

Definitional Mission to Evaluate the State of Minas Gerais Datacenter Project

Final Report

**Submitted by
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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 a project for the State Government of Minas Gerais to upgrade and integrate state datacenters, proposed to be carried out either under Brazilian National and Minas Gerais Public Sector - Private Sector Partnership (PPP) legislation or under the conventional concession arrangements of Law 8666/97. The DM sought to determine whether this project is 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.

The Minas Gerais project involves the creation of a new centralized datacenter associated with the new Administrative Center, a signature project of the Aécio Neves administration now under construction between downtown Belo Horizonte and the Tancredo Neves International Airport beside the *Linha Verde* freeway. This new datacenter would integrate and upgrade existing datacenters supporting the state's e-government program – over a period of ten-years or more. If successful, this project is likely to serve as a model for other e-government infrastructure projects at the national, state and municipal level in Brazil and other countries.

During the period 12-14 March 2008, H&A Consultant Peter Knight, conducted meetings with key managers and staff in Minas Gerais' PPP Unit in the Secretariat of Economic Development (SEDE) and Secretariat of Planning and Management (SEPLAG), the project proponents. Meetings were also held with managers and staff dealing with various e-government functions in the Secretariat of Planning, PRODEMGE (the state information and communications technology company), the Secretariats of Finance and Science, Technology and Higher Education, and the Official Newspaper (*Diário Oficial*). Wrap-up discussions with the PPP Unit and SEPLAG reviewed preliminary findings and the steps that need to be taken to use the PPP mechanism. A list of all the individuals met in Belo Horizonte appears in Annex 4.

To gain additional background and perspective, HA Consultant visited a potential private sector partner for both the new datacenter and the planned Minas Gerais Government voice, data and video network, the Central Brazil Telecommunications Company (CTBC) in Belo Horizonte. H&A also contacted five subsidiaries of United States companies in São Paulo and Brasília –, Cisco, EDS, IBM, Oracle, and Sun Microsystems – and a Brazilian company closely associated with Verisign (Certisign) and selling Verisign products. These companies could together or separately serve as private sector partners for the proposed centralized datacenter.

H&A ascertained that the proposed project fits well within a broader Minas Gerais strategy developing its e-government infrastructure using either a PPP or a Law 8666 framework, with expected savings in both capital and current expenditures. The project also met a basic requirement for a PPP under the state PPP law, namely that it be included in the current Multiyear Investment Program (PPA). On the organizational side, the PPP Unit, with support from the SEPLAG, has the technical capacity to manage the public side of the proposed datacenter PPP, 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 document (*edital*) to select private sector partners. The first Brazilian legislation establishing defining the parameters within which PPPs may be negotiated (Lei nº 14.868) was signed by Minas Gerais Governor Aécio Neves on 16 December 2003, a year ahead of the corresponding federal legislation (Law 11,079 of 30 December 2004). SEDE's PPP Unit has already launched one PPP for a state highway and has others under preparation for penitentiaries and a government voice, data and video network. The DM raised the issue as to whether a PPP is the best legal framework for outsourcing datacenter services. 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, and this is recognized by SEPLAG and the PPP Unit.

The proposed project offers important economic benefits in the form of reduced unit costs and improved quality 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 Bank Group) is interested in financing a private sector partner for this and other e-Government outsourcing projects in Brazil. 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\$1 billion loan for Minas Gerais, to support public administration reform which could directly or indirectly help finance the datacenter project.

The State of Minas Gerais annual budget has been allocating on the order of US\$30 million per year for various decentralized datacenters, notably those of PRODEMGE; the Secretariats of Finance, Education and Health; and the Official Newspaper, though there are a number of smaller datacenters, some of them hosted within the PRODEMGE datacenter. This level of expenditure can be expected to be continued as a payment to a private

sector partner in a PPP for building and operating the new centralized state datacenter, 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 believes that funding of technical assistance to conduct a detailed feasibility study on behalf of SEDE's PPP Unit meets the USTDA funding criteria and would represent a good use of USTDA resources. The study would estimate future demand for datacenter services, propose service level agreements, suggest equipment to meet the projected demand. The study would also 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 under federal Law 8666 might be a better option. H&A also believes that the proposed datacenter project presents 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 feasibility study in question, under the conditions set forth in the accompanying Terms of Reference (Annex 1), at a total budget level of \$424,445 for Phase One and \$128,185 for Phase Two for the datacenter project if a PPP structure is used and \$116,575 for Phase Two if a Law 8666 contracting framework is used instead of a PPP structure.

A. THE DEFINITIONAL MISSION

The Definitional Mission for (DM) for the Minas Gerais datacenter project was conducted in Belo Horizonte and Minas Gerais, Brazil from March 12-27, 2008, 2005 with participation of the Commercial Officer and the Commercial Specialist for the ICT Sector of the US Consulate General in Minas Gerais. The general purpose of the DM was to examine a key project associated with the signature project of the Aécio Neves administration, the new Administrative Center now under construction on the outskirts of Belo Horizonte along the "Green Line" freeway about 12 km from Belo Horizonte's international airport to which most existing state government offices will be transferred beginning in 2010. The new datacenter may or may not be physically located in the Administrative Center, but it would play a key role in transforming public administration in Minas Gerais to be citizen-oriented as specified in the Mineiro Plan for Integrated Development (*Plano Mineiro de Desenvolvimento Integrado – PMDI*) which sets forth an attractive vision for making Minas Gerais the best Brazilian state to live in, the goal of both of Aécio Neves administrations. The project proponents, the Minas Gerais Public Private Partnership Unit in the Secretariat for Economic Development (SEDE) and the Secretariat of Planning and Management (SEPLAG) propose that the datacenter be carried out under Brazilian federal and State of Minas Gerais Public - Private Partnership (PPP) legislation. The DM sought to determine whether this project is 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.

The overall e-government strategy for the State of Minas Gerais is developed within SEPLAG through a high-level interagency committee, the Executive Committee for Electronic Governance chaired by the Secretary of Planning and Management, Renata Maria das Pães de Vilhena. The e-government strategy is embedded in the Structuring Project of Electronic Government (*Projeto Estruturador de Governo Eletrônico*), conceived as the backbone for using information and communication Technologies (ICT) to carry out actions and strategies outlined in the several Results Áreas defined in the PMDI so as to achieve the vision of a State for Results described in the same PDMI. Joaquim Castro de Oliveira, the person charged with implementing this Structuring Project scheduled all H&A meetings and accompanied the H&A consultant to all the Government and agency meetings scheduled.

During March 12-14 the H&A consultant met with the principal project proponents, Secretary Renata Vilhena and the head of the PPP unit in the SEDEt, Luiz Antônio Athayde, also Under-Secretary for International Affairs in SEDE, who submitted the request for USTDA funding; the officials responsible for managing three important state agency datacenters – those of PRODEMGE (the state ICT Company), the Secretariat of Finance, and the Official Newspaper (*Diário Oficial*); the team responsible for developing the new Administrative Center; and with a representative of the Telecommunication Company of Central Brazil (CTBC), that had expressed interest in the datacenter project as well as another project for development an IP-based state voice, data and video network. A list of all the individuals met in Belo Horizonte appears in Annex 3.

While in São Paulo March 15-27 and subsequently, H&A also contacted six other potential private sector partners for the datacenter projects – Certisign (has strong ties with Verisign, Cisco, EDC, IBM, Oracle, Sun Microsystems,

B. BACKGROUND

1. Brazil and Minas Gerais State

With 184 million inhabitants (2007 estimate, Brazilian Institute of Geography and Statistics¹), 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 2005 (at Purchasing Power Parity) was estimated at US\$8,402.² 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, though in the initial years of the 21st century government programs such as the Bolsa Familia income support program have begun to reduce these inequalities.

