth access points the State had. As it will take some time

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[13] A reverse auction, also known as an upside down auction, is an auction where suppliers bid against each other for a contract. Instead of bidding to buy, as in a traditional auction, participants bid to supply.

for the State to completely replace all its low-bandwidth access points, the savings will continue to accrue. We can expect the price of bandwidth to continue to drop so that during the next *edital* process the 2 Mbs bandwith prices will have declined significantly and the savings the State hopes for will continue.

Table 5: Price Reductions Obtained through Competitive Bidding on Intragov Network Contract

Capacity	Price Current Contract (R$)	Estimated Price, New Edital (R$)	Percentage Reduction
64 Kbps	690,45	99,9	**85,53%**
128 Kbps	818,92	182,63	**77,70%**
256 Kbps	1.058,13	313,76	**70,35%**
512 Kbps	1.530,03	584,6	**61,79%**
2 Mbps	2.138,48	2.080,88	**2,69%**

While in Brazil, Hellerstein & Associate's consultants visited the offices of several of the large users of the Intragov Network, specifically the Military Police, the State Environment Secretariat and it's associated Environmental Protection Technology Company (*Companhia de Tecnologia de Saneamento Ambiental* – CETESB), the Secretariat of Education's Knowledge Network (Rede do Saber), and a *Poupatempo* that is located in the Secretariat of Finance building at a central downtown location in São Paulo next to a metro stop.

The Secretariat of Education uses the Intragov Network to run its *Rede do Saber* or Knowledge Network, throughout the state. *Rede do Saber* is a set of technological solutions aimed at developing managers and teachers in public education. The network provides virtual interconnection for all regions in the state through the Intragov Network. The *Rede Do Saber* comprises 100 videoconferencing rooms, over 2,500 computers, and 9 content-generating Directorates. Each videoconference room holds around 50 people and can be connected to one or more studios, and an Operations Center to monitor network use, support logistics, and provide system management support. In October 2005 there were 100 access points located in 75 municipalities around the state and in 89 local Education videoconferencing rooms in the *Rede do Saber* network or other networks of a similar nature.

The IT room in a Rede do Saber unit is fitted with about 20 PCs that are connected to a local network and have high-speed connections to the Internet. Each facility also has a study room holding 40 people and that contains a computer, a TV, and a VCR.

The *Teia do Saber* (Knowledge Web) is the State Government's system of ongoing education in the public school system. It offers continuous training programs and other initiatives, such as the University Education Program, which gave 6,233 of the State's first-fourth grade elementary teachers an opportunity to obtain a higher education degree. The program lasted 3100 hours. After the success of this program the Secretariat of Education provided continuing education for these teachers in new areas – 4,700 teachers in 41 municipalities participated in 3300 hours of classes. These distance learning courses were essential as many of the teachers in the public school system did not have a college degree and were required under Brazil's Education Law (LDB – *Lei de Diretrizes e Bases*) to obtain an equivalency certificate (the distance learning courses in this program were the equivalent to a university degree program). These distance learning programs are a partnership between the state government and municipalities and supported by various foundations.

The *Rede do Saber* is a key instrument in developing education policy for the State of São Paulo. The network enables the Government to motivate, train, and involve all teachers and educational agents through short, medium, and long-term distance learning programs. Its Family School programs opens the system's 6,000 schools on weekends for socio-educational, cultural, professional training, and sporting activities thereby involving the community, training both students and parents in the use of technology.

The network also offers paid internships to graduates of public schools to run its programs in schools on the weekends and in the evenings. These internships are very sought after and, since they are only available to public school graduates, are a key tool in closing the digital divide in São Paulo. The *Rede do Sabe*r hires over 25,000 interns with some receiving a salary and others receiving tuition credit at participating Universities.

The expansion of the Intragov Network and the upgrading of its facilities would enable the Secretariat of Education to develop many new and innovative programs, making greater use of the *Rede do Saber* facilities. The network's managers would like to add video streaming and on demand video and presentations, which would enable them to reach more people and more schools.

Currently only 70% of the public schools have an Intragov connection and for some their access bandwidth is too small to use video conference equipment, so they have to rely on audio or web conferencing.

The *Casa Civil* is interested in making use of an expanded *Rede do Saber* for training of civil servants from other Secretariats and other public sector agencies, and some trials along these lines have already been carried out.

5. Moving the Intragov Network into a PPP Framework

A complete modernization of the government's communication network cannot be accomplished within the few short years of the current contract. The complete modernization and upgrade of the Government's Communication's network will result in significantly lower system operating costs, increased efficiency, significant communications savings.

The Government believes that to obtain this order of magnitude change in their communication's network and access points, it will be essential to retain a highly-specialized company, preferably one with international operations, that can assist them in creating this desired outcome. As a result, the Government seeks to form a public-private partnership (PPP) with this company and enter into a contract of 10-years or longer to develop, maintain, and operate São Paulo's integrated voice, video and data communication's network.

D. INTEGRATION AND UPGRADING OF STATE DATACENTERS

1. Current State Datacenters

Government information systems need to be hosted in centers that have adequate systems for their operation. The most important are:

- Physical and software-based security for the data with controlled access;
- An un-interrupted source of electric power;
- Controlled temperature and humidity;
- Adequate communication system (networks and communication links)
- A computing environment with high capacity servers and backup facilities
- Adequate management and operation teams.

São Paulo's government has five operational datacenters that it seeks to integrate, and consolidate. These datacenters use more than 400 servers (many of them outdated and lacking adequate capacity to meet rapidly increasing demand and lacking adequate security and monitoring tools) to meet the needs of the various State Secretariats, the Judiciary, the Legislature, various other São Paulo state agencies, and Municipal Governments. The current data-centers are hosted by PRODESP (the São Paulo State IT Company), the Secretariat of Finance, the Secretariat of Public Safety, the Secretariat of Health, and the Official Press. PRODESP serves multiple clients, and its existing data-center, located in a modern facility in *Taboada da Serra*, about an hour's drive from the center of the state capital, has about 240 servers.

The value of PRODESP's contracts with a large variety of government agencies was roughly $6.3 million in 2005, assuming an average exchange rate of R$2.5 per US$ (Table 6, page 20).

At present several different secretariats and agencies of the Government of São Paulo maintain their own datacenters in addition to the central datacenter operated by PRODESP in a modern facility located in *Taboada da Serra*. To increase efficiency and lower costs, the Casa Civil and PRODESP seek to migrate these separate datacenters with and upgraded central State Government datacenter that could be operated by a private sector partner within a PPP.

Figure 2

Proposed Migration of Existing São Paulo State Datacenters to a Single Datacenter
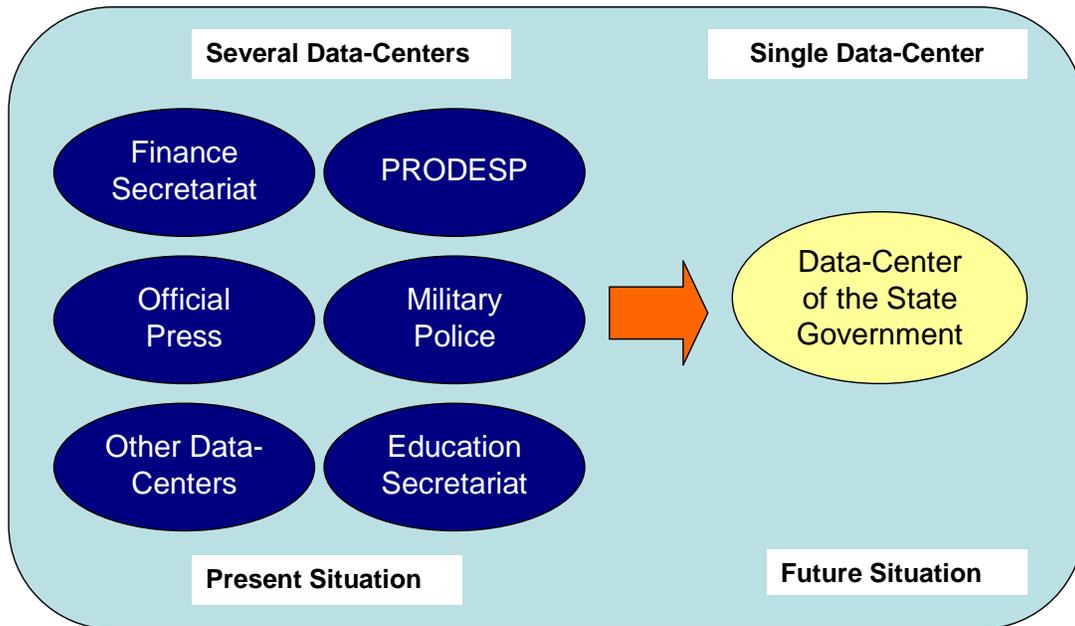
Table 6: PRODESP Contracts, 2005

Services	Clients	2005 Annual Contract (R$)
Management of contracts with third parties	Secretariat of Education, Courts (*Tribunal de Justiça*), *Casa Civil*	1.326.003
Management, Help Desk, Monitoring	Secretariats of Education and Environment, Courts, Casa Civil, Housing and Urban Development Company (CDHU), Highway Department (DER)	2,163,075
Management of Network and Internet Connectivity	*Casa Civil*	9,632,026
	Sub-total	***13,121,104***
Hosting (rental of rack, infrastructure, monitoring/operation, backup) Total 240 servers	*Casa Civil*, Department of Transportation (Detran), Board of Commerce (Jucesp), Foundation for Well-being of Minors (Febem –Detention Centers), CDHU, Institute for Medical Assistance to Civil Servants (Iamspe), Secretariats of Public Safety (*Segurança*), Finance, and Education.	2,592,000
	TOTAL	**15,713,103**

2. Expected Future Demand for Datacenter Services

There are about 400 São Paulo state government activities (*ações*) in the area of e-Government/ICT planned for implementation through 2007. All of these activities require an appropriate and secure environment for hosting and publishing their respective applications. The ICT activities fall in the areas of infrastructure, internal transactions, transactions with citizens and enterprises, and digital inclusion (bridging the digital divide). Among the principal applications are:

- The Pro-Social System, with modules for Family Registry *(Cadastro de Famílas*), Registry of Agreements (*Convênios*), Registry of State Agencies (*Orgãos*), Registry of Municipal Governments, (*Prefeituras*), and System for Managing Agreements
- e-procurement through electronic auctions, registry of goods and Services, price database, bidding processes (*licitações*) management system
- The Integrated Personnel Administration System (SIAP)
- Webmail
- Provision of an e-mail account for each São Paulo state civil servant;
- Unified request form (*protocolo único*)
- Health – with systems for the National Sole Health System (SUS) Card, hospital information, and control of prescriptions (*medicamentos*)

The capacity of the current datacenters needs to be expanded to meet the demand for applications from their current clients and to provide for new clients given the large number of agencies not yet served, which should raise

the value of contracts billed. Moreover, some of the servers used for providing Internet services were purchased in 1997 and need to be replaced.

It will be necessary to contract for tools to measure and monitor service level agreements (SLA). The backup system needs to be updated for all platforms.

Security is also an issue. Currently there are some 11 million attempts at penetration by hackers, and 118,000 messages with viruses that are blocked. But there is a need to increase the level of physical and electronic security of the datacenters to protect the information stored in them. There is also a need to upgrade the building and electrical infrastructure of some datacenters. Finally there is a need to implement a classification system for IT equipment and a secure contingency site for processing information in the case of one of the existing datacenters going down for whatever reason.

3. Proposed Datacenter Integration Project

The proposed project would integrate and upgrade the facilities and technology of all these data-centers creating a single inter-linked system (Figure 3 on p.22), installed in adequate facilities and reaping returns to scale once the investments in basic infrastructure have been shared between the different systems. Furthermore, the integration would simplify the exchange of information between the systems and permit a more effective consolidation of managerial information.

The principal objectives of the upgrading and integration project are to:
- Increase the capacity to provide management, hosting, monitoring, and help desk services;
- Increase the computational capacity following the NBR ISO/IED 17799 norms;
- Upgrade the communications network linking the datacenters;
- Improve and expand the facilities for furnishing un-interruptible electric power and temperature and humidity control to support new servers;
- Increase the physical security and quality of the facilities and improve firefighting systems;
- Improve the systems for management of information services and definition of contingency plans for all critical services;
- Support and implementation of digital certificates;
- Centralize telephone service to citizens through a single channel, permitting rapid access and permitting a reduction in cost structures compared with the existing model of different distributed call centers, each dealing with a different kind of public service; and Provide telephone-based (call-center) support for civil servants, since the increase in computerized systems requires a channel by which civil servants can make inquiries when they have doubts about how to use the computerized systems, thereby increasing the productivity of the civil servants.

4. Expected Project Benefits

The new datacenter would provide better quality services at lower costs, improving government efficiency and facilitating the life of citizens through better health, education, public safety and other services. This project addresses the following problems identified by the CQGP:

- Redundant investment and current expenditures for IT in the various state secretariats
- Insufficient and insecure space for corporate (state-Government wide) IT infrastructure in present facilities
- Insufficient computational capacity for corporate applications
- Lack of a unified help desk for users of datacenter services
- Difficulty in conducting proactive actions and monitoring
- Lack of guaranteed uninterrupted service capability for mission critical applications
- Lack of sufficient specialized personnel
- Insufficient agility and flexibility in the state enterprise framework for confront the problem of rapid obsolescence of datacenter hardware and software

- Difficulties in integrating corporate systems and services (including personnel).
- Consolidation of infrastructure can significantly reduce both investment and current expenditures

CQGP proposes that the project be financed as a Public-Private Partnership (PPP) of at most 10 years or more duration. According to the state and national PPP legislation, the private company (partner) would be responsible for upgrading and integrating the existing datacenters and for providing the services afterwards, during the contract period. The private partner would make all the necessary investments. The Government, on a monthly basis, would reimburse the private partner for these expenditures from current revenues, once delivery of services has begun. The financing source used to make these payments would be the state treasury. As required by the legislation, the datacenter PPP would be a new legal entity created specifically for this purpose, called a Society for a Specified Purpose (*Sociedade de Propósito Específico* – SPE), and the revenue stream to the private partner guaranteed by a state guarantee fund to be set up under the state PPP law.

Figure 3: Proposed Integration of São Paulo State Datacenters
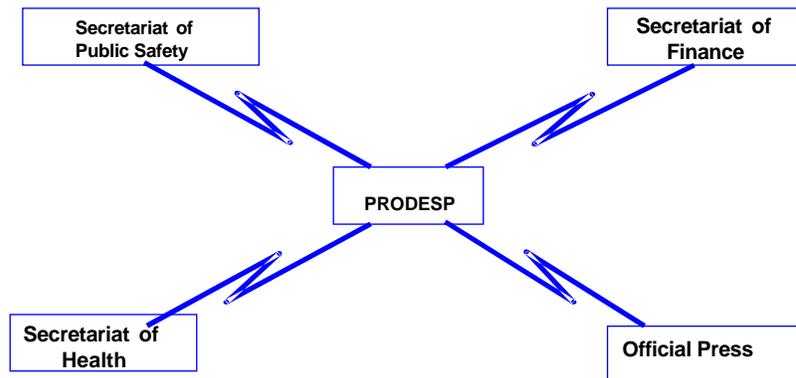
CQGP expects that the eventual USTDA-financed feasibility study would produce documentation describing the project, various economic scenarios, risk analysis, return on investment analysis (ROI), studies of total costs, and economic studies and reports taking into account worldwide experience with datacenters. These reports would allow CQGP to submit the datacenter project, with its required feasibility study, to the head of the state government and its IT Superior Council and then to the state Managing Council for PPPs (*Conselho Gestor de Parcerias Público-privadas* – CGPPP) for analysis. This data and analysis would enable the State to decide whether they should proceed with international competitive bidding using São Paulo's PPP legislation, approved in May 2004 and supplemented by decrees and regulations issued in June and October of that year, or use an alternative financing mechanism. The feasibility study would recommend how to remunerate the contracted company or companies, using objective performance criteria, for the services derived from the investments that will have to be done initially and periodically for the renewal and upgrading of the infrastructure over the period of the PPP contract.

CQGP currently envisages that the private partner would upgrade the existing PRODESP datacenter and those of other state agencies participating in the project whose datacenters are not physically located in the PRODESP facility in Taboada da Serra. The private sector partner would then install the hardware and software necessary to meet Service Level Agreements (SLAs) to be specified in the detailed feasibility study. The SLAs will be negotiated by PRODESP, but should be ratified by participating secretariats and other government agencies. Eventually more and more datacenters might be incorporated into the central integrated and upgraded datacenter (Figure 4, page 24).