According to Anatel, the Brazilian telecom regulator, there were approximately 35 million fixed line telephones in service in 2007 and 123 million mobile subscribers in Brazil at the end of February 2008,

The State of Minas Gerais produced 9.6 percent of industrial output and 9.0 percent of the country's GDP in 2005, the latest year for which regional accounts are available.³ Minas Gerais had an estimated 19.3 million inhabitants in 2007, around 10.5 percent of the Brazilian population, residing in 853 Municipalities (*municípios*) out of a total of 5,564 in all of Brazil. The state includes the Belo Horizonte Metropolitan Area (population estimated at 6.3 million in 2007, the third largest metropolitan area in the Brazil, and has 4 *municípios* with more than 500,000 population, led by Belo Horizonte *município* (the state's capital), with an estimated population of 2.4 million in 2007. Minas Gerais covers an area of 587 square kilometers (7% of the national territory) and has the second largest industrial park of the country. Minas is the leading state in mining, metals, coffee, milk products and is positioning itself as a national reference in the biotechnology, engineering, and training and business consulting services. In 2006 the GDP of Minas Gerais reached US\$57 billion, exceeding the average growth rate of the national GDP. Registered exports for 2006 were US\$15.6 billion.

Minas Gerais is located on a strategic transportation axis, having the largest road network in the country – 265,000 km of roads. The transportation infrastructure of the state also includes 5,000 km of railways and 66 airports, including the international and industrial airport of Belo Horizonte. Minas Gerais also produces 18.5% of the country's energy.

The present Governor of Minas Gerais, Aécio Neves, has been working to consolidate a new more modern, democratic, transparent, and efficient, results-oriented state, with the goal of making Minas Gerais the best state in which to live. His administration seeks to achieve five major objectives within this broad goal:⁴

1. Educated, qualified and healthy people – with programs focused on education, health, and culture targeted on increasing human capital, an essential factor for economic and social development;
2. Young protagonists – building a strong strategic social alliances –this thrust intends to organize the various actions directed toward young people with the objective of increasing employment, entrepreneurship, and social inclusion of youth;
3. Dynamic and innovative enterprises – giving special attention to economic growth as the lever for sustainable social transformations through programs of economic development, infrastructure and science and technology and the building of a state pact to raise the rate of investment and competitiveness of Minas Gerais;
4. Safe and well cared-for cities – through environmental, public safety, housing, water supply and sewerage programs, the focus being on improving the quality of life in the state's cities
5. Equity between persons and regions – programs focused on regions and locales of lesser HDI and destined for the most vulnerable segments, fighting poverty, generating sustainable jobs, income and food and nutrition security

¹ Source: <http://www.sidra.ibge.gov.br/bda/tabela/listabl.asp?z=cd&o=17&i=P&c=793> special tabulation.

² UNDP, *Human Development Report 2007/2008 Fighting Climate Change: Human Solidarity in a Divided World*. (New York : Palgrave MacMillan, 2007) Table 1, Human Development Index, page 230. Available for download at http://hdr.undp.org/en/media/hdr_20072008_en_complete.pdf.

³ Source: http://www.ibge.gov.br/home/estatistica/economia/contasregionais/2002_2005/contasregionais2002_2005.pdf. Data on industrial output are for *indústrias de transformação*.

⁴ These objectives are set forth in the Governor Aécio Neves' introduction to the PMDI.

2. e-Government in Brazil and Minas Gerais

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.⁵

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 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:

- 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.⁶

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 2006, only 22.1% of Brazilian homes had a personal computer. In Minas Gerais 21.7% of homes had a PC, and, as shown in Table 1, 15.5% had a PC with an Internet connection, though homes with total incomes of less than 10 minimum wages had the lowest percentage of home Internet access (9.2% for Minas Gerais). But for homes with the greater than 20 minimum wages of income Minas Gerais' Internet access rate was 80.1% (higher than the average for the United States in February 2007 according to OECD data), and in the Belo Horizonte Metropolitan Area home internet access for this income group was 90.5%.⁷

⁵ 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* (Minas Gerais: Financial Times Prentice Hall/Pearson Education do Brasil, 2004) and Knight, Fernandes e Cunha, *e Desenvolvimento no Brasil e no mundo: subsídios e Programa e-Brasil* (São Caetano do Sul, SP: Yendis, 2007). English translations of parts of *e-gov.br* are available at <http://www.tedbr.com/projetos/e-dem.br/e-gov.br-english.htm>.

⁶ Ibid, page xvii.

⁷ 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 2006 (*Pesquisa Nacional por Amostra de Domicílios – PNAD*) over the Internet. See www.sidra.ibge.gov.br/, Table 2387 for PNAD 2006. OECD data for internet use in the US from <http://www.internetworldstats.com/stats16.htm>.

Table 1: Private Homes and Internet Access by Household Income Level, 2006

Location	Total Homes (1000)	% Total Homes	% Total Homes w Internet	% Homes >20 MW w Internet	%Homes >10-20MW w Internet	% Homes 0-10 MW w Internet
Brazil	54,610	100.0	16.9	83.0	64.2	10.6
Southeast Region	24,531	44.9	23.1	85.9	68.7	15.1
Minas Gerais	5,733	10.4	15.5	81.0	60.8	10.4
Belo Horizonte Metro. Area	1,490	2.7	25.4	90.5	66.7	16.5

Source: IBGE, PNAD 2006, special tabulations calculated from <http://www.sidra.ibge.gov.br/>, Table 2387.

If the definitions are broadened and Internet access from home, the workplace, school, and other collective access points (telecenters, internet cafés, etc.) are added data collected for Brazil's Internet Management Committee show that in 2007 40% of the Brazil's urban population aged 10 and above had accessed to the Internet at some time (34% had accessed the Internet within the last three months), with the percentage falling with social class from 94% for Class A, 73% for class B, 47% for Class C, and an average of 17% for Classes D and E. Internet use is highest among the younger population and increases by level of education as well.⁸

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; LAN houses, 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.

Minas Gerais' e-government state portal (www.mg.gov.br) is the principal entry point for the whole state public administration, giving access to more than 1146 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. Citizens without Internet access can use its services through 315 public access points called *Telecentros*. that serve users throughout the state. The development and management of the portal is the responsibility of the SEPLAG and the technical support of the Minas Gerais State Information Technology Company (PRODEMGE), but all state agencies are responsible for supplying information, often via links to their own sites at present.

Another important activity of the state's digital inclusion program, managed by the Secretariat of Science, Technology and Higher Education, is the Vocational Education Centers (*Centros Vocacionais de Tecnologia* - CVTs, currently 54). The CVTs are run in partnership with various municipal governments, educational providers, etc. and in April 2008 some 30,000 people were inscribed in vocational courses in them, while to date some 100,000 students have received certification through courses given in CVTs, which have computer training rooms and videoconference centers and are usually associated with a *telecentro*.

A Strategic Vision of ICT in Minas Gerais⁹

The strategic vision of ICT for the State of Minas Gerais is spelled out in the PMDI as an integral part of the basis for the State for Results. The PMDI presupposes that the second generation of the "management shock" (a key element of the first Aécio Neves Government (2003-2006)) will achieve its objectives anchored in a strong fiscal policy and efficient, innovative management. Quality and Innovation in Public Management is one of the key pillars of the second generation of management shock that depends on management motivated by gains in productivity of in public expenditure to achieve strategic goals.

⁸ Data for September-December 2007 from <http://www.cetic.br/usuarios/tic/2007/index.htm>. Tables C1 and C2. Data are for persons of 10 years of age and above and living in urban areas (81 % of Brazil's population lives in areas classified as urban).

⁹ This section draws heavily on a document prepared for the SEPLAG/MG by the Foundation Institute of Administration of the University of Minas Gerais (FIA/USP), *Planejamento Estratégico e Formulação das Políticas e Modelo de Governança para Tecnologia da Informação e Comunicação e de Governo Eletrônico para o Estado de Minas Gerais* (Minas Gerais, February 2008), section 5.1.

Management for Results, one of the key concepts underlying the second management shock, has as one of its drivers the physical integration of the state through the new Administrative Center and its datacenter. This expresses state's top management's commitment to e-government in the state, raising ICT to the level of a structuring Project, through the Structuring Project of Electronic Government, of which the datacenter project is an integral part.

The Structuring Project for Electronic Government is the backbone for a definitive transformation of ICT into a strong enabler of strategies for action spelled out in the various "Results Áreas" to achieve the State for Results described in the PMDI.

The Structuring Project for Electronic Government seeks to improve e-government, opening new spaces for dialogue and participation;

- Greater efficiency in administrative processes of public institutions;
- Delivering services of better quality easily accessible to citizens and enterprises;
- Greater transparency of decisions, projects, revenue and expenditures of public institutions.

The Project includes a set of actions dealing with management of ICT in the State, including:

1 – Progressive expansion of services to the citizen via the Internet and other ICT resources;

- Creating an inventory of services, to identify their state of maturity and the channels through which they are delivered;
- Prioritizing services to be created or expanded on the web;
- Planning actions;
- Implementing the services.

2 – Innovation of administrative processes through the use of ICT to reduce costs and increase the efficiency of institutions;

- Development of a management model for administrative services;
- Identification of deficiencies in the current model; ;
- Prioritization of actions;
- Planning actions;
- Implementing actions.

3 – Production of ICT solutions that make possible transparency of decisions concerning resource allocation, expenditures, and the results achieved.

- Identification of information and channels of communication based on directives for transparency and popular participation of the Government;
- Planning of ICT actions that make possible transparency and popular participation;
- Implementing ICT actions.

4 – Aligning the infrastructure and the processes of e-government with the objectives of the other structuring projects.

- Identification of structuring projects that can interface with the Structuring Project for Electronic Government;
- Prioritizing the structuring projects and sectoral agendas that will receive the most direct actions of the e-Government Project;
- Planning the actions;
- Implementing the actions.

5 – Preparing the Electronic Government Policy.

- Mapping the actors that will participate in the Electronic Government Policy;
- Elaborating the proposed elements of the Electronic Government Policy; ;
- Discussing the proposed elements of the Electronic Government Policy with the actors (stakeholders);
- Approving the Electronic Government Policy;
- Disseminating the Electronic Government Policy;

- Monitoring the implementation of the Electronic Government Policy.

One of the most developed areas of Minas Gerais' e-government is the Secretariat of Finance's portal, (www.fazenda.mg.gov.br/index.html). It 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. Since July, 2005, businesses can issue electronic invoices (notas fiscais eletrônicas – NF-e) that involve the use of digital certificates to guarantee authenticity, and, beginning in April of 2008, use of the NF-e became mandatory in a number of economic activities.

An important part of the Minas Gerais's e-government is the e-procurement system (Sistema Integrado de Administração de Materiais e Serviços – SIAD), established in January 2004 and now serving an estimated 50,000 users. In addition to e-procurement, the system manages stocks and other state assets, including the fleet of state-owned vehicles.

The UAI's (Unified Centers for Service Delivery, known in the US as one-stop shops for government services) are another key component of Minas Gerais's e-government strategy. The UAI's (previously called PISIUs) are one-stop shops for government services, similar to the *Popupatemplos* in São Paulo, and many are run through a system of outsourcing to private sector firms. Minas Gerais also has a system of telecenters for public internet access, many of which are associated with Technology Vocational Training Centers (Centros Vocacionais Tecnológicos) operated by the Secretariat of Science, Technology and Higher Education (SCTES). Both the Telecenters and the CVTs are operated through partnerships with other organizations (NGOs, local governments, private firms). As of January 2008, there were 20 CVTs and 301 Telecenters in operation in the state. Some of the CVTs also serve as incubators for micro and small enterprises.

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.

Through PPPs¹⁰, governments can specify a set of objectives they want to see implemented and then contract with the private sector to deliver services on their behalf, aiming to provide high-quality services in the long term. The private partner is chosen through a process of competitive bidding. If the PPP project requires the construction of infrastructure or acquisition of equipment for the efficient performance of the services contracted, the private partner shall be responsible for building, operating, maintaining and financing the assets and for providing services for the long period of time (5 to 35 years, according to Brazil's prevailing legislation) in exchange for a consideration to be paid, in installments, by the public sector. The consideration paid by the Public Sector encompasses payment for the services provided and also a return on the investment made by the private partner. Payment is only made when the contractual requirements are fulfilled by the private partner. The way the payment method is structured ensures high quality service throughout the period of the contract. Additionally, a PPP model foresees that, at the end of the contractual period, the asset reverts to the public sector.

C. CREATION OF A NEW CENTRALIZED DATACENTER FOR THE NEW ADMINISTRATIVE CENTER

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.

Minas Gerais' government has five principal operational datacenters and a several smaller ones that it seeks to integrate and consolidate. These datacenters use a wide variety of servers (many of them outdated and lacking adequate capacity to meet rapidly increasing demand and lacking adequate security and monitoring tools) to

¹⁰ PPPs have governing legislation at the national and, in at least eight states (including Minas Gerais), state level,

service the various State Secretariats, the Judiciary, the Legislature, and various other Minas Gerais state agencies. The current principal data-centers are hosted by PRODEMGE (the Minas Gerais State IT Company), the Secretariat of Finance, and the Official Press, the Secretariat of Education and the Secretariat of Health but there are also datacenters in the several other agencies. PRODEMGE serves multiple clients. H&A visited the PRODEMGE, Secretariat of Finance (SEF) and Official Press datacenters.

The *PRODEMGE Datacenter* is located on PRODEMGE's downtown campus in a separate one-storey building. It serves SEPLAG and a variety of other secretariats and state agencies. Some of these state agencies maintain their equipment segregated inside the PRODEMGE datacenter, in separate cabinets (Figure 1), using their own and not PRODEMGE's personnel for this purpose. In general the PRODEMGE datacenter is something of a patchwork quilt of equipment and software of varying vintages and suppliers, including IBM, Dell, Cisco, HP, Oracle, and many more (Figures 1-6).



Figure 1: Servers of various government agencies kept in segregated cages in PRODEMGE data center



Figure 2: IBM System Z9 mainframe in PRODEMGE data center.



Figure 3: Cisco Routers in PRODEMEGE Data Center



Figure 4: StorageTek equipment in the PRODEMEGE data center



Figure 5: Dell and other equipment in PRODEMG data center



Figure 6: Equipment in racks in PRODEMEGE data center

Storage capacity in the PRODEMEGE datacenter is currently rented and consist of six Sun Microsystems units with 2 terabytes each (total of 12 TB) with a monthly rental totaling R\$52,000 and one Dell unit with 512 gigabytes with a monthly rental of R\$5,727. But these units are currently being replaced by a 4.2 TB EVA 6100, apparently an HP model, expected to cost R\$96,000, with an additional price of R\$35,000 for each additional 4.2 TB up to a

maximum of 28 TB. The new storage should be in place by the end of May 2008. Storage for the IBM System Z9 mainframe is 3.3 TB, included in the monthly rental cost of R\$280,000.

The Secretariat of Finance Datacenter serves only the Secretariat of Finance, and is located in a multistory building in downtown Belo Horizonte. It was constructed in 2007 and has very modern equipment, mostly from Sun Microsystems, and appears to have state-of-the-art security, fire prevention and electric power backup systems. Photographs were not allowed for security reasons.

The Official Press Datacenter is located in the same complex housing the printing facilities in downtown Belo Horizonte. It is scheduled to begin operations in April 2008. It appears to have state of the art equipment and security systems. No photographs inside the relatively small vault housing the servers and routers was permitted for security reasons, but the entry and backup diesel generators are shown in Figures 7 and 8.