E. WHY A PPP FRAMEWORK IS PROPOSED FOR THE INTRAGOV NETWORK AND DATACENTERS

PPPs offer an instrument for both increasing the efficiency with which public resources are used and mobilizing private sector management, technology, and financial resources for needed investments. In Brazil, PPPs have governing legislation at the national and, in some cases, state level. Some basic characteristics of PPPs are that they:

- Provide new mechanisms of collaboration between the State and the private sector, remunerated according to objectively defined performance criteria;
- Are used to mobilize private resources for projects of public interest; Broaden the scope of contracting with the private sector, providing more flexibility to the existing systems of bidding and concessions, which remain available; and
- Extend the time period for execution of works or delivery of services beyond that possible with previously existing legislation.

Through PPPs, governments can specify a set of objectives to implement public policies or services, offer access to public resources to the private partner over a defined number of years (usually 10 or more), and then promote competition of private sector partners to help meet these objectives through competitive bidding.

Legislation establishing the PPP model has been passed and promulgated at the national level (Law l1,079 of 30 December 2004) and State of São Paulo (Law nº 11.688, of 19 May 2004). A review of this legislation shows that the objectives of both are similar. First and foremost a PPP project must seek efficiency in fulfilling the objectives of the project, encouraging competitiveness in the delivery of services, and economic sustainability of each undertaking. Other key objectives are assuring fiscal responsibility (including compatibility with Brazil's Law of Fiscal Responsibility which took effect in May 2000), assuring transparency in procedures and decision-making, maintaining the authority of public authorities to monitor and audit the private sector partner's performance, and risk-sharing between the public and private sector partners. The Federal PPP law requires that any PPP negotiated by a state must first be sent to the Federal Senate and the Secretariat of the National Treasury prior to the signing of the contract. Moreover, the total expenditure on PPPs already contracted by a state or municipality cannot exceed one percent of its net revenue in the previous year nor can annual expenditures contracted in existing contracts during the subsequent ten years exceed 1 percent of the net revenue projected for each year.

Figure 4: Evolving Scope of Consolidated SP State Data Center

Complexity And Size

Other equipment and services of other non-client state agencies

Equipment and services of non-client SP Secretariats

Equipment and services of PRODESP Clients

Improved Cost Optimization
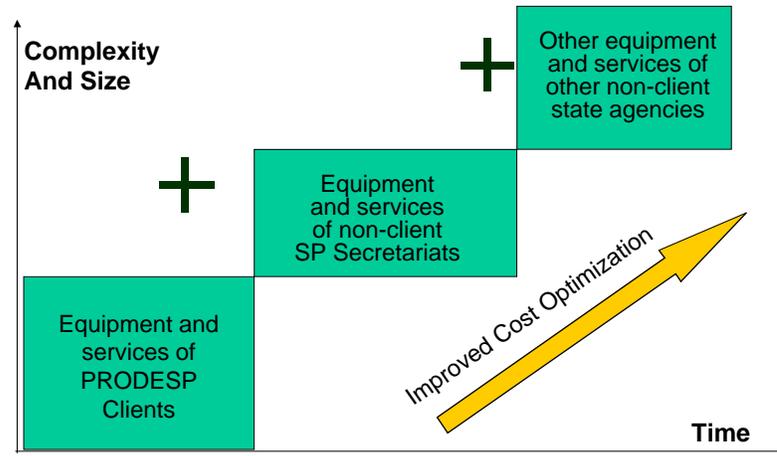
Time

1. The Proposed Intragov Network PPP

A major reason for using the PPP framework is to avoid going through the whole complex and time- consuming bidding process frequently. The central challenge of a PPP of 10 years or more is to find a way to share the fruits of technological change with all parties in an equitable way. To accomplish this goal, some kind of framework agreement is needed to specify how to introduce new technologies and products in the future and devise a formula for pricing new products and lower-cost old ones that provide comfort for both partners. Indeed, the term Partnership is important, since the idea is to move from an adversarial relationship in negotiations toward a sharing of responsibilities and benefits – a process already initiated with the implementation of the contract with Telefónica submitted the winning bid in the July 2005 competition.

The feasibility study will develop and design a business model that takes into consideration the rapid and continuing technological evolution and convergence in the communications sector and its impact on the costs, pricing, and development of services. The new framework should make it possible to plan for technological change at least 10 years into the future. There needs to be some mechanism, perhaps through providing for agreed and monitorable national and international price comparators, that allows the private partner to make the necessary investments without fearing being trapped into a situation of sunk costs, while assuring the government that, even though technological advances, paradigm shifts, etc cannot be accurately projected, public sector entities will not be obligated to pay prices that, in the future, would give the lion's share of the gains from these investments to the private sector partner.

2. The Proposed PPP for Upgrading and Integration of State Government Datacenters.

The rationale for using a PPP to finance the upgrading and integration of state government datacenters is similar to that for the Intragov Network, except that there is as yet no experience with outsourcing the datacenter function, and the existing state datacenters are not yet integrated into a single datacenter or set of datacenters with the same managing agency. The CQGP and PRODESP seek such an integration, but agreement has not yet been reached on how many of the existing datacenters will accept this, nor on the extent of outsourcing which is desired for those accepting the integration under PRODESP auspices. Outsourcing could be to a private sector manager operating within the existing (to be upgraded) PRODESP datacenter in *Taboada da Serra*, or (this seems less likely) to a privately owned and operated datacenter (though one option would be to sell the existing PRODESP datacenter to the private sector operator.

Given the many complications regarding the PPP laws and procedures at the federal and state level, a more conventional outsourcing contract (probably under Federal Law 8666) could be considered as an alternative in the case of the proposed integrated datacenter, along the lines of the current telecommunications contract with Telefónica. The duration of this contract could be 4-5 years, which would be consistent with the economic life of the hardware and software involved. PRODESP and the CQGP agree that this option should be considered.

3. Future Configuration of the Intragov Network and State Datacenters

Figures 5 and 6 (pages 25 and 26) provide schematic representations of how the São Paulo State's IT infrastructure would be managed if the projects are carried out. The Casa Civil would provide policy guidance for PRODESP as it currently does, but PRODESP would move to a supervisory function over the data centers, which would be integrated, upgraded, and outsourced to a private sector partner, in much the same fashion that it already does with the Intragov Network. The relationship with the private sector partner for the Intragov Network would become more of a partnership, with longer-term goals than under the present contract. Secretariats and other agencies of the state government would retain control over their local networks, or could contract them to PRODESP.

Figure 5: Proposed Model For Management of S‹o Paulo State IT Infrastructure
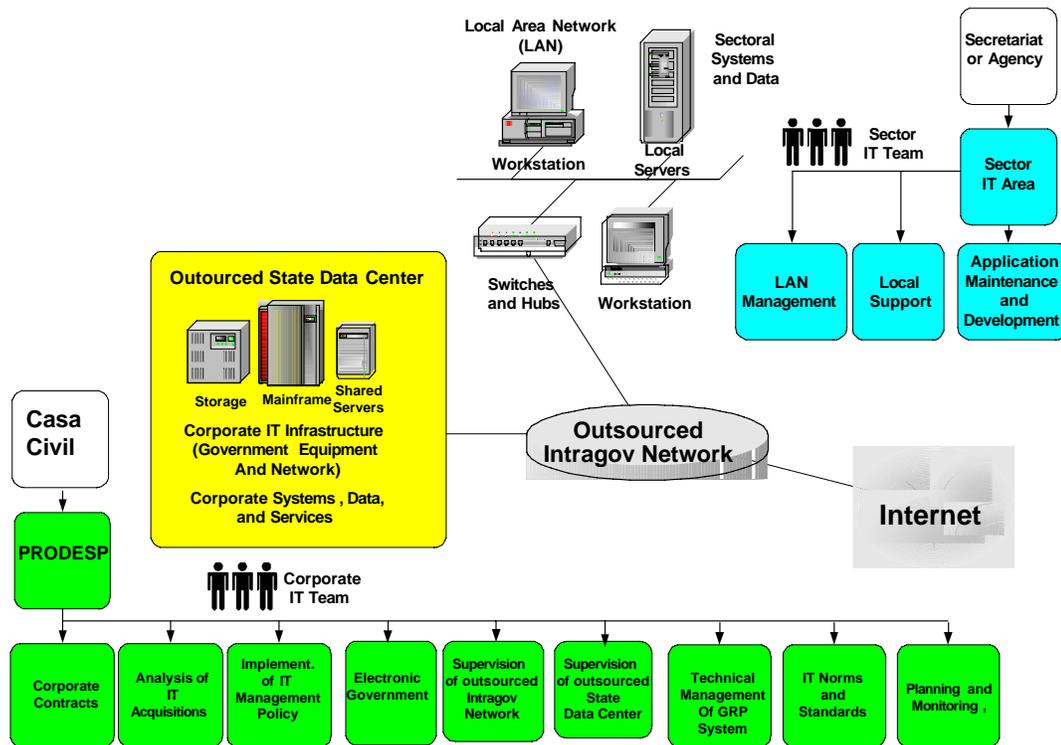
Figure 6: Future Division of Labor for Management and Operation of the Sectoral IT, Intragov Network, and S‹o Paulo State Data Centers
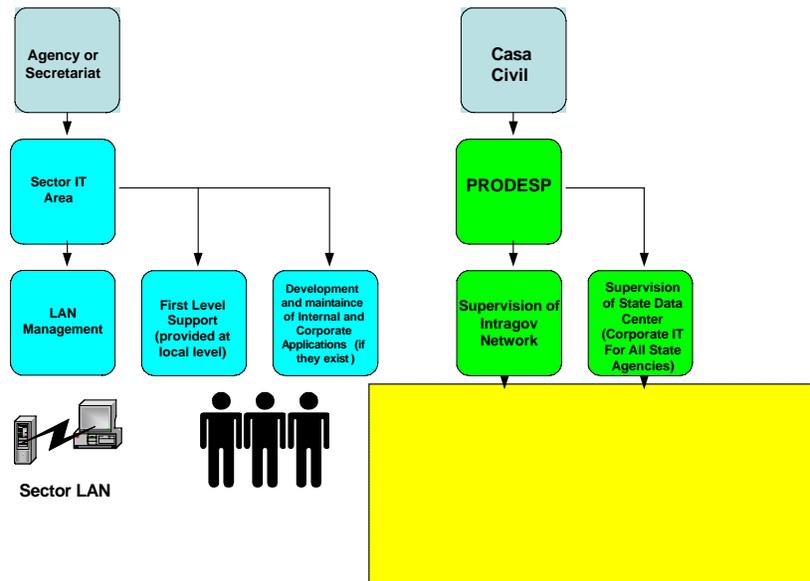
F. VIABILITY OF THE PROJECTS

H&A ascertained that the proposed projects fit well within a broader State of São Paulo strategy for consolidating the state government's physical and electronic infrastructure, with expected savings in both capital and current expenditures. The extent of the cost savings will have to be determined in the feasibility studies, but improved technology and the elimination of redundant functions and computing capacity should mean that these savings are significant. The projects also meet a basic requirement for a PPP under the state PPP law, namely that these projects be included in the current Multiannual Investment Program (*Plano Plurianual* – PPA). The projects are currently under review by the Managing Committee for PPPs chaired by the Secretary of Planning, which is the first step in the formal approval process by this Committee. After this approval is granted the Committee will then make a formal request for a full feasibility study and allocate state personnel to work with the international consultants.

On the organizational side, Casa Civil and PRODESP have the technical capacity to manage the public side of the proposed Intragov Network and Datacenter PPPs, having to this date conducted an advanced bidding process for the current outsourcing contract won by Telefónica for the Intragov Network, managed the existing PRODESP datacenter, and developed the initial proposal for the PPPs. But PRODESP could clearly benefit from USTDA-financed international technical assistance to develop detailed feasibility studies for these projects. These studies would serve as the basis for developing bidding documents (*editais*) to select private sector partners given the lack of any existing PPP in Brazil or São Paulo at this time.

The Intragov Network project has already got broad support across the government, since an outsourcing arrangement is already in place with Telefónica. The datacenters PPP is more complex because not all datacenter owners within the government have agreed to entrust their datacenters to PRODESP, much less a private sector partner. This project involves many different stakeholders (Figure 7, page 27), some of which, especially the secretariats other than PRODESP, have vested interests in their own datacenters, in particular the Military Police. Although, not all the agencies have agreed to the centralization of their separate datacenters, staff at the Casa Civil and PRODESP believe that these agencies will in the end accept the integration, though this may be a process which takes place in stages (see Figure 4 on page 24).

The principal holdout seems to be the Military Police who rather than consolidating their multiple datacenters (which permit mirroring data and thus decreasing its vulnerability to destruction in an attack or accident) want to greatly expand them.

The datacenter feasibility study will have to explore all aspects of project feasibility and their interrelations in greater depth as shown schematically in Figure 8.

Figure 7: Stakeholders in the São Paulo Data Center Project
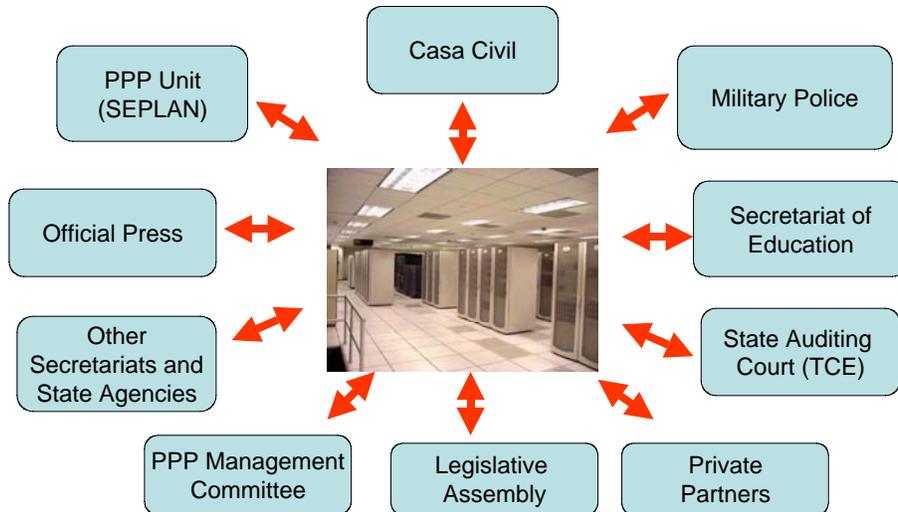
Figure 8: Elements in Feasibility Studies
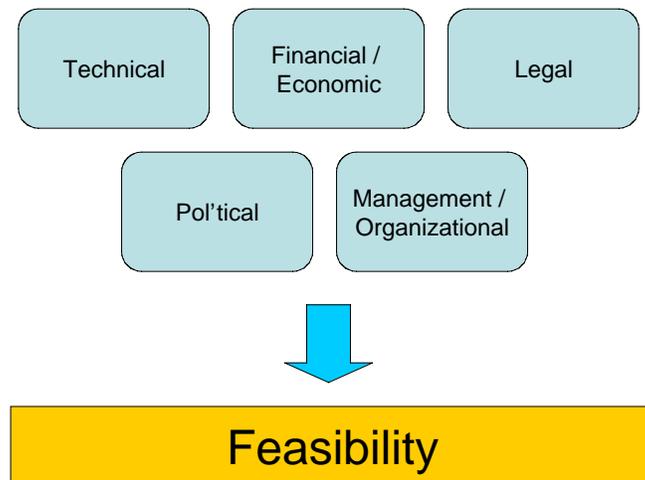
G. CRITICAL SUCCESS FACTORS FOR PROJECT IMPLEMENTATION

Following the DM discussions Casa Civil and PRODESP prepared a list of critical success factors applicable to projects, assuming the Datacenter project was implemented under the PPP legal framework, and not a conventional framework. Some of these critical success factors are not specific to PPPs and thus would be valid for a conventional outsourcing contract.