Figure 7: Entry to *Diário Oficial* data center

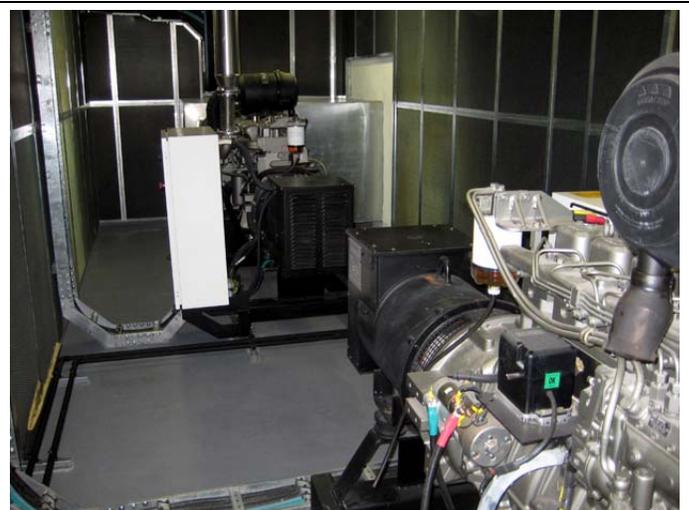


Figure 8: Backup diesel generators at *Diário Oficial* data center

There are also datacenters of varying quality in various other secretariats, including Education and Health, and other state agencies. In most cases, the infrastructure of these various datacenters is inadequate. It is difficult to monitor and manage these dispersed assets, security arrangements are inadequate, equipment is outdated, and there is a lack of trained specialized personnel to operate them. Redundant expenditures for equipment and software by the various government agencies operating the centers is common. Sharing resources would result in economies of scale and reduce both capital and current expenditures.

The following is SELAG's summary evaluation of the quality of the existing datacenters.

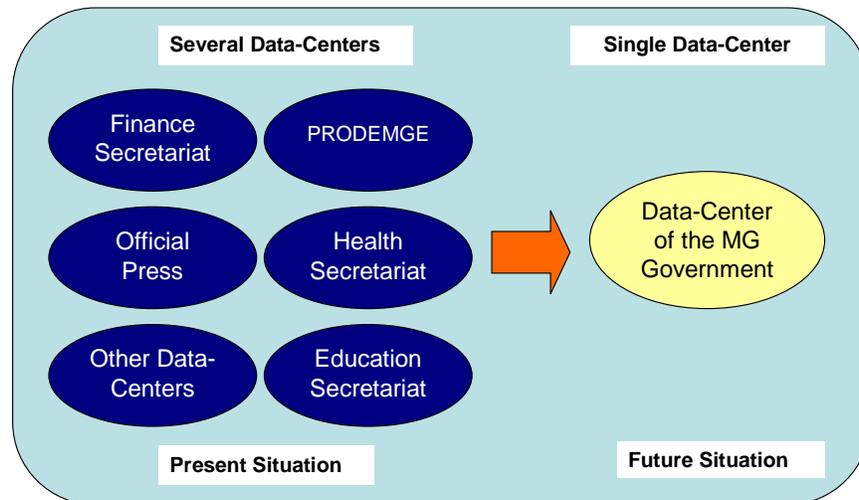
- State ICT Company (Prodemge): Average
- Secretariat of Finance (SEF): Good
- Secretariat of Health (SES): Good
- Secretariat of Science, Technology and Higher Education (SECTES): Average
- Secretariat of Planning and Management (SEPLAG): Very bad
- State Environment System (Sistema Estadual de Meio Ambiente – SISEMA): Average
- Secretariat of Education (SEE): Average
- Secretariat of Social Development (SEDS): Average
- Military Police (PMMG): Average
- Department of Roads (DER): bad
- Official Press (IOF): Very Good (under construction, about to enter into operation)

A very rough estimate is that these various datacenters cost the State of Minas Gerais at least R\$50 million (about US\$30 million at current exchange rates) per year. The cost could be considerably higher, but H&A was unable to obtain more detailed estimates.

To increase efficiency and lower costs, the SEPLAG seeks to integrate these separate datacenters with an upgraded central State Government datacenter that could be operated by a private sector partner under either a PPP or Law 8666/97 framework (Figure 9).

Figure 9

Proposed Migration of Existing Minas Gerais State Datacenters to a Single Datacenter



2. Expected Future Demand for Datacenter Services

For the year 2008 Minas Gerais's strategic agenda for the state foresees a total of 97 e-government actions in a wide variety of áreas. The most important are:

- *The Easy Minas System (Minas Fácil)*. This system integrates diverse systems used for setting up new enterprises. The expect result is that with this system's support an entrepreneur will be able to open a new company in eight days.
- *Reformulation of the Integrated System for the Environment (Sistema Integrado de Meio Ambiente – SIAM)*. This system monitors indicators and regulatory actions related to the environment.
- *Situation Room*. This system will extract a report and executive statistical data, a kind of electronic dashboard allowing the Governor and other top executives to track the results obtained by various state public policies.
- *Transparency Portal*. A portal where the financial and budgetary data of the state will allow popular participation in government decisions.
- *Easy Unified Health System (Sistema Unificado de Saúde – SUS)*. This system serves both as a portal for health system users and to allow management of all health services provided by the state..
- *Integrated System for determining and evaluating costs (Sistema Integrado de apuração a avaliação de custos – SIAC)*
- *Sports Management System*. A system for controlling and evaluating state projects and actions to develop sports.
- *Modernization of Corporate Systems of the Government*. These include finances, cost control, purchasing of goods and services and human resources management, among others.

Bearing in mind the demand for new and important systems, there is a need for investments in a state datacenter to expand their capacity and quality. The existing datacenters have numerous vulnerabilities, such as the lack of formal procedures and weaknesses in access control and means for preventing and combating various risks (fire, flood, smoke, etc.). These vulnerabilities are serious and put critical data at risk. To deal with this situation, state officials noted the lack of strategic planning for contingencies and business continuity. All of this shows that there are serious risks to the confidentiality, integrity, and availability of key government data.

3. Proposed Datacenter Project and Feasibility Study

The State of Minas Gerais has submitted a request to USTDA to finance a feasibility study for a new datacenter capable of providing the storage and processing infrastructure necessary for the operation of ICT with a view to modernizing the management of the government of the state, with particular emphasis on the new Administrative Center complex.¹¹

The Administrative Center project seeks to integrate some 45 units of the Minas Gerais state government, to optimize the actions of the public administration, making possible improved quality and productivity in the delivery of public services and lower costs of government.

To make possible the centralization of the different secretariats and other agencies of the Minas Gerais public administration in a single space it is necessary to create a broad ICT infrastructure. Among the actions necessary to achieve this objective, the installation of a new datacenter for the executive branch of government stands out.

The new datacenter should consolidate the corporative ICT infrastructure of the Administrative Center, especially the back office functions, corporative servers, mainframes, storage media, telecommunications equipment, software and technical support for users through establishing a centralized unit serving all the government units belonging to the Administrative Center.¹²

The proposed project would create a new centralized datacenter which might or might not be located in the new Administrative Center, but this new datacenter might make use of some of the facilities and equipment in the existing datacenters if they are judged adequate.

The principal objectives of datacenter 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.

SEPLAG and the PPP Unit of SEDE believe that one option is that the new datacenter be financed as a Public-Private Partnership (PPP) of 10 years or more duration, though in the feasibility study other options and an appropriate time span for each will be explored. According to the state and national PPP legislation, the private company or consortium (partner) would be responsible for constructing the new datacenter and for operating it during the contract period. The private partner would make all the necessary investments. One model for remuneration is that 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

¹¹ PPP Unit, State Secretariat of Economic Development, "Implantação e Operacionalização de um *Datacenter* para o Governo do Estado de Minas Gerais" Belo Horizonte, November 2007

¹² Ibid, page 3, translation to English by H&A.

payments could be the state treasury. As required by the legislation, private partner providing datacenter services would be incorporated as a Specified Purpose Company (*Sociedade de Propósito Específico* – SPE), which means that a new legal entity would be created specifically for this purpose. The revenue stream to the private partner would be guaranteed by a guarantee arrangement to be developed for this project.

The PPP Unit and SEPLAG expect 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. The studies would also determine the best format to rendering these services. If the studies conclude that a PPP legal framework is feasible and it constitutes the best value for money, These reports would allow the PPP Unit to submit the datacenter project, with its required feasibility study, to the state Managing Council for PPPs (Conselho Gestor de Parcerias Público-Privadas - CGP) for analysis. This data and analysis would enable the State to decide whether they should proceed with international competitive bidding using Minas Gerais's PPP legislation, approved in December 2003 and supplemented by subsequent decrees and regulations, or use an alternative mechanism. If the project is approved by the CGP as a PPP, it would become part of the State Plan for PPPs that is submitted to the Governor for approval in the form of a decree.

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 would be made initially and periodically for the renewal and upgrading of the datacenter infrastructure over the period of the PPP contract.

The PPP Unit and SEPLAG currently envisage that the private partner would build and operate a new centralized data center associated with but not necessarily located in the new Administrative Center, the actual location to be identified during the feasibility study. The objective would be to consolidate the corporative ICT infrastructure of the Administrative Center, mainly the corporate back office infrastructure, corporative servers, mainframes, storage media, telecommunications equipment, software and technical support through creation of a single data Center for all the secretariats and state agencies operating in the Administrative Center.¹³

With a single integrated data center, the majority of information systems, especially the corporative ones,¹⁴ would have an adequate infrastructure with the capacity for expansion to meet future demand. Among the systems to be operated from this datacenter would be budget, finance, governmental planning, human resources, electronic document management, process control, management of projects, administration of materials and services, corporative portals and other systems related to the objectives of the state government secretariats and agencies to be located in the new Administrative Center.

Based on previous studies carried out by the Minas Gerais government it is estimated that the new data center should have a set of areas and installations necessary for its functioning such as: reception areas, offices, a “war-room” or command center, a production area for ICT, and racks for equipment (Figure 10)

The datacenter should be planned to operate 24x7, with total control and integrity of the ICT infrastructure housed in it, independent of external variables. The project should have a robust structure, secure against access violations, and other threats including small aircraft crashes, wind, rain, electrical storms, floods and fire. The following are the minimum requirements presented in the proposal submitted to USTDA.

- *Raised technical floor*, allowing flexibility for future alterations in the layout and facilitating access to the data and electric cables below the floor.
- *Security doors* with extra protection, providing protection against fire and humidity, isolating the interior from water and dust in addition to protection against assaults and corrosive gases, allowing the sectorization of the internal environments of the datacenter. The safety doors required by the Minas Gerais Government should conform to the sectorization of environments of the standard NBR ISO IEC 17700 – Chapter 9.
- *Interior finishing, wall divisions and lighting* as necessary for all interiors whether offices or the datacenter.
- *Electrical sub-station and transformers* to reduce the voltage from 13,800 to 380 and provide for redundancy.

¹³ This and the following paragraphs draw on the proposal submitted to USTDA by the PPP Unit (*op. cit.*).

¹⁴ SEPLAG defines a corporative system as one used to automating government state government transactions common to the various secretariats and state agencies of the public administration. Examples: the Financial Administration System (*Sistema de Administração Financeira* – SIAFI) and the System for Administering Materials and Supplies (*Sistema de Administração de Materiais e Serviços* – SIAD), among others.

- *Backup electric power generators.* Two diesel generators are required to support the electrical load of the datacenter (equipment, lighting and air conditioning) in case of electrical failures. Together with the generators it will be required to install Automatic Transfer Blocks (Quadros de Transferência Automática - QTA) and a General Distribution Block (Quadro Geral de Distribuição) with Tie Break.
- *No-break (UPS)* to guarantee continuity in the supply of energy to the datacenter. This UPS system of UPS would be automatically activated in case of power failures, before the diesel generators begin supplying power.
- *Electrical distribution blocks (Quadros de distribuição elétrica)* with surge suppressors and circuit breakers (disjuntores) of the plug in type that can be changed or re-arranged even when the block is carrying power, facilitating additions, exchanges, and rearrangements.
- *Precision air conditioning system* with microprocessor controls to maintain temperature and humidity within strict parameters in the datacenter.
- *Regular air conditioning* for work areas and operations in other parts of the building.
- *Fire protection center* to control all the fire detectors in the building. The purpose of the center is the control of all fire detectors in the building.
- *Early warning system for fire detection* for additional protection complementing the conventional one and providing extra sensitivity for the most critical environments of the datacenter.
- *Sprinkler system* to fight fires in conventional areas, according to the norms of the Fire Department.
- *Fire extinguishing system with FM-200 gas* for critical areas to allow automatic fire extinguishing with a gas that will not destroy the ozone layer, damage equipment, or be harmful to people.
- *Certified safe room* for critical equipment (mainframe, servers, storage media and other equipment) in an environment protected against fire, smoke, corrosive gasses, break-ins, pressurized water and other physical threats. This construction should be tested according to Brazilian standard NBR 15,247 in laboratories accredited and certified by ABNT. This environment, called a safe room, is recommended in the norms NBR ISO IEC 17799 and are used in the most important datacenters around the world.

Data cables, optical and metallic, to interconnect equipment within the building

The feasibility study should have three major parts.¹⁵

1. *Define the operational model for the Administrative Center's datacenter including:*
 - analysis of the needs and requirements and development of functional specifications, architecture and layout of the datacenter as specified above;
 - a training plan for the team responsible for making the datacenter operational including Information Technology Infrastructure Library (ITIL) training in ten disciplines – configuration management, problem management, change management, help desk, distribution and control of software, managing of service levels (SLM), capacity management, contingency planning, availability management, and cost management – this training should be specific for the characteristics of the new datacenter
 - definition of the roles and responsibilities of the various actors involved, including the legal, institutional, structural and service levels for the operation of the datacenter. Some basic questions that need to be answered in the study are:
 - Will the new datacenter be part of the administrative structure of the executive branch of the Minas Gerais government?
 - Who will administer the new datacenter?
 - What will be the role of the secretariats and agencies with applications stored in the datacenter?
 - In the case of a PPP, will the datacenter furnish services only for the executive branch of the state government?
 - How will performance of the datacenter be measured?
 - If there is a private partner, how should it be remunerated?

¹⁵ The description which follows is an adapted translation of elements found in the project document submitted to USTDA, *ibid*.

2. *Define the contractual form to be used for implementing and operating the datacenter.*

With the help of the study the government of Minas Gerais expects to obtain the knowledge necessary to put into practice a new model of management of the datacenter. The study should present

- documentation describing the project
- an economic analysis including
 - the various possible scenarios for contracting (a concession under Federal Law 8666/93 and the PPP legislation among others),
 - analysis of the total cost of the project,
 - risk analysis,
 - rate of return on investment (ROI)

The objective of these analyses is to define the appropriate way to implement the management model, measure the performance of enterprises providing ICT and operational support services, and remunerate the initial and eventual periodic investments needed to maintain the infrastructure updated in terms of technology and capacity to meet expected demand for its services.

3. *A transition plan (change management strategy) to move from the current fragmented structure of datacenters to the new model being proposed.*

The PPP unit estimates that the cost of construction of the new Minas Gerais Datacenter would be on the order of US\$50 million (Table 2, page 21), and the cost of the feasibility studies approximately US\$700,000, though our estimate is somewhat lower, US\$541,025 assuming a PPP framework is used, and somewhat less, US\$506,435 if a Law 8666 concession is used. The private sector partner would 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 PRODEMGE, but should be ratified by participating secretariats and other government agencies.