- The PPP Guarantee Fund be well administered (Note that IBM representatives indicated that they would not be interested in participating in a conventional contract, nor in the PPP, without a solid Guarantee Fund)
- A successful change management process be conducted in the affected secretariats and government agencies
- The government shares with the private sector benefits of productivity increases arising from technological change, and not just the costs
- Continual monitoring of the contractual conditions in relation to the market is carried out – provisions for this need to be incorporated in the contracts themselves
- Training of state personnel in the management of outsourcing, SLA, SLM, etc.
- Clear definition of contract objectives (scope, service levels, metrics, requirements, etc.)
- Support from top government managers
- Priority for payments to private sector partner for strategic and critical activities outsourced
- Establishment and application of penalties for non compliance with contract conditions
- Definition of a clear process exiting from the contract and transition to another supplier
- The partnership between public and private sides becomes a conventional client and supplier relationship
- Other critical success factors inherent in outsourcing processes for IT

H. PROJECT RISKS

In addition to the legal risks mentioned above, the following risks have been identified by both Casa Civil and PRODESP and H&A:

- Lack of parameters for comparison with other PPPs in Brazil (none exist at present, though São Paulo has now published a request for proposals (*edital*) for the fourth line in the São Paulo Metro, for a total of R$3.3 billion, of which São Paulo State will invest R$2.4 billion and a private sector partner R$900 million) and with PPPs for datacenters in other countries (none have been identified to date)
- A ten year contract is very long time given rapid technological change in the IT and telecommunications industries and the possibility of paradigm changes, requiring design of rules governing the sharing of the benefits of technological change between the public and private partners
- Isolation from market forces over an extended contract period unless appropriate rules can be devised (see point above)
- Project recently conceived, and budget estimates extremely rough at this time
- The private sector partner could face financial and operational difficulties
- Political and economic instability
- Poor implementation of the guarantee fund
- Other risks inherent in outsourcing contracts for IT infrastructure

I. DEVELOPMENTAL IMPACT

Two somewhat differing developmental impacts of the project can be distinguished:

1. a *shorter-term impact* stemming from the results of the study itself; and

2. a *longer-term impact* as a result of the Casa Civil andPRODESP succeeding in developing partnerships with private sector firms (whether under the PPP legislation or more conventional service outsourcing contracts) and in the case of the datacenter project, progressively centralizing the state government's diverse datacenters, thereby reaping economies of scale and eliminating redundant equipment and staff.

 Both of these impacts are described more fully below.

Primary Developmental Benefits

Particular primary developmental benefits can be enumerated as follows:

- **Infrastructure:** In the short term, although it will be the responsibility of the private sector partners to put in place the basic electronic infrastructure (e.g. fiber,servers, routers, storage capacity, support personnel,) Casa Civil/PRODESP will have to provide overall guidance in the design of the Intragov Network and datacenters, information systems, web pages, and associated databases and conduct the organizational reforms that will enable the new Intragov Network and datacenters to function effectively, reaping economies of scale and eliminating excess personnel and equipment throughout the state government. The projects will facilitate the process, on a general level by transfer of knowledge and experience, and more specifically, by providing guidance on the design of the Intragov Network and datacenters and their mode of operation. In the longer term, to the extent that the Intragov Network and datacenters enable reduced operating costs and improved service levels, the benefits should extend well beyond the state government to the citizens, enterprises, and municipalities it serves, and could be quite significant. Much of this infrastructure, moreover, could be supplied by US-based sources. (See also Section G.)

- **Human Capacity Building:** The proposed Terms of Reference for the feasibility studies include a task (Task 6) that involves reviewing the organizational preparedness of Casa Civil/PRODESP to guide the development off the enhanced datacenter and Intragov Network. A particular focus of this task is the attendant human-resource requirements (number of personnel, skill sets, etc.), together with the corresponding capacity-building activities. Indirectly and longer term, successful implementation of the datacenter and Intragov Network PPP would free up resources within Casa Civil/PRODESP and other secretariats and agencies of the government to plan and develop new e-Government services.

- **Technology Transfer:** In terms of technology transfer, the principal impact will be to familiarize Casa Civil/PRODESP with the existing and emerging technology solutions and platforms in datacenter projects in both public and private sectors worldwide and with international and Brazilian experience with outsourcing contracts for datacenter services (including any PPPs that may exist). This knowledge and experience can then be shared with other states.

- **Market Oriented Reforms:** The projects would contribute directly to market oriented reforms of public administration in São Paulo and Brazil by facilitating the transfer to the private sector of responsibility for operating state datacenters while leaving planning and strategic direction in the public sector. The Intragov Network would take partnership with the private sector to a new level – the service is already outsourced to Telefónica.

J. PROJECT SPONSOR'S COMMITMENT

These two projects are in the São Paulo State Government's Multi-Year Plan (PPA) covering the years 2004-2007, which is already an indication of its priority. The basic framework for the proposed projects was presented by Agnaldo do Carmo Lopes of the Casa Civil and PRODESP colleagues. H&A developed this framework into draft Terms of Reference (TOR), which were subsequently reviewed and discussed with Agnaldo Lopes. Mr. Lopes indicated that a USTDA-financed feasibility study for both a datacenter and the Intragov Networks along the lines indicated are a major priority for both the Casa Civil and PRODESP and would receive full support and cooperation from his department.

Accordingly, the commitment of the proposed project sponsor (PRODESP) is high. The Managing Committee for PPPs is currently considering the projects officially and if this approval is granted, a formal request for feasibility studies will be issued.

K. IMPLEMENTATION FINANCING

The state of São Paulo's contribution will be monthly payments for services rendered by the private partner. Current operating costs for the Intragov Network are R$120 million and PRODESP's datacenter are running at about R$1.4 million month, and at least this much in real terms should be available for each of these projects. In the case of the datacenters, as more services from other secretariats and public agencies are centralized, the monthly operating costs of these centers probably could become available for payments to the private partner. Improvements in efficiency would be another source of "finance" – how much could be saved as the Intragov Network expands and after allowing for improved security and better quality of service in the datacenters would be established during the feasibility studies.

As for financing of the private partner, the International Finance Corporation (IFC) is already seeking to make pilot investments in firms providing outsourcing services for e-Government in Brazil, and has indicated an interest in principle in financing these projects, or rather the private sector partner. Baring Capital, a private equity firm with HQ in New York and an office in São Paulo, is preparing a fund that might invest in these kind of projects. H&A Consultant Peter Knight met with their Brazilian representative and although the fund is not yet ready, they will promised to maintain contact.

Any future e-Brazil or Brazil e-Government project that might be developed at the federal level with state participation and financed by the Inter-American Development Bank (IADB) or World Bank might also increase the availability of funds in São Paulo for e-Government work and thereby provide additional comfort to the private sector partner that the state government would have the resources necessary to meet its commitments under a PPP or other outsourcing contract. H&A verified that both the IADB and the World Bank are interested in such projects should they be proposed by the State Governments and/or the Federal government and receive the Federal Government's priority for its international borrowing program (the Federal Government must give a guarantee for any IADB or World Bank operations, but not for IFC operations. The Brazilian National Economic and Social Development Bank (BNDES) official responsible for PPPs told H&A Consultant Peter Knight that BNDES' priority goes to road and railway projects, and that e-government infrastructure is not on their priority list.

Private sector partners are particularly interested in how the São Paulo state Guarantee Fund for PPPs will be regulated and implemented. IBM representatives stated that IBM would not participate in a conventional outsourcing contract, and would be interested in a PPP only if they found the Guarantee Fund credible.

Four private sector companies – IBM Brasil, Oracle, Avaya, and Computer Associates– met with Judith Hellerstein & Peter Knight of Hellerstein & Associates. Additionally, Cisco Systems also expressed Interest in the two projects but was unable to meet with Hellerstein & Associates consultants while they were in Brazil. All five companies have formally expressed interest in the datacenter project and/or the Intragov, including willingness to collaborate during the feasibility study. Participation in the feasibility study and even the preparation of a bidding document is not prohibited in the Brazilian PPP legislation, while it definitely is in the conventional contracting framework (Law 8666).

L. US EXPORT POTENTIAL

1. Estimation of Export Potential

To estimate the potential for US exports that could eventually be created by the Intragov and datacenter projects, it is necessary to resort to certain assumptions, namely:

- The feasibility study results in the successful implementation of an upgraded and expanded Intragov network using the PPP format.
- An expanded Intragov Network will require substantial new investments in fiber, routers, servers, and other equipment (however we have no idea at this time of the magnitude of the investment required, which will have to be estimated during the feasibility study).
- The feasibility study results in the successful implementation of five upgraded and expanded datacenters for PRODESP, the Official Newspaper (Diário Oficial), the Secretariat of Finance, the Secretariat of Health, and the Secretariat of Public Safety.

There are further uncertainties associated with the estimation of the resultant export potential. We were unable to obtain any cost estimate data on the Intragov project from either the Casa Civil or PRODESP. It is really too early in the project to be able to determine any type of figures for the potential of US exports to be gained. The cost to set up a datacenter depends on a large number of variables – the number and size of the databases involved, the choice of datacenter technology, whether the datacenter can also serve other clients (other state or municipal governments, private sector firms, NGOs, etc.) .

Because the costs are so situation-specific, it is extremely difficult, if not impossible, to make more than order-of-magnitude estimates about the aggregate value of equipment and software for datacenter implementation. Still, it seems reasonable to assume that the investment for hardware and software should not be less than R$75 million for all five datacenters. Using an exchange rate of R$2.5 per US$, this would be US$30 million, of which US$15 million would be purchased from US suppliers. PRODESP is assuming that only state secretariats, other agencies (e.g. DETRAN), and eventually São Paulo's municipal governments (above all the state capital, São Paulo) can be clients of the datacenter. Should a legal finding be made that private sector clients would be allowed, the cost of the datacenter could be higher, and the import component higher as well. But at this point it appears unlikely that the State of São Paulo government will permit private sector clients. The foreign exchange component of the investments required for an expanded Intragov network are if anything likely to be larger, though PRODESP is not willing to provide any estimates. Thus we estimate the total market for US suppliers for the two projects at no less than US$30 million, probably considerably more.

Moreover, a number of US firms, such as Avaya, IBM, Cisco, and many others have already begun supplying services, software, integration, and equipment to the State of São Paulo for the Intragov network and for the existing state datacenters. Should this project go forward, these companies, as well as others, would stand to benefit.

2. Potential US Suppliers

The range of state-of-the-art technologies that may be engaged in datacenters and in the Intragov Network is not that large. At a minimum, it includes the following:

- Servers
- Chips
- Desktop PCs
- Storage area networks (SAN)
- Server switches, routers, HBA
- Software, particularly security (anti virus/spam/hackers), database, server. e-mail, and datacenter management software

Identification of specific US suppliers is complicated by the fact that a considerable number of companies supply the datacenter market. For example in servers, IBM, HP, Dell, Sun, Silicon Graphics, Cubix, Aspen Systems, and Dell come to mind, but there are many more specialized producers. Table 7 presents a list of some potential suppliers in the categories mentioned above. Many if not most of these suppliers are active in Brazil and have networks partners for sales.

Table 7: US-Based Suppliers of Hardware and Software

Category / Products	Potential Suppliers
Servers	IBM, HP, Dell, Sun, Silicon Graphics, Aspen Systems, StorageTek, Newbridge Networks (now Alcatel), Cisco Systems, and Dell
Chips	Intel, AMD
Desktop PCs	Dell, IBM

Storage	IBM, HP, EMC, Amdahl, Unisys
Networking Technologies	Avaya, Cisco Systems, Juniper Networks, Pulse Communications, 3-Com
"Content-Related" Hardware	Sun, Hewlett-Packard, IBM, Teradata, Cisco Systems
Software	Oracle, Microsoft, Acentis, Kronos, Symantic, McAfee, numerous other suppliers; however, Brazilian directives on the use of "open-source" software may be restrictive of US exports

M. FOREIGN COMPETITION

US companies are clearly dominant in the market for ICT and e-government hardware, software, and services (including outsourcing) as well as in telecommunications equipment, but these firms face increasing competition from European and Asian suppliers and manufacturers. A USTDA financed feasibility study for the State of São Paulo, would help US suppliers get in at an early stage in the development of a new market for outsourcing of e-government infrastructure in São Paulo and potentially other states – especially Ceará, which is considering a similar PPP for datacenters.

On the implementation side, it is most likely that a significant share of implementation services will be delivered by Brazilian subsidiaries of US firms. US systems integrators, such as IBM and UNISYS can expect competition from European and Asian firms, but above all from Brazilian firms, such as Itaútec and Lanlink. These firms and Brazilian datacenter operators like TIVIT, however, tend to use predominantly hardware and software from US firms and their Brazilian affiliates.

Table 8 lists some foreign competitors in the same categories provided in Table 7.

Table 8: Non-US Suppliers of Hardware and Software

Category / Products	Potential Suppliers
Servers	NEC, Toshiba, Fujitsu
Storage	Fujitsu, NEC, Alcatel
Networking Technologies	Fujitsu, NEC, Nortel, Alcatel, Siemens, Acer, Hitachi
"Content-Related" Hardware	Fujitsu, NEC, Acer, Hitachi, Nortel
Software	SAS

N. IMPACT ON THE ENVIRONMENT

The proposed São Paulo state datacenter and Intragov projects are unlikely to have any significant negative impact on the environment, especially since they would merely consolidate and upgrade the existing datacenters and the existing Intragov network. As such, these projects will have no discernable detrimental effect on waterways, vegetation, or ground cover. In fact, it should have a positive effect as it represents the consolidation of the many different mini datacenters. The techniques for installing and maintaining datacenter equipment are standard and are not expected to result in any environmental impact. In particular, the benefits of IT and the consolidation of the many separate datacenters within the state and the many different benefits that this consolidation generates should have a positive impact on the environment. Nevertheless, these two proposed feasibility studies will include an environmental impact assessment.

O. IMPACT ON US LABOR

Funding for the proposed datacenter and Intragov projects will result in the creation of US jobs as major software integrators, hardware, and equipment items are purchased from US manufacturers. This could be directly if a US firm or its Brazilian affiliate becomes the private sector partner (or member of a consortium), or indirectly if a Brazilian or even a European or Asian firm were to be the partner, since US suppliers are dominant in the market for datacenter hardware and software. If USTDA finances the initial feasibility study and the contractor works closely with the US firms that expressed interest in this project, the likelihood of an increase in US jobs is even greater.

Financing these two feasibility studies and the actual execution of the datacenter and the Intragov projects will not result in the transfer or displacement of US jobs to São Paulo or other states. The two feasibility studies are designed to facilitate communication and cooperation between the Government and the private sector both within São Paulo and more broadly, in Brazil, as the definitional missions conducted for São Paulo state by H&A already have had this effect. Moreover, USTDA financing of these two feasibility studies will not be used to assist in the development of an export-processing zone or any other commercial zone that could have a negative impact, direct or indirect, on US jobs.

P. QUALIFICATIONS OF THE CONSULTANT TEAM

1. Intragov Network
General Qualifications of Consultant Team

As is evident from the accompanying Terms of Reference (Intragov Network TOR; see Annex I), the proposed TA is multidisciplinary in nature. Accordingly, the skill sets and expertise of the Consultant Team are expected to be diverse. The following general attributes on the part of the Consultant Team are considered critical to the successful outcome for a detailed feasibility study of the project:

PPP Specialists
- Knowledgeable about international and Brazilian legislation governing PPPs (one Brazilian, one International expert)
- Knowledgeable about international experiences with PPPs, especially those involving hardware and software subject to rapid technological change

Specialist in Brazilian public budget finance project analysis
- Knowledgeable in Brazilian public budget finance, competitive bidding and public contracts

Specialist in project analysis
Expertise in the economic and financial analysis of projects and feasibility studies involving rapid technological change

Team Composition and Experience
In terms of the composition and particular credentials of the Consultant Team, it is judged that the team should consist of the following:
- One (1) Team Leader
- One (1) International PPP Expert
- One (1) Brazilian expert in PPP legislation
- One (1) ICT specialist with telecom network and engineering expertise
- One (1) ICT specialist with experience in management of complex information technology contracts, including total cost of operations (TCO) and return on investment (ROI) analysis
- One (1) Brazilian Government Budget analyst/local liaison
- One (1) Brazilian Project Analyst

- One (1) Procurement Specialist

More specific descriptions follow.

Team Leader:
- At least fifteen (15) years' experience in the ICT industry
- Strong background in one of major areas of the TA (Telecom Network/Engineering, PPPs, Definition of SLAs, economic and financial project analysis)
- Both a US and an international perspective on the ICT industry, with the international perspective preferably gained through on-the-ground project work, ideally in the area of data centers
- Management, organizational and cross-cultural skills and perspective to structure, oversee and carry out the Feasibility Study effectively
- Ability to communicate findings effectively and to liaise appropriately within the Casa Civil and PRODESP framework and with other stakeholders, including other São Paulo public sector entities and potential private sector partners
- Fluency in Portuguese would be an advantage

International PPP Expert:
- At least five (5) years' experience with PPPs in more than one country, preferably including PPPs involving the use of rapidly changing technologies
- Ability to assess technical feasibility, price/performance, trade-offs, etc., of a variety of possible contractual frameworks, including conventional multi-year service contracts as well as PPPs

Local Brazilian Lawyer Specializing in Brazilian PPP legislation and regulation (*regulamentação*)
- Familiarity with the federal, São Paulo, and other state legislation and regulations governing PPPs in Brazil as well as with the legislation governing concessions and service contracts
- Ability to conduct necessary research and legal/regulatory diligence
- High degree of fluency in English would be an advantage

ICT Specialist with Telecom Network and Engineering Experience
- At least ten (10) years' experience in the telecom/ICT industry, including hands-on experience with IP based networks, broadband wireless solutions, Fiber-optic infrastructure and networking
- Significant experience with detailed IT needs assessment, system specification and implementation planning
- Experience with IT project cost estimation and specification
- Ability to assess technical feasibility, price/performance, trade-offs, etc of a variety of possible network deployment alternatives
- At least five (5) years' experience in defining and monitoring (SLAs) for ICTs.
- Fluency in Portuguese would be an advantage

ICT Specialist with experience in ICT Governance issues
- At least ten (10) years' experience in the telecom/ICT industry, including hands-on experience with management of complex information technology contracts
- Experience in defining and monitoring service level agreements (SLAs) for ICTs
- Expertise in the economic and financial analysis of projects and feasibility studies involving rapid technological change, including total cost of operations (TCO) and return on investment (ROI) analysis
- Fluency in Portuguese would be an advantage

Project Coordinator
The responsibilities of the Project coordinator include, but are not limited to, the following:
- Basic support logistics for everyone on team and their support people to ensure a smooth running of the

project, such as deliverable coordination (formatting, timeliness, and other coordination),

- Travel coordination,
- Arranging workshops and conferences in person and by telephone.
- Managing and editing of deliverables, thereby ensuring that the deliverables closely follow the scope of work outlined. This way there are no surprises.
- Reviewing, coordinating and distributing presentation materials, both the electronic and paper versions of presentations.
- Developing and creating a library of resource material so that all consultants have easy access to any resource material, 24 x7, maintaining the library
- Arranging housing and payments for project related expenses,
- Coordinating with Project Manager on Project Finance issues such as expense payments, consultant time
- Arranging logistics for conferences and workshops
- Ability to speak and write Portuguese and English

Brazilian Public Budget Analyst:
- Duly qualified/accredited Brazilian expert with extensive knowledge of Brazilian government budgetary processes, competitive bidding and public contracts
- Familiarity with Brazilian federal, state and municipal public IT enterprises in Brazil
- Ability to serve as local liaison, set up meetings (secretarial service available)

Brazilian Project Analyst
- Expertise in the economic and financial analysis of projects and feasibility studies involving rapid technological change
- High degree of fluency in English would be an advantage

Procurement Specialist
- At least five (5) years expertise in Procurement processes, compiling and writing proposals and bidding documents (*editals)*
- Familiarity with IT, Telecom and datacenters
- Familiarity with the purchasing process
- Fluency in Portuguese would be an advantage

In practice, it is unlikely that the backgrounds of the team members will fit the above profiles exactly. However, the collective qualifications of the Consultant Team should correspond to those described. If a proposed Consultant Team offers a comparable skill set but with a different distribution, or a basic arrangement different from the four-member team plus Local Legal/Regulatory Expert described above, it must be clearly demonstrated how such a team can efficiently carry out the full scope of the Feasibility Study.

2. Datacenter
General Qualifications of the Consultant Team

As is evident from the accompanying Terms of Reference (Datacenter TOR; see Annex II), the proposed TA is multidisciplinary in nature. Accordingly, the skill sets and expertise of the Consultant Team are expected to be diverse. The following general attributes on the part of the Consultant Team are considered critical to the successful outcome of the Technical Assistance for a detailed feasibility study of the project:

PPP Specialists
- Knowledgeable about international and Brazilian legislation governing PPPs (one Brazilian, one International expert)
- Knowledgeable about international experiences with PPPs, especially those involving hardware and software subject to rapid technological change

Specialist in Brazilian public budget finance project analysis
- Knowledgeable in Brazilian public budget finance, competitive bidding and public contracts

Specialist in project analysis
- Expertise in the economic and financial analysis of projects and feasibility studies involving rapid technological change

Information technology specialists
- Experience in ITIL, COBIT, ISO and other methodologies and standards of governance for ICTs
- Experience with calculation of total cost of ownership (TCO) for ICTs (not just operating costs)
- Experience with outsourcing of ICTs, must include experience with outsourcing of datacenters
- Experience with management of complex information technology contracts
- Experience in defining and monitoring service level agreements (SLAs) for ICTs
- Experience in setting up, managing, and operating datacenters

Team Composition and Experience

In terms of the composition and particular credentials of the Consultant Team, it is judged that the team should consist of the following:
- One (1) Team Leader
- One (1) International PPP Expert
- One (1) Brazilian expert in PPP legislation
- One (1) ICT specialist with datacenter expertise
- One (1) ICT specialist with experience in management of complex information technology contracts, including total cost of operations (TCO) and return on investment (ROI) analysis
- One (1) Brazilian Government Budget analyst/local liaison
- One (1) Brazilian Project Analyst
- One (1) Procurement Specialist

More specific descriptions follow.

Team Leader:
- At least fifteen (15) years' experience in the ICT industry
- Strong background in one of major areas of the FS (Datacenters, PPPs, Definition of SLAs, economic and financial project analysis)
- Both a US and an international perspective on the ICT industry, with the international perspective preferably gained through on-the-ground project work, ideally in the area of data centers
- Management, organizational and cross-cultural skills and perspective to structure, oversee and carry out the Feasibility Study effectively
- Ability to communicate findings effectively and to liaise appropriately within the SEAD and ETICE framework and with other stakeholders, including other São Paulo public sector entities and potential private sector partners

International PPP Expert:
- At least five (5) years' experience with PPPs in more than one country, preferably including PPPs involving the use of rapidly changing technologies
- Ability to assess technical feasibility, price/performance, trade-offs, etc., of a variety of possible contractual frameworks, including conventional multi-year service contracts as well as PPPs

Local Brazilian Lawyer Specializing in Brazilian PPP legislation and regulation (*regulamentação*)

- Familiarity with the federal, São Paulo, and other state legislation and regulations governing PPPs in Brazil as well as with the legislation governing concessions and service contracts
- Ability to conduct necessary research and legal/regulatory diligence
- High degree of fluency in English would be an advantage

ICT Specialist with Data Center Experience

- At least ten (10) years' experience in the telecom/ICT industry, including hands-on experience with datacenters and outsourcing contracts for data centers
- At least five (5) years' experience in defining and monitoring (SLAs) for ICTs.

ICT Specialist with experience in ICT Governance issues

- At least ten (10) years' experience in the telecom/ICT industry, including hands-on experience with management of complex information technology contracts
- Experience in defining and monitoring service level agreements (SLAs) for ICTs
- Expertise in the economic and financial analysis of projects and feasibility studies involving rapid technological change, including total cost of operations (TCO) and return on investment (ROI) analysis

Project Coordinator

The responsibilities of the Project coordinator include, but are not limited to, the following:

- Basic support logistics for everyone on team and their support people to ensure a smooth running of the project, such as deliverable coordination (formatting, timeliness, and other coordination),
- Travel coordination,
- Arranging workshops and conferences in person and by telephone.
- Managing and editing of deliverables, thereby ensuring that the deliverables closely follow the scope of work outlined. This way there are no surprises.
- Reviewing, coordinating and distributing presentation materials, both the electronic and paper versions of presentations.
- Developing and creating a library of resource material so that all consultants have easy access to any resource material, 24 x7, maintaining the library
- Arranging housing and payments for project related expenses,
- Coordinating with Project Manager on Project Finance issues such as expense payments, consultant time
- Arranging logistics for conferences and workshops
- Ability to speak and write Portuguese and English

Brazilian Public Budget Analyst:

- Duly qualified/accredited Brazilian expert with extensive knowledge of Brazilian government budgetary processes, competitive bidding and public contracts
- Familiarity with Brazilian federal, state and municipal public IT enterprises in Brazil
- Ability to serve as local liaison, set up meetings (secretarial service available)

Brazilian Project Analyst

- Expertise in the economic and financial analysis of projects and feasibility studies involving rapid technological change
- High degree of fluency in English would be an advantage

Procurement Specialist

- At least five (5) years expertise in Procurement processes, compiling and writing proposals and bidding documents (*editals)*
- Familiarity with IT, Telecom and datacenters
- Familiarity with the purchasing process
- Fluency in Portuguese would be an advantage

In practice, it is unlikely that the backgrounds of the team members will fit the above profiles exactly. However, the collective qualifications of the Consultant Team should correspond to those described. If a proposed Consultant Team offers a comparable skill set but with a different distribution, or a basic arrangement different from the four-member team plus Local Legal/Regulatory Expert and Local Liaison described above, it must be clearly demonstrated how such a team can efficiently carry out the full scope of the Feasibility Study.

3. **Suggested Evaluation Criteria**

It is suggested that the selection of the Contractor for both of the studies be based on the following criteria:

Criterion	Max. Points
Expertise and skills of proposed personnel	50
Proposed approach to the TA and to the individual tasks	30
Pertinent international experience and cross-cultural skills	20
Total:	**100**

Q. JUSTIFICATION

As this report has documented, the Government of the State of São Paulo is heavily committed to development of the Intragov Network and to consolidating and outsourcing datacenter services, at least for corporate (government-wide) applications. It is also accelerating its development of e-government services (including one-stop-shops – *Poupatempos*), and including digital inclusion through community telecenters). The US offers a rich repository of voice, data, and video network; datacenter; and e-government experience. US suppliers are strong in telecommunications equipment and dominant in data center hardware and software.

Moreover, the involvement of a US-based Consultant Team in carrying out the proposed feasibility studies should work to the advantage of US-based suppliers of telecommunications equipment and data center solutions. These suppliers are strong in the major technological areas but face growing competition from foreign suppliers. H&A believes that initiatives to develop outsourced voice, data, and video networks and government data center services in Brazil present a significant export opportunity for US suppliers (see Section G), and even more so if the São Paulo project generates an interest in similar projects in other Brazilian states and even the Federal Government.

Accordingly, H&A believes that funding of the feasibility study on behalf of Casa Civil and PRODESP would represent a good use of USTDA resources.

R. TERMS OF REFERENCE

The proposed Terms of Reference for the proposed Intragov Network and datacenters Feasibility Studies are attached as Annexes I and II.

S. BUDGET

The suggested Budgets for the proposed Feasibility Studies are is attached as Annexes III (Intragov Network) and IV (Datacenters).

T. RECOMMENDATIONS

H&A recommends that USTDA fund the Intragov Network Feasibility Study project, under the conditions set forth in the TOR (Annex I), at a budget level of $211,260 for Phase One and $93.055 for Phase Two.

H&A also recommends that USTDA fund the datacenter Upgrading and Integration project under the conditions set forth in the TOR (Annex II), at a budget level of $211,260 for Phase One and $108,083, if a PPP framework is used for Phase Two or $97,583 if an 8666 framework is used.

U. CONTACTS

 A complete list of persons and institutions contacted in the conduct of the DM is included in Annex V.

ANNEX I: TERMS OF REFERENCE FOR SÃO PAULO STATE INTRAGOV NETWORK PROJECT

SCOPE OF WORK

The Intragov Network (*Rede Intragov*) is the State Government of São Paulo's communication's network for data, voice and video traffic (multimedia). In 1999, the Government decided to try and integrate and consolidate the communication's infrastructure of various agencies within the Government. In the beginning, early 2000, only a few Agencies participated, but gradually others were won over and by 2004 all the Government Agencies, the Military Police, and the Judiciary joined the Network.

Today's Intragov Network integrates the networks of all Secretariats and Agencies of government allowing better use of material, human, financial and budgetary resources by all participants. All of the State Secretariats and Agencies of the Judiciary and Legislature have integrated their networks with over 4,500 communication lines installed (schools, police stations, penitentiaries, hospitals, health centers, *Poupatempos*, state tax centers, courts of justice, universities, subway stations, agricultural centers, environmental control and water agencies, etc.) into the Intragov Network. As of July 2005, the Intragov Network connected 72 different agencies and covered over 6700 access lines at a cost of R$9.5 million per month.

The goals of the agencies that make up the Intragov Network is to move all voice traffic to a next generation IP-based network. The continuous growth of the programs within São Paulo's e-government required an ever more modern and efficient infrastructure (higher speed, more security, etc.).

The São Paulo State Government's vision for a next generation Intragov Network is an all IP-based network. The existing network was not capable of meeting the visions of the State Government. Each Agency had a check list of what it wanted to see in the network and all the agency representatives worked together to create a new framework for the network. They set out to write an *edital* to cover their needs for the next 2-3 years.

The participants in the CQGP committee wanted a network that would offer lower costs; allow adding extra bandwidth as needed; and offer different performance, quality of service, and other guarantees that service would meet their strict requirements. They also wanted a framework established so f penalties could be awarded to the contractor when performance measurements or benchmarks fell below a certain service level as specified in agreements between the contractor and the state. Most importantly, they wanted to get out of the business of managing the next-generation network, but still have the ability to monitor the network to ensure that a private sector Operator was meeting all their requirements. They wanted the Operator to be responsible for fully managing all aspects of the network as well as all necessary equipment purchases that will be needed to deliver all the desired services offered.

To ensure that technology did not pass them by, they created a reference-based model where they coded each of their current access points and the service desired and assigned it a rating. They then multiplied the base rating by different coefficients that accounted for the critical nature of the data, the security nature of the data, the type of bandwidth needed, and any other performance guarantees or Quality of Service (QOS) requirements. The coefficients used were FCA (bandwidth coefficient) and FRA (security & critical nature of data coefficient).

The *edital* that emerged included all these requirements and a host of others, such as a new framework for calculating costs that took into account the amount of bandwidth needed, a fixed cost for the bandwidth, and a variable cost that factored in the amount QOS, and critical nature of the data required, and a cost variable.

The Intragov Network Feasibility Study would validate the current framework and the reference prices and coefficients used in the current contract with Telefónica as well as create new coefficients that would account for future applications and services to be included in a PPP contract.

USTDA assistance will be divided into two phases – the feasibility study per se (Phase I), and, if the project is approved for bidding, preparation of the bidding documents (*edital*) (Phase II). USTDA will consider funding for Phase II after the State of São Paulo through the Secretariat of Planning and its CGPPP has approved the feasibility study; and secured the required approvals for implementing the project. As such, we prepared separate Terms of Reference and Budgets for each phase and project structure.

TASK 1: PREPARATION AND BACKGROUND RESEARCH

The Contractor shall research the Brazil ICT and e-government sectors. This would include background information on various e-Government programs, PPP Legislation, both on the State and Federal level. The review should also include a review and assessment of PPP projects, both successful and non-successful projects, in other countries, and a review of communications networks used by other cities, states, or even countries .

The Contractor would also familiarize themselves with the *edital* for the current Intragov Network contract and the auction process that occurred.

TASK 2:   INITIAL VISIT AND ASSESSMENT OF CURRENT SITUATION

The consultant team members shall travel to São Paulo to familiarize themselves with the current situation and to meet with the Project's Sponsor, PRODESP and with PRODESP's supervisor, the Casa Civil, through its Committee for Quality in Public Management (*Comitê de Qualidade em Gestão Pública* – CQGP), Strategic Information System (*Sistema Estratégico de Informacoes*). PRODESP is the State's IT Company, and reports to the Casa Civil. Contractors should also meet with staff from the PPP Unit of the Secretariat of Economy and Planning (*Secretaria de Economia e Planejamento*)

The contractor should already be very familiar with the State and Federal PPP legislation, e-government initiatives, as well as Governmental public budget finance and project analysis.