Table 2: Estimated Cost of New Datacenter for MG Administrative Center

Construction of the Building	17.000.000,00
Building Enhancements	2.000.000
Raised technical floor, security doors, insulation, divisions and lighting	
Electrical Installations	3.330.000
Substation	
No Breaks (UPC) and Battery Bank	
Generators and fuel tanks	
Circuit boxes and wiring	
Grounding system	
Air Conditioning System	3.170.000
Precision air conditioning for safe room	
Standard air conditioning for offices and other areas	
Ventilation and exhaust	
Command Center - NOC	1.000.000
Video Wall	
Special lighting	
Furniture	
Fire Detection and Extinguishing System	1.000.000
Conventional fire detection system	
Early fire detection system (laser-based)	

Sprinkler system	
Fire suppression system using FM200 gas	
Instalações de Segurança	17.390.000
Safe rooms certified to NBR 15.247 standard	
Access control system	
CFTV monitoring system	
Data wiring (optic and metallic)	1.360.000
Building Supervision System	1.490.000
Projects and Management	915.000
Transport of materials	
Management	
Travel expenses	
Approvals	
Project executives	
Insurance and financial costs	
Racks e Moving	1.120.000
TOTAL	49.775.000

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 in several studies prepared for SEPLAG:

- Redundant investment and current expenditures for ICT in the various state secretariats
- Insufficient and insecure space for corporate (state-government wide) ICT 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

D. WHY A PPP FRAMEWORK IS PROPOSED FOR THE DATACENTER

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 they want to see implemented and, then, contract with the private sector to deliver services on its behalf, aiming to provide high-quality services in the long term. The private partner is chosen through a process of competitive bidding. If the PPP project requires the construction of infrastructure or acquisition of equipment for the efficient performance of the services contracted, the private partner shall be responsible for building, operating, maintaining and financing the assets and for providing services for a long period of time (5 to 35 years, according to Brazil's prevailing legislation) in exchange for a consideration to be paid, in installments, by the public sector. The consideration paid by the Public Sector encompasses payment for the services provided and also a return on the investment made by the private partner. Payment is only made when the contractual requirements are fulfilled by the private partner. The payment method is structured to ensure high quality service for the throughout contract period. Furthermore, a PPP model foresees that, at the end of the contractual period, the asset reverts to the public sector.

The first Brazilian legislation establishing defining the parameters within which PPPs may be negotiated (Lei nº 14.868) was signed by Minas Gerais Governor Aécio Neves on 16 December 2003, a year ahead of the corresponding federal legislation (Law 11,079 of 30 December 2004).¹⁶ At least seven other states have PPP laws, among them São Paulo (Law 11,688 of 19 May 2004) and Ceará (Law 13.557 of 30 December 2004).¹⁷ A review of this legislation shows that the objectives of all are similar. First and foremost a PPP project must seek efficiency in fulfilling the objectives of the project, encouraging competitiveness and quality 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 be sent to the Federal Senate and the Secretariat of the National Treasury prior to the signing of the contract. 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.

1. The Proposed PPP for the New Datacenter

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, which can last from five to 35 years, 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.

The feasibility study will develop and design a business model that takes into consideration the rapid and continuing technological evolution in datacenters 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.

There is as yet no experience with outsourcing the datacenter function, and the existing state datacenters are not yet integrated into a single datacenters with the same managing agency. The PPP Unit and SEPLAG seek such an integration, but agreement has not yet been reached on how many of the existing datacenters will accept this, nor

¹⁶ The Minas Gerais PPP legislation can be downloaded from <http://www.ppp.mg.gov.br/legislacao/legislacao-de-ppp-em-minas> and the federal legislation from http://www.ppp.mg.gov.br/legislacao/downloads-de-leis/lei_federal_ppp_11079.pdf.

¹⁷ Copies of the state laws of Bahia, Goiás, Santa Catarina, São Paulo, Ceará, Rio Grande do Sul, and Rio de Janeiro can be downloaded from <http://www.ppp.mg.gov.br/legislacao/legislacao-de-ppp-em-outros-estados>.

on the extent of outsourcing which is desired for those accepting the integration under SEPLAG or possibly PRODEMGE auspices, and outsourcing of operations to a private sector manager.

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) shall be considered as an alternative in the case of the proposed integrated datacenter. The duration of this contract could be 4-5 years, which would be consistent with the economic life of the hardware and software involved. The PPP Unit and SEPLAG agree that this option should be considered.

2. Future Configuration of the State Datacenters

Figures 11 and 12 provide schematic representations of one option for how the Minas Gerais Datacenter might be managed if the project is carried out. SEPLAG would provide policy guidance for PRODEMGE as it currently does, but PRODEMGE would move to a supervisory function over the new integrated datacenter (outsourced to a private sector partner) and any datacenters remaining outside the integrated datacenter. Another option would be for PRODEMGE to assume the policy-making role as well, since it would likely require highly specialized technical knowledge. Some arrangements for an inter-agency review panel under a SEPLAG chairperson might also be considered.

Figure 11: Proposed Model For Management of Minas Gerais State IT Infrastructure

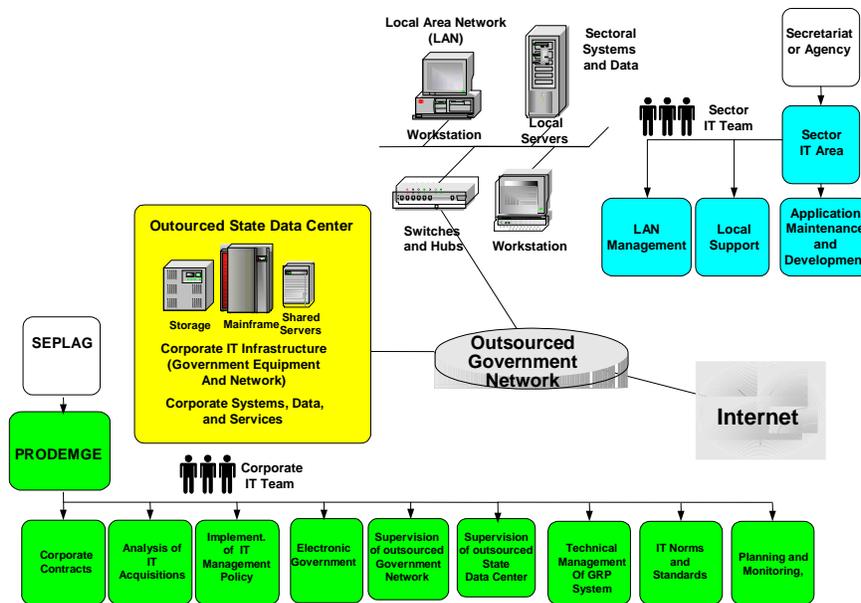
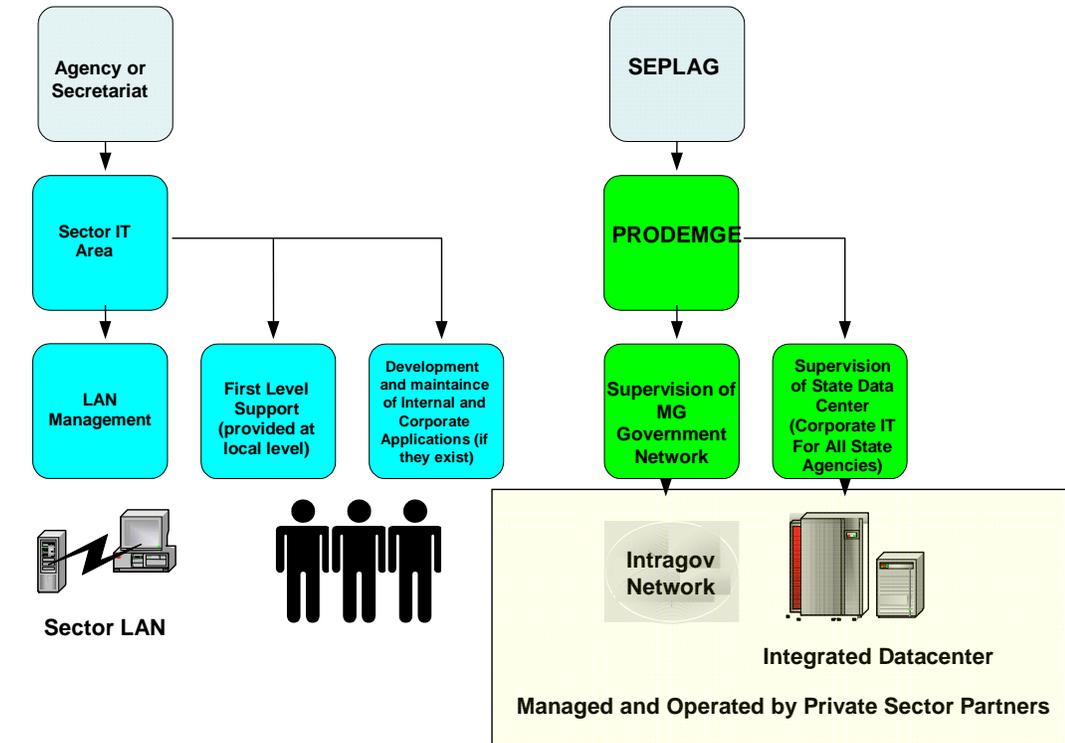