TASK 3:   CONDUCT A NEEDS/REQUIREMENT ANALYSIS FOR THE INTRAGOV NETWORK

In this task, the contractor will review the current contract with Teléfonica and discuss with all the technical specialist assigned to the Intragov working group their goals, objectives, and needs for a new network and contract. The contractor will use this information to create a needs analysis and requirement document that will be used in Task 4 to create the network's framework.

Deliverable: Needs and Requirement Assessment document

TASK 4:   DEVELOP FUNCTIONAL SPECIFICATIONS, ARCHITECTURE, BUSINESS MODEL, AND FRAMEWORK AGREEMENT

The contractor will:
- Analyze the findings from Task 3 and develop specifications regarding the architecture and design of the Intragov Network
- Develop more precision in the estimates of network designs, equipment needs and capacity, and resulting capital expenditure and operating costs
- Create detailed operational model of the Network,
  - detailing the present services of the network,
  - administrative environment,
  - management and security of the network.
  - Services contracted and levels of services needed.
  - Description of needs and justifications for new network resources. New operational model, new services to be contracted and updating of current resources, essential conditions and recommendations.
- Technological Definition
  - Analysis of the technological environment available and of related trends.
  - Define the transfer of knowledge for the implementation team.
  - Define essential technical conditions and options for the project,
  - Define Project Metrics, performance, and other benchmarks to be used
  - Define Technological Standards to be followed

- Provide a list of potential US Suppliers interested in participating in the network

The main task here is is to find a way of sharing the fruits of technological change with all parties in an equitable way. The contractor will illustrate and describe how this goal will be accomplished; what type of framework agreement will be used to introduce new technologies and products in the future so that all parties can share in the introduction of new technologies; and lastly, what type of pricing formula for will be used to cost out these new products and lower the cost old products and services that will provide the most comfort to each party.

The contractor will design and develop a business model that takes into consideration the rapid and continuing technological evolution and convergence in the communications sector and its impact on the costs, pricing, and development of services. This model will include some type of mechanism that make it possible to plan for technological change at least 10 years into the future, enabling the private sector partners to make the necessary investments without fearing being trapped into a situation of sunk costs, while assuring the government that, even though technological advances, paradigm shifts, etc cannot be accurately projected.

Deliverable: Network Architecture, Design, Technology Definitions, Business Model and Framework Agreement

TASK 5:   REVIEW OF LEGAL/REGULATORY ISSUES RELATED TO PPPS

The Contractor will
- Assess the status of PPP legislation at the São Paulo and national levels, and verify that there are no incompatibilities in the legislation.
- Explore any possible legal and operational issues relating to the legal entities which the PPP legislation require be set up to implement PPPs (*Sociedades de Propósito Específico* – SPEs)
- Assess whether the private partner in the proposed PPP can serve clients besides the state government of São Paulo has been made by the State Attorney General's Office (PGE) and any other relevant legal or judicial agencies that must pass off on this issue.
- Identify and determine the contractual obligations of each partner
- Determine and assess whether all the necessary *Regulamentos* for the PPP legislation have been issued or if not, what is their status.

Deliverable: Legal/Regulatory Status and Review Report.

TASK 6:   ECONOMIC AND FINANCIAL ANALYSIS OF THE INTRAGOV NETWORK (*REDE INTRAGOV*)

The Contractor will:
- Quantify the benefits in expected unit cost reduction and improved quality for Intragov Network.
- Quantify estimates for rates of return for the network, scenario analysis of trends, project risks and total cost.
- Quantify the estimate for the amount of counterpart funds needed
- Analize the budgetary and financial impacts of the project in the PPP mode
- Assess all aspects of project feasibility (technical, economic, financial, political, legal and organizational) and their interrelations
- Prepare economic scenarios, risk analysis, rate return analysis, analysis of total cost of operation
- Recommend how to remunerate the private sector client and how the Government of São Paulo can share in productivity improvements arising from the use of more efficient technologies and increased returns to scale over the life of the PPP or other outsourcing contract

Deliverable: Report on economic and financial analysis and interrelationships

TASK 7:   ORGANIZATIONAL ISSUES

To support the development of a professional human resource function designed to be an effective source of capacity building. As PRODESP is the sponsor of both the Intragov and the Datacenter projects, the consultant in this task needs to work closely with the consultant team under the Datacenter project in designing the organizational structure and requirements that would meet the needs of both projects in overseeing a privately operated entity.

- Identify and prioritize corporate governance issues that are necessary and critical to support the Business Plan
- Define the qualifications of the staff needed to carry out the project.
- Define the respective roles & relationships of the staff
- Identify the necessary support resources needed for work plan implementation in task 10, i.e., the development of the remaining tasks and phases, and for passage of the PPP plan through the respective PPP agencies and committees
- Create a mechanism for PRODESP to make use of these available resources use these resources or personnel
- Evaluate the need for organizational or structural changes needed to oversee a privately operated Rede Intragov.
- Define the corporate governance structure
- Establish metrics and benchmarks
- Review current human capital deployment
- Identify oppportunities for improvement of corporate governance structure
  - o Barriers to success
  - o Keys to Success
- Foster knowledge Transfer and Capacity Building
  - o Help prioritize training professional development needs and implement a regular training schedule
  - o Help create communities of practice, by encouraging the sharing of knowledge and information with staff members doing the same type of job, or staff members on different technical committee, as well as staff that previously worked in their areas, to share information, failures, and successes.

Deliverable: HR, Knowledge Transfer, and Capacity Building Plan

TASK 8:   CONDUCT AN ENVIRONMENTAL ASSESSMENT

- Conduct a preliminary review and evaluation of the expected environmental impacts and their compatibility with both local regulations and the requirements of potential lending agencies, especially the World Bank, the IFC, and the IDB.
- Discuss how any potentially significant negative impacts can be minimized.
- Identify Agency/Department expectations priorities, opportunities, and trends,
- Analyze the environmental impact on legislative and judicial branches of government and other levels of government (Federal and Municipal).
- Verify possible transfers of effects, identify and adopt preventive measures and actions to obtain synergies with other departments and Agencies involved

Deliverable: Environmental assessment report

TASK 9:   DEVELOPMENTAL IMPACT ANALYSIS

The Contractor should identify and assess the developmental outcomes that would be expected if the Project is implemented in accordance with the recommendations of the Study. The Contractor should focus on estimating the Project's potential benefits in any or all of four areas: additions to infrastructure or industrial capacity; nature and effects of any legal/regulatory changes resulting from the Project; expected human capacity building; technology

transfer and its effects. The analysis of potential developmental benefits should be as concrete and detailed as possible and include at least one specific example of developmental impact for each area that is relevant for the Project. Any significant developmental impacts outside the four areas listed above should also be included.

Deliverable: A report setting forth the findings and opinions as specified above.

TASK 10:   PROJECT PLANNING AND IMPLEMENTATION

The Contractor will assess and determine whether the critical success factors for project implementation have been met and the project risks identified have been accounted for and mitigated to the extent possible. The contractor will also review the HR Capacity Building, Knowledge Transfer, and Training Plan proposed in Task 7 and incorporate these recommendations into the implementation plan.

The Critical success factors are the following:

- The PPP Guarantee Fund be regulated, implemented, and well administered
- A successful change management process be conducted in the affected secretariats and government agencies
- The government shares with the private sector benefits of productivity increases arising from technological change, and not just the costs
- Continual monitoring of the contractual conditions is carried out – provisions for this need to be incorporated in the contract itself
- Training of state personnel in the management of outsourcing, SLA, SLM, etc.
- Clear definition of contract objectives (scope, service levels, metrics, requirements, etc.)
- Support from top government managers
- Priority for payments to private sector partner for strategic and critical activities outsourced
- Establishment and application of penalties for non compliance with contract conditions
- Definition of a clear process exiting from the contract and transition to another supplier
- The partnership between public and private sides becomes a conventional client and supplier relationship
- Other critical success factors inherent in outsourcing processes for IT

The Project Implementation Report will recommend the most appropriate structure for the project, summarize the steps that need to be undertaken by the government to implement the project according to recommended structure, e.g. any legal actions to reconcile the state and federal PPP legislation, the process of *regulamentação*, the steps involved with the creation of the new legal entity that is required if the project goes forward as a PPP - the SPE, the establishment of the state guarantee fund).

TASK 11:   PRESENTATION, DRAFT FINAL REPORT, AND APPROVAL OF THE CONSELHO GESTOR (CLOSING OF PHASE I)

Upon concluding all tasks listed above, the Contractor will travel to São Paulo to formally present to PRODESP the findings and recommendations and a near final version of the report. The Grantee will be able to use this opportunity to ask questions or provide further comments and suggestions based on the presentation and draft of the Final Report.

The contractor will also provide a technical summary of the accomplishment of Tasks 1-10 along with an executive Summary to accompany the projects submission by PRODESP to the PPP Management Council (an interagency committee headed by the Secretary of Planning)

- Create accompanying PowerPoint presentation that the Casa Civil can give to the Board
- Identify any additional suggestions or recommendations that the Casa Civil might need to make prior to submission of project for Board Approval

Deliverable: Draft Final Report and Presentation

TASK 12:   FINAL REPORT

After the Presentation, the contractor will make the final changes suggested by the Grantee and submit the Final Report to both the Grantee and to TDA. The Contractor shall ensure that the Final Report is a substantive and comprehensive report of all of the work performed in accordance with these Terms of Reference, including all deliverables. The Final Report must be prepared in accordance with Clause I of Annex II of the Grant Agreement. The Contractor must identify prospective U.S. sources of supply in Final Report to be submitted to the Grantee and USTDA in accordance with Clause I of Annex II of the Grant Agreement.

The Final Report shall be a comprehensive document covering and synthesizing the findings of all the preceding tasks, providing PRODESP with the appropriate information, recommendations and guidelines. In the event that the Final Report contains confidential information, or information not yet made public, the Consultant Team shall take appropriate steps to ensure that sensitive information is not released inopportunely.

Deliverable: Final Report

ADDITIONAL COMMENTS

Comment 1: All Deliverables are to be supplied in the English language. Additionally, the Final Report and Presentation should be translated into Portuguese. The Contractor shall ensure the quality and accuracy of the translation.

Comment 2: More specific requirements concerning the composition of the Consultant Team are given in Section O of the DM report.

Comment 3: Successful execution of the FS presupposes that 1) the Consultant Team establishes a close working relationship between the Consultant Team for this project and for the related Data Center project PRODESP, and the Casa Civil's CQGP; 2) that the team is prepared to spend the necessary amount of time on-site in-country; and 3) the consultant team has appropriate access to the Casa Civil, and other government officials and personnel, resources and data. Successful performance of this FS is obviously dependent on full and timely availability of the resources in question. It is expected that candidate firms for carrying out the FS will address these issues in their proposals, both in general terms and in terms of specific requirements (e.g., for desk space, phone/fax, Internet connection).

PHASE TWO:

TASK 1: PREPARATION OF TOR FOR A BIDDING DOCUMENT FOR PPP

The Contractor will work with PRODESP, the Casa Civil, the CQGP technical committee, and any other personnel and potential private sector partners to prepare terms of reference for a bidding document (*Edital*) for the PPP that are consistent with Brazilian and São Paulo State legal requirements and assist in the writing of the *Edital*.

Deliverable: Preliminary Draft of Edital

TASK 2:   PRESENTATION AND APPROVAL FOR PUBLICATION

- Review of the essential and optional services, applications, and performance metrics to be included in the Edital
- Identify possible participants. Companies, and/or consortia that would be interested in bidding on the Edital
- Develop a timetable for publicizing the RFP and for awarding of the contract.

Deliverable: Complete and Near Final Draft of the Edital ready for Publication in both English and Portuguese

TASK 3:   PRESENTATION AND FINAL PHASE II REPORT

Upon concluding the preparation and publishing of the project *edital*, the Contractor, while still in São Paulo will formally present to Casa Civil the findings and recommendations of Phase II and a near final version of the report. The Grantee will be able to use this opportunity to ask questions or provide further comments and suggestions based on the presentation and draft of the Final Phase II Report.

After the Presentation, the contractor will make the final changes suggested by the Grantee and submit the Final Phase II Report to both the Grantee and to USTDA. The Contractor shall ensure that the Final Report is a substantive and comprehensive report of all of the work performed in accordance with these Terms of Reference for Phase II, including all deliverables. The Final Phase II Report must be prepared in accordance with Clause I of Annex II of the Grant Agreement. The Contractor must identify prospective U.S. sources of supply in Final Report to be submitted to the Grantee and USTDA in accordance with Clause I of Annex II of the Grant Agreement.

The Final Phase II Report shall be a comprehensive document covering and synthesizing the findings of all the preceding tasks, PRODESP with the appropriate information, recommendations and guidelines. In the event that the Final Report contains confidential information, or information not yet made public, the Consultant Team shall take appropriate steps to ensure that sensitive information is not released inopportunely.

Deliverable: Phase II Final Report

ADDITIONAL COMMENTS

Comment 1: All Deliverables are to be supplied in both English and Portuguese. Additionally, the Final Report and Presentation should be translated into Portuguese. The Contractor shall ensure the quality and accuracy of the translation.

Comment 2: More specific requirements concerning the composition of the Consultant Team are given in Section O of the DM report.

Comment 3: Successful execution of the FS presupposes that 1) the Consultant Team establishes a close working relationship between the Consultant Team and the Casa Civil. 2), that the team is prepared to spend the necessary amount of time on-site in-country; and 3) the consultant team has appropriate access to the Casa Civil, and other government officials and personnel, resources and data. Successful performance of the FS is obviously dependent on full and timely availability of the resources in question. It is expected that candidate firms for carrying

out the FS will address these issues in their proposals, both in general terms and in terms of specific requirements (e.g., for desk space, phone/fax, Internet connection).

ANNEX II: TERMS OF REFERENCE FOR SÃO PAULO STATE DATACENTER PROJECT

INTRODUCTION

The State Government of São Paulo, PRODESP, intends to upgrade and integrate five of the existing state datacenters, including the main PRODESP datacenter and those belonging to the *Diário Oficial* (Official Newspaper), and Secretariats of Public Safety, Finance and Health, and outsource day-to-day management and operations of the PRODESP datacenter, to a private sector firm under the federal and São Paulo State PPP laws. The basic objectives of this project are to meet the growing demand for information and communications technology (ICT) to support the State of São Paulo's e-Government program (applications, services, and portals) with agility, flexibility and efficiency under the strategic management of the state. The upgraded central PRODESP datacenter would provide better quality services at lower costs, improving government efficiency and facilitating the life of citizens through better health, education, public safety and other services.

PRODESP expects that the eventual USTDA-financed feasibility study would produce the necessary documentation describing the project, various economic scenarios, risk analysis, return on investment analysis (ROI), studies of total costs, and economic studies and reports taking into account worldwide experience with datacenters that would allow the Casa Civil and PRODESP to submit the datacenter project to the head of the state government and its state Managing Council for PPPs (*Conselho Gestor de Parcerias Público-Privadas* – CGPPP) for analysis. This data and analysis will enable the State to decide whether it should proceed with international competitive bidding using São Paulo's PPP legislation, approved in May 2004, or use an alternative financing mechanism. The feasibility study would recommend how to remunerate the contracted company or companies, using objective performance criteria, for the services derived from the investments that will have to be done initially and periodically for the renewal and upgrading of the infrastructure over the period of the PPP contract.

PRODESP expects the feasibility study to show how PRODESP's datacenter can become a corporate datacenter for the entire government, providing better quality and cheaper services than the existing system of multiple um-integrated datacenters. Among options to be studied are:

- creation of a back-up (mirror) site
- taking advantage of or integrating the state government's other smaller datacenters
- a hybrid model (part mirror site hosted by a private company, part taking advantage of the resources of the other existing datacenters

USTDA assistance will be divided into two phases – the feasibility study per se (Phase I), and, if the project is approved for bidding, preparation of the bidding documents (*edital*) (Phase II). USTDA will consider funding for Phase II after the State of São Paulo through the Secretariat of Planning and its CGPPP has approved the feasibility study and determined the mechanism by which it will implement the project (i.e., PPP or conventional service contract); and secured the required approvals for implementing the project. As such, we prepared separate Terms of Reference and Budgets for each phase and project structure.

SCOPE OF WORK

PHASE 1

TASK 1: PREPARATION AND BACKGROUND RESEARCH

The Contractor shall research the Brazil ICT and e-Government sectors. This would include background information on various e-Government programs, PPP Legislation, both on the State and Federal level. The review should also include a review and assessment of PPP projects, both successful and non-successful projects, in other countries. In conducting this review, first priority should be identifying PPP projects for datacenters. If these are few or none, then PPP projects where the technologies used are changing rapidly, with significant expected reductions in costs over time as hardware and software has to be updated because of technological/economic obsolescence, should be included. In addition to PPPs, projects for datacenters and other projects involving rapid technological change and operating under alternative medium-term and long-term contractual frameworks should be studied. A minimum of ten relevant PPPs or similar medium to long term contract projects meeting these specifications should be included in the study.

Deliverable: A report including case studies of relevant projects, identifying best practices and pitfalls or lessons relevant to the São Paulo datacenter project

TASK 2:   INITIAL VISIT AND ASSESSMENT OF CURRENT SITUATION

The consultant team members shall travel to São Paulo to familiarize themselves with the current situation and to meet with the Project's Sponsor, PRODESP. PRODESP is the State's IT Company, and reports to the Casa Civil. Contractors should also meet with staff of the Casa Civil's Committee for Quality in Public Management (CQGP), which will monitor the project, and with staff of the PPP Unit of the Secretariat of Economy and Planning (*Secretaria de Economia e Planejamento*).

The contractor should already be very familiar with the State and Federal PPP legislation, e-government initiatives, as well as Governmental public budget finance and project analysis.

TASK 3: CONDUCT A NEEDS/REQUIREMENTS ANALYSIS FOR THE UPGRADING OF DATACENTERERS

The consultant team members shall travel to São Paulo to review the current situation; meet with the Project's Sponsor and the key stakeholders in the project, PRODESP Casa Civil's CQGP, State Secretary of Planning (also chairs the committee deciding on PPPs), Secretariat of Education, Secretariat of Finance, Military Police, Official Press, and other Secretariats and government agencies; and conduct a needs/requirements analysis for the PRODESP datacenter and the four other most important datacenters -- those belonging to the *Diário Oficial* (Official Newspaper), and Secretariats of Public Safety, Finance and Health which PRODESP wants to upgrade and integrate with the PRODESP datacenter.

The contractor should already be very familiar with the State and Federal PPP legislation, e-Government initiatives, as well as Governmental public budget finance and project analysis in Brazil and São Paulo.

The basic objectives of this project are to meet the growing demand for information and communications technology (ICT) to support the State of São Paulo's e-Government program (applications, services, and portals) with agility, flexibility and efficiency under the strategic management of the state.

The Contractor will
- Meet with the project sponsor and major stakeholders to gain additional insights into their needs, interests, and expectations
- Visit each of the five most significant current datacenters in secretariats/agencies of the State of São Paulo (PRODESP, Diário Oficial – Official Newspaper, and Secretariats of Public Safety, Finance and Health), and conduct a needs and requirement analysis of each of these datacenters and determine the best method to meet these needs either through consolidating state datacenter operations or through integrating or linking them
- Identify factors which would help the Casa Civil and PRODESP get more secretariats/agencies of the State Government to become clients of the PRODESP datacenter.
- Conduct basic cost/benefit analyses for these five largest potential client secretariats/agencies for the PRODESP datacenter to help the Casa Civil and PRODESP get these key potential clients to join the project
- Conduct a security analysis of the present all five abovementioned datacenters and determine the best course of action to take to ensure the security and privacy of the information contained in the datacenters.
- Quantify the benefits in unit cost reduction and improved quality for datacenter services which can be achieved with the upgraded datacenters
- Estimate future demand for services of the five abovementioned state government datacenters and also the demand in the State of São Paulo for datacenter services of municipal governments given the possibility that the centralized datacenter might serve other clients than the secretariats and agencies of the State of São Paulo

Deliverable: Needs and Requirement Assessment document

TASK 4:   DEVELOP FUNCTIONAL SPECIFICATIONS, ARCHITECTURE, AND DATACENTER DESIGN

The contractor will:
- Analyze the findings from Task 3 and develop specifications regarding the architecture and design of the upgraded datacenters
- Develop more precision in the estimates of network designs, equipment needs and capacity, and resulting capital expenditure and operating costs
- Propose service level agreement (SLAs) for the new centralized datacenter
- Prepare a list of prospective US-based sources of supply for the datacenter and contact information, as required by USTDA

Deliverable: Datacenter Design and Architecture

TASK 5:   REVIEW OF LEGAL/REGULATORY ISSUES RELATED TO PPPS

The Contractor will
- Assess the status of PPP legislation at the São Paulo and national levels, and verify that there are no incompatibilities in the legislation.
- Identify the next steps the state government needs to take to reconcile any remaining incompatibilities
- Explore and assess whether PPP is the best legal outsourcing framework for this project or should an alternative outsourcing contract vehicle be used – this assessment should include a review of the alternative outsourcing contract vehicles and the legal pros and cons of each (at a minimum, federal law 8666 and the PPP legislation)
- Explore any possible legal and operational issues relating to the legal entities which the PPP legislation require be set up to implement PPPs (*Sociedades de Propósito Específico* – SPEs)
- Ascertain whether a legal ruling on whether the private partner in the proposed PPP can serve clients besides the state government of São Paulo has been made by the State Attorney General's Office (PGE) and any other relevant legal or judicial agencies that must pass off on this issue
- Determine and assess whether all the necessary *Regulamentos* for the PPP legislation have been issued or if not, what is their status

Deliverable: Legal/Regulatory Status and Review Report.

TASK 6:   ECONOMIC AND FINANCIAL ANALYSIS OF THE PROJECT

The Contractor will:
- Quantify the benefits in unit cost reduction and improved quality for datacenter services which can be achieved with the new datacenter or consolidated datacenter operations
- Assess all aspects of project feasibility (technical, economic, financial, political, legal and organizational) and their interrelations
- Prepare economic scenarios, risk analysis, rate return analysis, analysis of total cost of operation
- Recommend how to remunerate the private sector client and how the Government of São Paulo can share in productivity improvements arising from the use of more efficient technologies and increased returns to scale over the life of the PPP or other outsourcing contract.

Deliverables: Economic and Financial Analysis Report and report recommending the most effective structure of the project and supporting legal, economic and financial rationale

TASK 7:   ORGANIZATIONAL PREPAREDNESS

To support the development of a professional human resource function designed to be an effective source of capacity building. As PRODESP is the sponsor of both the Datacenter and the Intragov projects, the consultant in this task needs to work closely with the consultant team under the Intragov project in designing the organizational structure and requirements that would meet the needs of both projects in overseeing a privately operated entity.

- Identify and prioritize corporate governance issues that are necessary and critical to support the Strategic Business Plan
- Define the qualifications of the staff needed to carry out the project.
- Define the respective roles & relationships of the staff
- Identify the necessary support resources for work plan implementation, needed for work plan implementation in task 10, i.e., the development of the remaining tasks and phases, and for passage of the PPP plan through the respective PPP agencies and committees
- Create a mechanism for the Casa Civil and PRODESP to make use of these available resources use these resources or personnel
- Evaluate the need for organizational or structural changes needed to oversee a privately operated integrated datacenter
- Define the corporate governance structure
- Establish metrics and benchmarks
- Review current human capital deployment
- Identify opportunities for improvement of corporate governance structure
    o Barriers to success
    o Keys to Success
- Foster knowledge transfer and capacity building
    o Help prioritize training professional development needs and implement a regular training schedule
    o Help create communities of practice, by encouraging the sharing of knowledge and information with staff members doing the same type of job, or staff members on different technical committee, as well as staff that previously worked in their areas, to share information, failures, and successes.

Deliverable: HR, Knowledge Transfer, and Capacity Building Plan

TASK 8:   CONDUCT AN ENVIRONMENTAL ASSESSMENT
- Conduct a preliminary review and evaluation of the expected environmental impacts and their compatibility with both local regulations and the requirements of potential lending agencies, especially the World Bank, the IFC, and the IDB.
- Discuss how any potentially significant negative impacts can be minimized.
- Identify Agency/Department expectations priorities, opportunities, and trends,
- Analyze the environmental impact on legislative and judicial branches of government and other levels of government (Federal and Municipal).
- Verify possible transfers of effects, identify and adopt preventive measures and actions to obtain synergies with other departments and Agencies involved

Deliverable: Environmental assessment report

TASK 9:   DEVELOPMENTAL IMPACT ANALYSIS

The Contractor should identify and assess the developmental outcomes that would be expected if the Project is implemented in accordance with the recommendations of the Study. The Contractor should focus on estimating the Project's potential benefits in any or all of four areas: additions to infrastructure or industrial capacity; nature and effects of any legal/regulatory changes resulting from the Project; expected human capacity building; technology

transfer and its effects. The analysis of potential developmental benefits should be as concrete and detailed as possible and include at least one specific example of developmental impact for each area that is relevant for the Project. Any significant developmental impacts outside the four areas listed above should also be included.

Deliverable: A report setting forth the findings and opinions as specified above.

TASK 10:   PLANNING FOR PROJECT IMPLEMENTATION

The Contractor will assess and determine whether the critical success factors for project implementation have been met and the project risks identified have been accounted for and mitigated to the extent possible. The analysis should include the following risk factors and specify how they can be mitigated:

- The PPP Guarantee Fund be regulated, implemented, and well administered
- A successful change management process be conducted in the affected secretariats and government agencies
- The government shares with the private sector benefits of productivity increases arising from technological change, and not just the costs
- Continual monitoring of the contractual conditions in relation to the market is carried out – provisions for this need to be incorporated in the contract itself
- Training of state personnel in the management of outsourcing, SLA, SLM, etc.
- Clear definition of contract objectives (scope, service levels, metrics, requirements, etc.)
- Support from top government managers
- Priority for payments to private sector partner for strategic and critical activities outsourced
- Establishment and application of penalties for non compliance with contract conditions
- Definition of a clear process exiting from the contract and transition to another supplier
- The partnership between public and private sides becomes a conventional client and supplier relationship
- Other critical success factors inherent in outsourcing processes for IT

The Project Implementation Report will recommend the most appropriate structure for the project, summarize the steps that need to be undertaken by the government to implement the project according to recommended structure, e.g. any legal actions to reconcile the state and federal PPP legislation, the process of *regulamentação*, the steps involved with the creation of the new legal entity that is required if the project goes forward as a PPP - the SPE, the establishment of the state guarantee fund, and also address the phased approach/evolving scope of the State datacenter).   The report should address the issue of how Casa Civil and PRODESP can adapt the PPP or service contract to incorporate the evolving scope of the project.

Deliverable: Project Planning and Implementation Report

TASK 11:   PRESENTATION, DRAFT FINAL REPORT, AND APPROVAL OF THE CONSELHO GESTOR (CLOSING OF PHASE I)

Upon concluding all tasks listed above, the Contractor will travel to São Paulo to formally present to PRODESP the findings and recommendations and a near final version of the report. The Grantee will be able to use this opportunity to ask questions or provide further comments and suggestions based on the presentation and draft of the Final Report.

The Contractor will also provide a technical summary of the accomplishment of Tasks 1-10 along with an executive Summary to accompany the projects submission by PRODESP to the PPP Management Council (an interagency committee headed by the Secretary of Planning)
- Create accompanying PowerPoint presentation that PRODESP can give to the Board
- Identify any additional suggestions or recommendations that the Casa Civil might need to make prior to submission of project for Board Approval

Deliverable: Draft Final Report and Presentation

TASK 12:   PRESENTATION AND FINAL PHASE I REPORT

After the Presentation, the contractor will make the final changes suggested by the Grantee and submit the Final Report to both the Grantee and to TDA. The Contractor shall ensure that the Final Report is a substantive and comprehensive report of all of the work performed in accordance with these Terms of Reference, including all deliverables. The Final Report must be prepared in accordance with Clause I of Annex II of the Grant Agreement. The Contractor must identify prospective U.S. sources of supply in Final Report to be submitted to the Grantee and USTDA in accordance with Clause I of Annex II of the Grant Agreement.

The Final Phase I Report shall be a comprehensive document covering and synthesizing the findings of all the preceding tasks, providing PRODESP with the appropriate information, recommendations and guidelines. In the event that the Final Report contains confidential information, or information not yet made public, the Consultant Team shall take appropriate steps to ensure that sensitive information is not released inopportunely.

Deliverable: Phase I Final Report

ADDITIONAL COMMENTS

Comment 1: All Deliverables are to be supplied in the English language. Additionally, the Final Report and Presentation should be translated into Portuguese. The Contractor shall ensure the quality and accuracy of the translation.

Comment 2: More specific requirements concerning the composition of the Consultant Team are given in Section O of the DM report.

Comment 3: Successful execution of the FS presupposes that 1) the Consultant Team establishes a close working relationship between the Consultant Team and PRODESP. 2), that the team is prepared to spend the necessary amount of time on-site in-country; and 3) the consultant team has appropriate access to PRODESP, and other government officials and personnel, resources and data. Successful performance of the FS is obviously dependent on full and timely availability of the resources in question. It is expected that candidate firms for carrying out the FS will address these issues in their proposals, both in general terms and in terms of specific requirements (e.g., for desk space, phone/fax, Internet connection).

PHASE II:

TASK 1: PREPARATION OF TOR FOR A BIDDING DOCUMENT FOR PPP

The Contractor will work with PRODESP and any other personnel and potential private sector partners to prepare terms of reference for a bidding document (*Edital*) for the PPP that are consistent with Brazilian and São Paulo State legal requirements and assist in the writing of the Edital.

Deliverable: Preliminary Draft of Edital

TASK 2:   PRESENTATION AND APPROVAL FOR PUBLICATION

- Review of the essential and optional services, applications, and performance metrics to be included in the Edital
- Identifying possible participants. Companies, and/or consortia that would be interested in bidding on the Edital
- Developing a timetable for publicizing the RFP and for awarding of the contract.

Deliverable: Complete and Near Final Draft of the Edital ready for Publication

TASK 3:   PRESENTATION AND FINAL PHASE II REPORT

Upon concluding the preparation and publishing of the project *edital*, the Contractor, while still in São Paulo will formally present to Casa Civil the findings and recommendations of Phase II and a near final version of the report. The Grantee will be able to use this opportunity to ask questions or provide further comments and suggestions based on the presentation and draft of the Final Phase II Report.

After the Presentation, the contractor will make the final changes suggested by the Grantee and submit the Final Phase II Report to both the Grantee and to USTDA. The Contractor shall ensure that the Final Report is a substantive and comprehensive report of all of the work performed in accordance with these Terms of Reference for Phase II, including all deliverables. The Final Phase II Report must be prepared in accordance with Clause I of Annex II of the Grant Agreement. The Contractor must identify prospective U.S. sources of supply in Final Report to be submitted to the Grantee and USTDA in accordance with Clause I of Annex II of the Grant Agreement.

The Final Phase II Report shall be a comprehensive document covering and synthesizing the findings of all the preceding tasks, providing PRODESP with the appropriate information, recommendations and guidelines. In the event that the Final Report contains confidential information, or information not yet made public, the Consultant Team shall take appropriate steps to ensure that sensitive information is not released inopportunely.

Deliverable: Phase II Final Report

ADDITIONAL COMMENTS

Comment 1: All Deliverables are to be supplied in both English and Portuguese. The Local Specialist(s) on the Consultant Team shall ensure the quality and accuracy of the translation.

Comment 2: More specific requirements concerning the composition of the Consultant Team are given in Section O of the DM report.

Comment 3: Successful execution of the FS presupposes that 1) the Consultant Team establishes a close working relationship between the Consultant Team and the Casa Civil. 2), that the team is prepared to spend the necessary amount of time on-site in-country; and 3) the consultant team has appropriate access to the Casa Civil, and other government officials and personnel, resources and data. Successful performance of the FS is obviously dependent on full and timely availability of the resources in question. It is expected that candidate firms for carrying out the FS will address these issues in their proposals, both in general terms and in terms of specific requirements (e.g., for desk space, phone/fax, Internet connection).