Figure 12: Future Division of Labor for Management and Operation of the Sectoral IT; Government Voice, Data, and Video Network, and Minas Gerais State Data Center



F. VIABILITY OF THE PROJECT

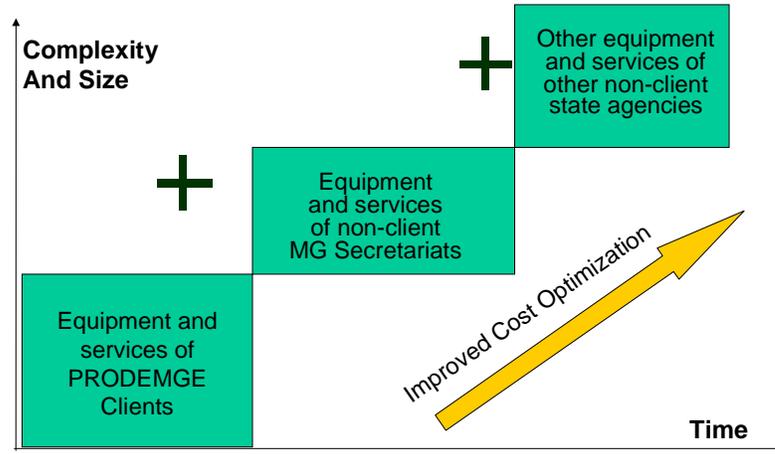
H&A ascertained that the proposed project fits well within a broader State of Minas Gerais strategy for consolidating the state government’s physical and electronic infrastructure, with expected savings in both capital and current expenditures. The extent of the cost savings will have to be determined in the feasibility study, but improved technology and the elimination of redundant functions and computing capacity should mean that these savings are significant. The project also will 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*) for the years 2008-2011, which includes the Administrative Center, Electronic Government and Technological and Operational Efficiency,¹⁸ and resources have been designated for this initiative. SEPLAG has assured H&A that if a decision is made to opt for the PPP as the implementing framework, it will be included in and amended PPA.

On the organizational side, SEDE’s PPP Unit and SEPLAG have the technical capacity to manage the public side of the proposed Datacenter PPP. SEPLAG has supervised the existing PRODEMGE datacenter, and developed the initial proposal for the PPP. The PPP unit has already developed one PPP under implementation and has several others in development. But SEPLAG could clearly benefit from USTDA-financed international technical assistance to develop detailed feasibility studies for this project. The study would serve as the basis for the developing bidding document (*edital*) to select private sector partner.

¹⁸ Minas Gerais (2008). *Plano Plurianual de Ação Governamental 2008-2011*, (Belo Horizonte, 2008) pp. 293 e 297.

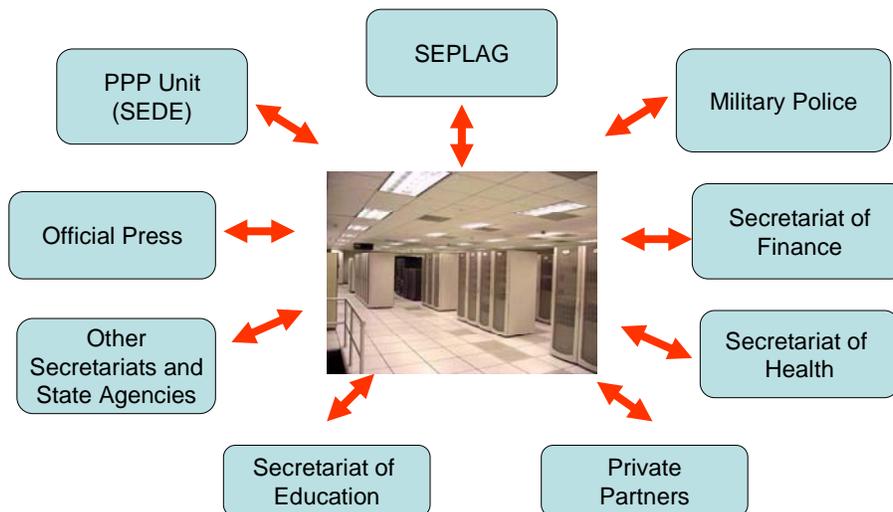
The integrated datacenter is complex because existing datacenter owners within the government have not agreed to migrate their datacenters to the new datacenter, much less one operated by a private sector partner. This project involves many different current datacenter owners (Figure 9, page 15), some of which, especially PRODEMGE, the *Diário Oficial*, and the secretariats of Finance, Education and Health and have vested interests in their own datacenters. Nevertheless staff at the SEPLAG and the PPP Unit believe that these agencies will in the end accept the integration, though this might be a process which takes place in stages (Figure 13).

Figure 13: Possible Evolving Scope of Consolidated MG State Data Center



The datacenter feasibility study will have to explore all aspects of project feasibility and their interrelations in greater depth with major project stakeholders as shown schematically in Figure 14.

Figure 14: Stakeholders in the Minas Gerais Data Center Project



G. CRITICAL SUCCESS FACTORS FOR PROJECT IMPLEMENTATION

Following the DM discussions the PPP Unit and SEPLAG prepared a list of critical success factors applicable to projects, assuming the Datacenter project is to be 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.

- 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 the PPP Unit, SEPLAG and H&A:

- Lack of parameters for comparison with other PPPs in Brazil and with PPPs for datacenters in other countries (none have been identified to date)
- A contract period of five to a maximum of 35 years permitted in the PPP legislation could very long 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
- 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 PPP Unit and SEPLAG succeeding in developing partnerships with private sector firms (whether under the PPP legislation or more conventional service outsourcing contracts) and 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,) the PPP Unit and SEPLAG will have to provide overall guidance in the design of the datacenter, information systems, web pages, and associated databases and conduct the organizational reforms that will enable the datacenter to function effectively, reaping economies of scale and eliminating excess personnel and equipment throughout the state government. The project 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 datacenter and its mode of operation. In the longer term, to the extent that the datacenter enables 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 the PPP Unit and SEPLAG to guide the development of the new centralized datacenter. 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 would free up resources within the secretariats and agencies of the government to plan and develop new e-Government services and further public administration reforms.
- **Technology Transfer:** In terms of technology transfer, the principal impact will be to familiarize SEPLAG 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 Minas Gerais 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.