ANNEX III- INTRAGOV BUDGET

Technical Assistance To The State Of São Paulo-Intragov Project Phase I Summary Table 1				
DIRECT LABOR (DL) (*)	NAME, TITLE & LABOR CATEGORY	DAILY (8HR) RATE	# PERSON DAYS	TOTAL
	Team Leader	$1,100	48	$52,800
	Int'l PPP Expert	$1,000	14	$14,000
	ICT Specialist w/Telecom Network Expertise	$1,000	31	$31,000
	ICT Specialist w/ ICT Governance Expertise	$1,000	31	$31,000
	Local Brazillian PPP Expert	$500	23	$11,500
	Brazilian Govt Budget Analyst	$500	22	$11,000
	Brazilian Project Analyst	$500	22	$11,000
Total			**191**	
OTHER DIRECT LABOR	Project Coordinator	$910	16	$14,560
TOTAL DIRECT LABOR				**$176,860**
OTHER DIRECT COSTS	(ODC)			
International Travel	US-São Paulo	1200	5	$6,000
Ground Transportation	São Paulo	400		$400
PER DIEM -$	São Paulo 75 days@246	246	75	$18,450
OTHER				
Visas		100	4	$400
Communications				$400
Translation				$8,000
Supplies, Copy & Reproduction				$750
TOTAL OTHER DIRECT COSTS (ODC)				**$ 34,400**
TOTAL BUDGET				**$ 211,260**

Notes:

(*) Labor rates for each specialist and/or subcontractor contain no mark-up for holidays, vacation, or sick-leave.

Assumptions:2 round trips for Team Leader, one trip each for the two ICT specialists and 1 trip for PPP expert

Per diems are equal to total estimated in-country days of US Consultant Team. Per diem at US Government rates
Rates shown are taken from the US State Department website: www.state.gov/m/a/als/prdm/2004/28724.htm

Cheap Fares to Brazil can be obtained through BACC Travel at 1800-222-2746 (www.bacctravel.com)

DIRECT LABOR (DL) (*)	NAME, TITLE & LABOR CATEGORY	DAILY (8HR) RATE (US$)	# PERSON DAYS	COST (US$)
Technical Assistance To The State Of São Paulo - Intragov Project Phase 1 **Table 2 -- Breakdown of Labor Costs per Task** *(Total Phase I Costs in Table 1)*				
Task 1				
Preparation & Background				
	Team Leader	1,100	4	4,400
	Int'l PPP Expert	1,000	2	2,000
	ICT Specialist w/Telecom Network Expertise	1,000	1	1,000
	ICT Specialist w/ ICT Governance Expertise	1,000	1	1,000
	Local Brazillian PPP Expert	500	1	500
	Brazilian Govt Budget Analyst	500		-
	Brazilian Project Analyst	500		-
	Project Coordinator	910	3	2,730
Subtotal Task 1			*12*	*11,630*
Task 2				
Initial Visit & Assessment				
	Team Leader	1,100	10	11,000
	Int'l PPP Expert	1,000	10	10,000
	ICT Specialist w/Telecom Network Expertise	1,000	5	5,000
	ICT Specialist w/ ICT Governance Expertise	1,000	5	5,000
	Local Brazillian PPP Expert	500	6	3,000
	Brazilian Govt Budget Analyst	500	2	1,000
	Brazilian Project Analyst	500	2	1,000
	Project Coordinator	910	3	2,730
Subtotal Task 2			*43*	*38,730*
Task 3				
Conduct A Needs/Requirement Analysis				
	Team Leader	1,100	3	3,300
	Int'l PPP Expert	1,000		-
	ICT Specialist w/Telecom Network Expertise	1,000	5	5,000
	ICT Specialist w/ ICT Governance Expertise	1,000	5	5,000
	Local Brazillian PPP Expert	500	2	1,000
	Brazilian Govt Budget Analyst	500	2	1,000
	Brazilian Project Analyst	500	2	1,000
	Project Coordinator	910	1	910
Subtotal Task 3			*20*	*11,210*
Task 4				
Develop Specs, Architecture, Business Model Etc				
	Team Leader	1,100	3	3,300
	Int'l PPP Expert	1,000		-

DIRECT LABOR (DL) (*)	NAME, TITLE & LABOR CATEGORY	DAILY (8HR) RATE (US$)	# PERSON DAYS	COST (US$)
Technical Assistance To The State Of São Paulo - Intragov Project Phase 1 **Table 2 -- Breakdown of Labor Costs per Task** *(Total Phase I Costs in Table 1)*				
	ICT Specialist w/Telecom Network Expertise	1,000	5	5,000
	ICT Specialist w/ ICT Governance Expertise	1,000	5	5,000
	Local Brazillian PPP Expert	500	2	1,000
	Brazilian Govt Budget Analyst	500	2	1,000
	Brazilian Project Analyst	500	2	1,000
	Project Coordinator	910	1	910
Subtotal Task 4			*20*	*17,210*
Task 5 **Review Of Legal/Regulatory Issues**				
	Team Leader	1,100	2	2,200
	Int'l PPP Expert	1,000		
	ICT Specialist w/Telecom Network Expertise	1,000		
	ICT Specialist w/ ICT Governance Expertise	1,000		
	Local Brazillian PPP Expert	500	5	2,500
	Brazilian Govt Budget Analyst	500		
	Brazilian Project Analyst	500		
	Project Coordinator	910	1	910
Subtotal Task 5			*8*	*5,610*
Task 6 **Economic And Financial Analysis**				
	Team Leader	1,100	3	3,300
	Int'l PPP Expert	1,000		
	ICT Specialist w/Telecom Network Expertise	1,000	2	2,000
	ICT Specialist w/ ICT Governance Expertise	1,000	2	2,000
	Local Brazillian PPP Expert	500		
	Brazilian Govt Budget Analyst	500	7	3,500
	Brazilian Project Analyst	500	5	2,500
	Project Coordinator	910	1	910
Subtotal Task 6			*20*	*14,210*
Task 7 **Organization**				
	Team Leader	1,100	3	3,300
	Int'l PPP Expert	1,000		
	ICT Specialist w/Telecom Network Expertise	1,000	2	2,000
	ICT Specialist w/ ICT Governance Expertise	1,000	2	2,000
	Local Brazillian PPP Expert	500		

DIRECT LABOR (DL) (*)	NAME, TITLE & LABOR CATEGORY	DAILY (8HR) RATE (US$)	# PERSON DAYS	COST (US$)

Technical Assistance To The State Of São Paulo - Intragov Project Phase 1
Table 2 -- Breakdown of Labor Costs per Task
(Total Phase I Costs in Table 1)

DIRECT LABOR (DL) (*)	NAME, TITLE & LABOR CATEGORY	DAILY (8HR) RATE (US$)	# PERSON DAYS	COST (US$)
	Brazilian Govt Budget Analyst	500		
	Brazilian Project Analyst	500		
	Project Coordinator	910	1	910
Subtotal Task 7			*8*	*8,210*
Task 8				
Environmental Assessment				
	Team Leader	1,100	1	1,100
	Int'l PPP Expert	1,000		
	ICT Specialist w/Telecom Network Expertise	1,000		
	ICT Specialist w/ ICT Governance Expertise	1,000		
	Local Brazillian PPP Expert	500		
	Brazilian Govt Budget Analyst	500		
	Brazilian Project Analyst	500	1	500
	Project Coordinator	910	1	910
Subtotal Task 8			*3*	*2,510*
Task 9				
Developmental Impact Analysis				
	Team Leader	1,100	3	3,300
	Int'l PPP Expert	1,000		
	ICT Specialist w/Telecom Network Expertise	1,000		
	ICT Specialist w/ ICT Governance Expertise	1,000		
	Local Brazillian PPP Expert	500		
	Brazilian Govt Budget Analyst	500	3	1,500
	Brazilian Project Analyst	500	4	2,000
	Project Coordinator	910	1	910
Subtotal Task 9			*11*	*7,710*
Task 10				
Project Planning And Implementation				
	Team Leader	1,100	3	3,300
	Int'l PPP Expert	1,000		
	ICT Specialist w/Telecom Network Expertise	1,000	2	2,000
	ICT Specialist w/ ICT Governance Expertise	1,000	2	2,000
	Local Brazillian PPP Expert	500	2	1,000
	Brazilian Govt Budget Analyst	500	2	1,000
	Brazilian Project Analyst	500	2	1,000
	Project Coordinator	910	1	910
Subtotal Task 10			*14*	*11,210*
Task 11				

Technical Assistance To The State Of São Paulo - Intragov Project Phase 1 Table 2 -- Breakdown of Labor Costs per Task *(Total Phase I Costs in Table 1)*				
DIRECT LABOR (DL) (*)	NAME, TITLE & LABOR CATEGORY	DAILY (8HR) RATE (US$)	# PERSON DAYS	COST (US$)
Draft Final Report, Presentation, & Approval Of The Conselho Gestor				
	Team Leader	1,100	11	
	Int'l PPP Expert	1,000	2	
	ICT Specialist w/Telecom Network Expertise	1,000	8	
	ICT Specialist w/ ICT Governance Expertise	1,000	8	
	Local Brazillian PPP Expert	500	4	2,000
	Brazilian Govt Budget Analyst	500	3	1,500
	Brazilian Project Analyst	500	3	1,500
	Project Coordinator	910	1	910
Subtotal Task 11			*40*	*5,910*
Task 12 Presentation And Final Report				
	Team Leader	1,100	2	2,200
	Int'l PPP Expert	1,000		0
	ICT Specialist w/Telecom Network Expertise	1,000	1	1,000
	ICT Specialist w/ ICT Governance Expertise	1,000	1	1,000
	Local Brazillian PPP Expert	500	1	500
	Brazilian Govt Budget Analyst	500	1	500
	Brazilian Project Analyst	500	1	500
	Project Coordinator	910	1	910
Subtotal Task 12			*8*	*6,610*
Total Direct Labor Phase 1	Team Leader	1,100	48	52,800
	Int'l PPP Expert	1,000	14	14,000
	ICT Specialist w/Data Center Expertise	1,000	31	31,000
	ICT Specialist w/ ICT Govt Expertise	1,000	31	31,000
	Local Brazillian PPP Expert	500	23	11,500
	Brazilian Govt Budget Analyst	500	22	11,000
	Brazilian Project Analyst	500	22	11,000
	Project Coordinator	910	16	14,560
Total Phase I Specialists			**207**	**176,860**
TOTAL DIRECT LABOR				**176,860**

DIRECT LABOR (DL) (*)	NAME, TITLE & LABOR CATEGORY	DAILY (8HR) RATE US$	# PERSON DAYS	TOTAL US$
Technical Assistance To The State Of São Paulo - Intragov Project Phase II- PPP Structure **Table 3** ***(Breakdown of labor costs by task in Table 4)***				
	Team Leader	1,100	17	18,700
	Int'l PPP Expert	1,000	3	3,000
	ICT Specialist w/Telecom Network Expertise	1,000	14	14,000
	ICT Specialist w/ ICT Governance Expertise	1,000	14	14,000
	Local Brazillian PPP Expert	500	13	6,500
	Brazilian Govt Budget Analyst	500	7	3,500
	Brazilian Project Analyst	500	7	3,500
	Procurement Specialist	1,000	7	7,000
Total			82	**70,200**
OTHER DIRECT LABOR	Project Coordinator, Brazil	910	8	6,825
TOTAL DIRECT LABOR			90	**77,025**
OTHER DIRECT COSTS	(ODC)			
International Travel	US-São Paulo	1,200	4	4,800
Ground Transportation	São Paulo	200		200
PER DIEM -$	São Paulo 30 days@246	246	30	7,380
OTHER				
Communications				400
Translation				3,000
Supplies, Copy & Reproduction				250
TOTAL OTHER DIRECT COSTS (ODC)				**16,030**
TOTAL BUDGET				**93,055**

Notes:

(*) Labor rates for each specialist and/or subcontractor contain no mark-up for holidays, vacation, or sick-leave.

Assumptions: 2 round trips for Team Leader and 1 round trip for each of the ICT specialists and the PPP specialist.

Per diems are equal to total estimated in-country days of US Consultant Team. Per diem at US Government rates
Rates shown are taken from the US State Department website: www.state.gov/m/a/als/prdm/2004/28724.htm

Cheap Fares to Brazil can be obtained through BACC Travel at 1800-222-2746 (www.bacctravel.com)

Technical Assistance To The State Of São Paulo - Intragov Project Phase II - PPP Structure				
Table 4 -- Breakdown of Labor Costs per Task				
(Total Phase II Costs in Table 3)				
DIRECT LABOR (DL) (*)	NAME, TITLE &	DAILY (8HR) RATE (US$)	# PERSON DAYS	COST (US$)
	LABOR CATEGORY			
Task 1				
Preparation of TOR For PPP Edital	Team Leader	1,100	9	9,900
	Int'l PPP Expert	1,000	2	2,000
	ICT Specialist w/Telecom Network Expertise	1,000	9	9,000
	ICT Specialist w/ ICT Governance Expertise	1,000	9	9,000
	Local Brazillian PPP Expert	500	9	4,500
	Brazilian Govt Budget Analyst	500	4	2,000
	Brazilian Project Analyst	500	4	2,000
	Procurement Specialist	1,000	4	4,000
	Project Coordinator	910	2	1,820
Subtotal Task 1			*52*	*44,220*
Task 2				
Present. & Approval For Publication	Team Leader	1,100	4	4,400
	Int'l PPP Expert	1,000	1	1,000
	ICT Specialist w/Telecom Network Expertise	1,000	3	3,000
	ICT Specialist w/ ICT Governance Expertise	1,000	3	3,000
	Local Brazillian PPP Expert	500	3	1,500
	Brazilian Govt Budget Analyst	500	2	1,000
	Brazilian Project Analyst	500	2	1,000
	Procurement Specialist	1,000	2	2,000
	Project Coordinator	910	2	1,820
Subtotal Task 2			*22*	*18,720*
Task 3	Team Leader	1,100	4	4,400
Preparation of Phase II Report	Int'l PPP Expert	1,000		0
	ICT Specialist w/Telecom Network Expertise	1,000	2	2,000
	ICT Specialist w/ ICT Governance Expertise	1,000	2	2,000
	Local Brazillian PPP Expert	500	1	500
	Brazilian Govt Budget Analyst	500	1	500
	Brazilian Project Analyst	500	1	500
	Procurement Specialist	1,000	1	1,000
	Project Coordinator	910	4	3,185
Subtotal Task 2			*16*	*14,085*
Total Direct Labor Phase 2	Team Leader	1,100	17	18,700
	Int'l PPP Expert	1,000	3	3,000
	ICT Specialist w/Telecom Network Expertise	1,000	14	14,000
	ICT Specialist w/ ICT Governance Expertise	1,000	14	14,000
	Local Brazillian PPP Expert	500	13	6,500
	Brazilian Govt Budget Analyst	500	7	3,500
	Brazilian Project Analyst	500	7	3,500
	Procurement Specialist	1,000	7	7,000
	Project Coordinator	910	8	6,825
GRAND TOTAL			90	77,025

ANNEX IV- DATACENTER BUDGET

Technical Assistance To The State Of São Paulo-Datacenter Project Phase I-Summary Table 1				
(Breakdown of labor costs by task in Table 2)	NAME, TITLE or Nature of Item	DAILY (8HR)	# PERSON	TOTAL
DIRECT LABOR (DL) (*)	Team Leader	1,100	54	59,400
	Int'l PPP Expert	1,000	16	16,000
	ICT Specialist w/Datacenter Expertise	1,000	40	40,000
	ICT Specialist w/ ICT Governance Expertise	1,000	40	40,000
	Local Brazillian PPP Expert	500	27	13,500
	Brazilian Govt Budget Analyst	500	33	16,500
	Brazilian Project Analyst	500	33	16,500
Total			**243**	
OTHER DIRECT LABOR	Project Coordinator	910	21	19,110
TOTAL DIRECT LABOR				**221,010**
OTHER DIRECT COSTS	(ODC)			
International Travel	US-São Paulo	1,200	5	6,000
Ground Transportation	São Paulo	600		600
PER DIEM -$	São Paulo 105 days@246	246	105	25,830
OTHER				
Visas		100	4	400
Communications				400
Translation				10,000
Supplies, Copy & Reproduction				750
TOTAL OTHER DIRECT COSTS (ODC)				**43,980**
TOTAL BUDGET				**264,990**

Notes:
(*) Labor rates for each specialist and/or subcontractor contain no mark-up for holidays, vacation, or sick-leave.

Assumptions:2 round trips for Team Leader, one trip each for the two ICT specialists and the PPP specialist.

Per diems are equal to total estimated in-country days of US Consultant Team. Per diem is at US Government rates
Rates shown are taken from the US State Department website: www.state.gov/m/a/als/prdm/2004/28724.htm

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Technical Assistance To The State Of São Paulo - Datacenter Project Phase 1
Table 2 -- Breakdown of Labor Costs per
Task
(Total Phase I Costs in Table 1)

DIRECT LABOR (DL) (*)	NAME, TITLE & LABOR CATEGORY	DAILY (8HR) RATE	# PERSON DAYS	COST (US$)
Task 1 **Preparation &** **Background**				
	Team Leader	1100	4	4,400
	Int'l PPP Expert	1000	2	2,000
	ICT Specialist w/Datacenter Expertise	1000	1	1,000
	ICT Specialist w/ ICT Governance Expertise	1000	1	1,000
	Local Brazillian PPP Expert	500	1	500
	Brazilian Govt Budget Analyst	500		-
	Brazilian Project Analyst	500		-
	Project Coordinator	910	3	2,730
Subtotal Task 1			*12*	*11,630*
Task 2 **Initial Visit &** **Assessment**				
	Team Leader	1100	12	13,200
	Int'l PPP Expert	1000	12	12,000
	ICT Specialist w/Datacenter Expertise	1000	7	7,000
	ICT Specialist w/ ICT Governance Expertise	1000	7	7,000
	Local Brazillian PPP Expert	500	10	5,000
	Brazilian Govt Budget Analyst	500	4	2,000
	Brazilian Project Analyst	500	4	2,000
	Project Coordinator	910	4	3,640
Subtotal Task 2			*60*	*51,840*
Task 3 **Conduct A Needs/Requirement Analysis**				
	Team Leader	1100	5	5,500
	Int'l PPP Expert	1000		-
	ICT Specialist w/Datacenter Expertise	1000	8	8,000
	ICT Specialist w/ ICT Governance Expertise	1000	8	8,000
	Local Brazillian PPP Expert	500	2	1,000
	Brazilian Govt Budget Analyst	500	4	2,000
	Brazilian Project Analyst	500	4	2,000
	Project Coordinator	910	2	1,820
Subtotal Task 3			*33*	*28,320*
Task 4 **Develop Specs, Architecture, Business Model Etc**				
	Team Leader	1100	4	4,400
	Int'l PPP Expert	1000		-
	ICT Specialist w/Datacenter Expertise	1000	6	6,000

Technical Assistance To The State Of São Paulo - Datacenter Project Phase 1 Table 2 -- Breakdown of Labor Costs per Task (Total Phase I Costs in Table 1)			
ICT Specialist w/ ICT Governance Expertise	1000	6	6,000
Local Brazillian PPP Expert	500	3	1,500
Brazilian Govt Budget Analyst	500	4	2,000
Brazilian Project Analyst	500	4	2,000
Project Coordinator	910	2	1,820
Subtotal Task 4		*29*	*23,720*
Task 5			
Review Of Legal/Regulatory Issues			
Team Leader	1100	2	2,200
Int'l PPP Expert	1000		
ICT Specialist w/Datacenter Expertise	1000		
ICT Specialist w/ ICT Governance Expertise	1000		
Local Brazillian PPP Expert	500	5	2,500
Brazilian Govt Budget Analyst	500		
Brazilian Project Analyst	500		
Project Coordinator	910	1	910
Subtotal Task 5		*8*	*5,610*
Task 6			
Economic And Financial Analysis			
Team Leader	1100	4	4,400
Int'l PPP Expert	1000		0
ICT Specialist w/Datacenter Expertise	1000	3	3,000
ICT Specialist w/ ICT Governance Expertise	1000	3	3,000
Local Brazillian PPP Expert	500		0
Brazilian Govt Budget Analyst	500	10	5,000
Brazilian Project Analyst	500	8	4,000
Project Coordinator	910	2	1,820
Subtotal Task 6		*30*	*21,220*
Task 7			
Organization			
Team Leader	1100	3	3,300
Int'l PPP Expert	1000		
ICT Specialist w/Datacenter Expertise	1000	2	2,000
ICT Specialist w/ ICT Governance Expertise	1000	2	2,000
Local Brazillian PPP Expert	500		
Brazilian Govt Budget Analyst	500		
Brazilian Project Analyst	500		
Project Coordinator	910	1	910
Subtotal Task 7		*8*	*8,210*
Task 8			
Environmental Assessment			
Team Leader	1100	1	1,100

Technical Assistance To The State Of São Paulo - Datacenter Project Phase 1 Table 2 -- Breakdown of Labor Costs per Task (Total Phase I Costs in Table 1)			
	Int'l PPP Expert	1000		
	ICT Specialist w/Datacenter Expertise	1000		
	ICT Specialist w/ ICT Governance Expertise	1000		
	Local Brazillian PPP Expert	500		
	Brazilian Govt Budget Analyst	500		
	Brazilian Project Analyst	500	1	500
	Project Coordinator	910	1	910
Subtotal Task 8			**3**	**2,510**
Task 9				
Developmental Impact Analysis				
	Team Leader	1100	3	3,300
	Int'l PPP Expert	1000		
	ICT Specialist w/Datacenter Expertise	1000		
	ICT Specialist w/ ICT Governance Expertise	1000		
	Local Brazillian PPP Expert	500		
	Brazilian Govt Budget Analyst	500	3	1,500
	Brazilian Project Analyst	500	4	2,000
	Project Coordinator	910	1	910
Subtotal Task 9			**11**	**7,710**
Task 10				
Project Planning And Implementation				
	Team Leader	1100	3	3,300
	Int'l PPP Expert	1000		
	ICT Specialist w/Datacenter Expertise	1000	4	4,000
	ICT Specialist w/ ICT Governance Expertise	1000	4	4,000
	Local Brazillian PPP Expert	500	2	1,000
	Brazilian Govt Budget Analyst	500	4	2,000
	Brazilian Project Analyst	500	4	2,000
	Project Coordinator	910	2	910
Subtotal Task 10			**23**	**17,210**
Task 11				
Draft Final Report, Presentation, & Approval Of The Conselho Gestor				
	Team Leader	1100	11	12,100
	Int'l PPP Expert	1000	2	2,000
	ICT Specialist w/Datacenter Expertise	1000	8	8,000
	ICT Specialist w/ ICT Governance Expertise	1000	8	8,000
	Local Brazillian PPP Expert	500	4	2,000
	Brazilian Govt Budget Analyst	500	3	1,500
	Brazilian Project Analyst	500	3	1,500
	Project Coordinator	910	1	910
Subtotal Task 11			**40**	**36,010**
Task 12				
Presentation And Final Report				
	Team Leader	1100	2	2,200
	Int'l PPP Expert	1000		0

Technical Assistance To The State Of São Paulo - Datacenter Project Phase 1 Table 2 -- Breakdown of Labor Costs per Task *(Total Phase I Costs in Table 1)*			
ICT Specialist w/Datacenter Expertise	1000	1	1,000
ICT Specialist w/ ICT Governance Expertise	1000	1	1,000
Local Brazillian PPP Expert	500	1	500
Brazilian Govt Budget Analyst	500	1	500
Brazilian Project Analyst	500	1	500
Project Coordinator	910	1	910
Subtotal Task 12		*8*	*6,610*
Total Direct Labor Phase 1			
Team Leader	1100	54	59,400
Int'l PPP Expert	1000	16	16,000
ICT Specialist w/Datacenter Expertise	1000	40	40,000
ICT Specialist w/ ICT Govt Expertise	1000	40	40,000
Local Brazillian PPP Expert	500	28	14,000
Brazilian Govt Budget Analyst	500	33	16,500
Brazilian Project Analyst	500	33	16,500
Project Coordinator	910	21	19,110
Total Phase I Specialists		**265**	**221,510**
TOTAL DIRECT LABOR			**221,510**

Technical Assistance To The State Of São Paulo - Intragov Project Phase II- PPP Structure Table 3 *(Breakdown of labor costs by task in Table 4)*	NAME, TITLE & LABOR CATEGORY	DAILY (8HR) RATE (US$)	# PERSON DAYS	TOTAL (US$)
DIRECT LABOR (DL) (*)	Team Leader	1,100	17	18,700
	Int'l PPP Expert	1,000	3	3,000
	ICT Specialist w/Telecom Network Expertise	1,000	14	14,000
	ICT Specialist w/ ICT Governance Expertise	1,000	14	14,000
	Local Brazillian PPP Expert	500	13	6,500
	Brazilian Govt Budget Analyst	500	7	3,500
	Brazilian Project Analyst	500	7	3,500
	Procurement Specialist	1,000	7	7,000
Total			82	**70,200**
OTHER DIRECT LABOR	Project Coordinator, Brazil	910	8	6,825
TOTAL DIRECT LABOR			90	**77,025**
OTHER DIRECT COSTS	(ODC)			
International Travel	US-São Paulo	1,200	4	4,800
Ground Transportation	São Paulo	200		200
PER DIEM -$	São Paulo 30 days@246	246	30	7,380
OTHER				
Communications				400
Translation				3,000
Supplies, Copy & Reproduction				250
TOTAL OTHER DIRECT COSTS (ODC)				**16,030**
TOTAL BUDGET				**93,055**

Notes:

(*) Labor rates for each specialist and/or subcontractor contain no mark-up for holidays, vacation, or sick-leave.

Assumptions: 2 round trips for Team Leader and 1 round trip for each of the ICT specialists

Per diems are equal to total estimated in-country days of US Consultant Team. Per diem at US Government rates

Rates shown are taken from the US State Department website: www.state.gov/m/a/als/prdm/2004/28724.htm

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Technical Assistance To The State of São Paulo - Datacenter Project Phase II- PPP Structure Table 3 *(Breakdown of labor costs by task in Table 4)*				
	NAME, TITLE & LABOR CATEGORY	DAILY (8HR) RATE (U$)	# PERSON DAYS	TOTAL (US$)
DIRECT LABOR (DL) (*)	Team Leader	1,100	18	19,800
	Int'l PPP Expert	1,000	3	3,000
	ICT Specialist w/Datacenter Expertise	1,000	16	16,000
	ICT Specialist w/ ICT Governance Expertise	1,000	16	16,000
	Local Brazillian PPP Expert	500	15	7,500
	Brazilian Govt Budget Analyst	500	10	5,000
	Brazilian Project Analyst	500	10	5,000
	Procurement Specialist	1,000	10	10,000
Total			98	**82,300**
OTHER DIRECT LABOR	Project Coordinator, Brazil	910	9	7,735
TOTAL DIRECT LABOR			107	**90,035**
OTHER DIRECT COSTS	(ODC)			
International Travel	US-São Paulo	1,200	4	4,800
Ground Transportation	São Paulo	250		250
PER DIEM -$	São Paulo 38 days@246	246	38	9,348
OTHER				
Communications				400
Translation				3,000
Supplies, Copy & Reproduction				250
TOTAL OTHER DIRECT COSTS (ODC)				**18,048**
TOTAL BUDGET				**108,083**

Notes:
(*) Labor rates for each specialist and/or subcontractor contain no mark-up for holidays, vacation, or sick-leave.

Assumptions: 1 round trip for Team Leader and 2 round trips for the ICT specialists

Per diems are equal to total estimated in-country days of US Consultant Team. Per diem is at US Government rates
Rates shown are taken from the US State Department website: www.state.gov/m/a/als/prdm/2004/28724.htm

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Technical Assistance To The State Of São Paulo - Datacenter Project Phase II - PPP Structure Table 4 -- Breakdown of Labor Costs per Task *(Total Phase II Costs in Table 3)*				
DIRECT LABOR (DL) (*)	NAME, TITLE & LABOR CATEGORY	DAILY (8HR) RATE (US$)	# PERSON DAYS	COST (US$)
Task 1 **Preparation of TOR For PPP** **Edital**	Team Leader	1,100	11	12,100
	Int'l PPP Expert	1,000	2	2,000
	ICT Specialist w/Telecom Network Expertise	1,000	11	11,000
	ICT Specialist w/ ICT Governance Expertise	1,000	11	11,000
	Local Brazillian PPP Expert	500	11	5,500
	Brazilian Govt Budget Analyst	500	7	3,500
	Brazilian Project Analyst	500	7	3,500
	Procurement Specialist	1,000	7	7,000
	Project Coordinator	910	3	2,730
Subtotal Task 1			*70*	*58,330*
Task 2 **Present. & Approval For** **Publication**	Team Leader	1,100	3	3,300
	Int'l PPP Expert	1,000	1	1,000
	ICT Specialist w/Datacenter Expertise	1,000	3	3,000
	ICT Specialist w/ ICT Governance Expertise	1,000	3	3,000
	Local Brazillian PPP Expert	500	3	1,500
	Brazilian Govt Budget Analyst	500	2	1,000
	Brazilian Project Analyst	500	2	1,000
	Procurement Specialist	1,000	2	2,000
	Project Coordinator	910	2	1,820
Subtotal Task 2			*21*	*17,620*
Task 3 **Preparation of Phase II Report**	Team Leader	1,100	4	4,400
	Int'l PPP Expert	1,000		0
	ICT Specialist w/Telecom Network Expertise	1,000	2	2,000
	ICT Specialist w/Datacenter Expertise	1,000	2	2,000
	Local Brazillian PPP Expert	500	1	500
	Brazilian Govt Budget Analyst	500	1	500
	Brazilian Project Analyst	500	1	500
	Procurement Specialist	1,000	1	1,000
	Project Coordinator	910	4	3,185
Subtotal Task 2			*16*	*14,085*
Total Direct Labor Phase 2	Team Leader	1,100	18	19,800
	Int'l PPP Expert	1,000	3	3,000
	ICT Specialist w/Datacenter Expertise	1,000	16	16,000
	ICT Specialist w/ ICT Governance Expertise	1,000	16	16,000
	Local Brazillian PPP Expert	500	15	7,500
	Brazilian Govt Budget Analyst	500	10	5,000
	Brazilian Project Analyst	500	10	5,000
	Procurement Specialist	1,000	10	10,000

Technical Assistance To The State Of São Paulo - Datacenter Project Phase II - PPP Structure Table 4 -- Breakdown of Labor Costs per Task (Total Phase II Costs in Table 3)		DAILY (8HR) RATE (US$)	# PERSON DAYS	COST (US$)
DIRECT LABOR (DL) (*)	NAME, TITLE & LABOR CATEGORY			
	Project Coordinator	910	9	7,735
GRAND TOTAL			**107**	**90,035**

Technical Assistance To The State Of São Paulo - Datacenter Project Phase II - 8666 Structure Table 4 -- Breakdown of Labor Costs per Task *(Total Phase II Costs in Table 3)*				
DIRECT LABOR (DL) (*)	NAME, TITLE & LABOR CATEGORY	DAILY (8HR) RATE	# PERSON DAYS	COST
Task 1 **Preparation of TOR For PPP** **Edital**	Team Leader	1,100	11	12,100
	ICT Specialist w/Telecom Network Expertise	1,000	11	11,000
	ICT Specialist w/ ICT Governance Expertise	1,000	11	11,000
	Brazilian Govt Budget Analyst	500	5	2,500
	Brazilian Project Analyst	500	5	2,500
	Procurement Specialist	1,000	5	5,000
	Project Coordinator	910	3	2,730
Subtotal Task 1			*51*	*46,830*
Task 2 **Present. & Approval For** **Publication**	Team Leader	1,100	3	3,300
	ICT Specialist w/Datacenter Expertise	1,000	3	3,000
	ICT Specialist w/ ICT Governance Expertise	1,000	3	3,000
	Brazilian Govt Budget Analyst	500	2	1,000
	Brazilian Project Analyst	500	2	1,000
	Procurement Specialist	1,000	2	2,000
	Project Coordinator	910	2	1,820
Subtotal Task 2			*17*	*15,120*
Task 3	Team Leader	1,100	4	4,400
Preparation of Phase II Report	ICT Specialist w/Telecom Network Expertise	1,000	2	2,000
	ICT Specialist w/Datacenter Expertise	1,000	2	2,000
	Brazilian Govt Budget Analyst	500	1	500
	Brazilian Project Analyst	500	1	500
	Procurement Specialist	1,000	1	1,000
	Project Coordinator	910	4	3,185
Subtotal Task 2			*15*	*13,585*
Total Direct Labor Phase 2	Team Leader	1,100	18	19,800
	ICT Specialist w/Datacenter Expertise	1,000	16	16,000
	ICT Specialist w/ ICT Governance Expertise	1,000	16	16,000
	Brazilian Govt Budget Analyst	500	8	4,000
	Brazilian Project Analyst	500	8	4,000
	Procurement Specialist	1,000	8	8,000
	Project Coordinator	910	9	7,735
GRAND TOTAL			83	75,535

ANNEX V – CONTACTS

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