J. PROJECT SPONSOR'S COMMITMENT

The datacenter project is part of the Structuring Project for Electronic Governance and the very high priority Administrative Center project. The datacenter project is considered by SEPLAG to be an integral part of the projects for the new Administrative Center and Electronic Government in the Minas Gerais Government Multi-Year Plan (PPA) covering the years 2008-2011, which is another indication of its priority. Construction of the Administrative Center, which can be considered the signature project of the Aécio Neves administration, is already underway at a site about 12 kilometers from the Tancredo Neves International Airport (Figures 15-18) and scheduled for completion in late 2009. Inauguration of the Administrative Center would be in early 2010, prior to the date at which Governor Neves would have to resign if he were to run for President in the 2010 elections (Figure 20). These projects thus have a political as well as administrative priority for the Government of Minas Gerais.

The datacenter project was prepared under the supervision of Planning Secretary Renata Vilhena and the head of the PPP Unit in the Secretariat of Economic Development, Luiz Antônio Athayde, and in a meeting with the H&H consultant on 14 March 2008, both reiterated the high priority assigned to this project.



Figure 15: Side of construction site for new Administrative Center nearest airport



Figure 16: Center of construction site for new Administrative Center



Figure 17: Side of construction site nearest Belo Horizonte, new Administrative Center



Figure 18: View of Belo Horizonte skyline and "Linha Verde" freeway near construction site

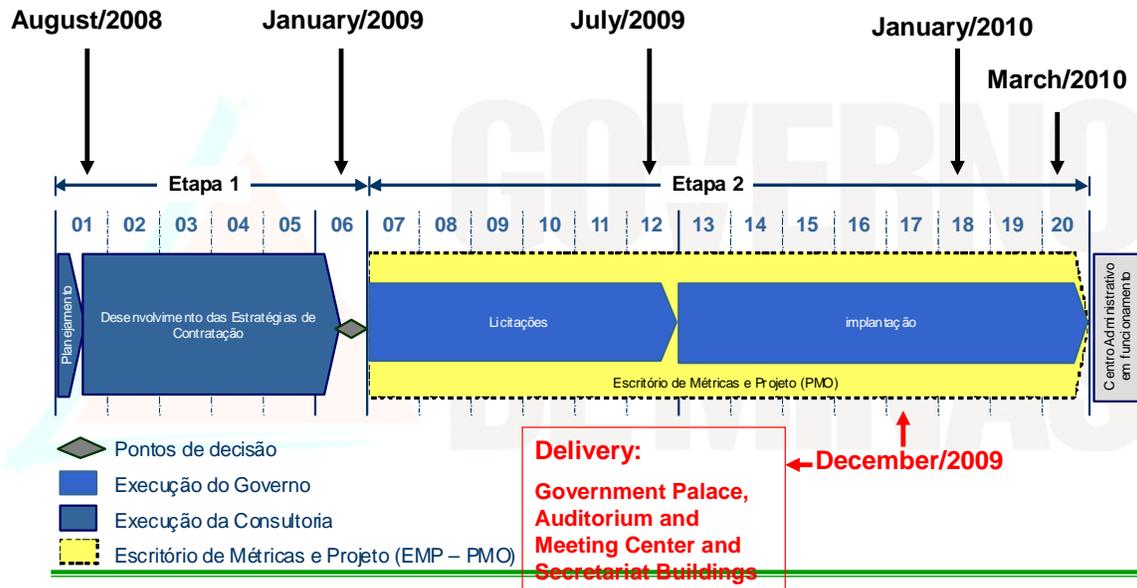
Figure 19: The New Minas Gerais Administrative Center: Aécio Neves Commitment



"The new Administrative Center will be a vigorous step toward endowing Minas Gerais with agile and modern tools of public administration, so that we can, once more, optimize public resources, spending less on the State and more on its citizens."

Aécio Neves – 07/07/2004

Figure 20: Simplified Timetable for the Administrative Center



K. IMPLEMENTATION FINANCING

The state of Minas Gerais' contribution will be monthly payments for services rendered by the private partner. Current operating costs for the PRODEMGE's datacenter are running at about US\$2.5 million a month, and at least this much should be available for this project. 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 after allowing for improved security and better quality of service in the new datacenter would be established during the feasibility studies.

As for financing of the private partner, the International Finance Corporation (IFC) is financing datacenters seeking to make pilot investments in firms providing outsourcing services for e-Government in Brazil, and has indicated an interest in principle in financing this project, or rather the private sector partner. The World Bank is currently preparing a US\$1 billion loan to the State of Minas Gerais to support public administration reform.

According to the official Project Information Document (PID), the project has three fundamental development objectives:

- (a) Help the Government of Minas Gerais to improve the efficiency of public resource use (getting more out of each real spent) and the effectiveness of public resource allocation. Success in meeting this objective on the efficiency side will be measured by some basic fiscal measures (share of personnel expenditure in total expenditure of the Executive part of the Government) as well as the existence, measurement and tracking of cost information in the health, education and transport sectors. Success in meeting the objective on the allocation side would be measured by investment expenditure as a share of total expenditure and expenditure on the strategic projects as a share of total expenditure.
- (b) Support the adoption of innovations in public management of the State. Success would be measured by the extension of implementation of the Results Agreements in key sectors, the number of public private partnerships (PPPs) contracted by the State, the percentage of hospitals accredited, and the percentage of state paved roads network under results –based maintenance and rehabilitation contracts.

- (c) Support the Government of Minas Gerais in strengthening the system of monitoring and evaluation of results. Strengthened monitoring and evaluation is not only critical for the project, but is essential for the entire results-based management system established by the state. Success would be measured by satisfaction of the Vice Governor's office and Secretaries with available M & E information and strengthening of results/causal chains underlying the Government's program.¹⁹

This loan could directly or indirectly support the datacenter project, since it would contribute to objectives (a) & (b).

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 Minas Gerais 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).

Six private sector companies – Certisign, Cisco, EBS, IBM Brasil, Oracle, and Sun Microsystems were contacted by H&A consultant Peter Knight and five have provided written expressions of interest in the datacenter project. All five companies also indicated that they would be willing 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 prohibited 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 datacenter project, it is necessary to resort to certain assumptions, namely:

- The feasibility study results in the successful implementation of a new centralized Minas Gerais State datacenter.
- The datacenter will require substantial new investments in fiber, routers, servers, storage media, and other equipment as well as software and consulting services; the magnitude of the investment required will have to be estimated during the feasibility study.

There are further uncertainties associated with the estimation of the resultant export potential, most notably, the cost of the datacenter at US\$50 million, as estimated by the project sponsors, may not be correct.

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 US\$50 million, of which at least half, US\$25 million, would be procured from US suppliers. SEPLAG is assuming that only state secretariats, other agencies (e.g. DER, the Road Transport Department), and possibly Minas Gerais' municipal governments (above all the state capital, Belo Horizonte) 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 Minas Gerais government will permit private sector clients. Thus we estimate the total market for US suppliers for the projects at no less than US\$25 million, probably considerably more.

Moreover, a number of US firms, such as Certisign, Cisco, Dell, HP, IBM, Oracle, Sun Microsystems, and many others have been supplying services, software, integration, and equipment to the State of Minas Gerais for the existing state datacenters. Should this project go forward, these companies, as well as others, would stand to benefit.

¹⁹ Project Information Document (PID), Appraisal Stage, Minas Gerais Partnership II SWAP, p. 2. Downloadable at http://www-wds.worldbank.org/external/default/main?pagePK=64193027&piPK=64187937&theSitePK=523679&menuPK=64187510&searchMenuPK=64187283&siteName=WDS&entityID=000076092_20080304161329.

2. Potential US Suppliers

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

- Servers
- Storage media
- 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
- Backup power generators
- Air conditioning equipment

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 3: US-Based Suppliers of Hardware and Software

Category / Products	Potential Suppliers
Servers	IBM, HP, Dell, Sun, Silicon Graphics, Aspen Systems, StorageTek (now Sun), Newbridge Networks (now Alcatel), Cisco Systems, and Dell
Chips	Intel, AMD, Texas Instruments
Desktop PCs	Dell, IBM, Hewlett-Packard
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, VMware, Novell, numerous other suppliers; however, Brazilian directives on the use of "open-source" software may be restrictive of US exports
Backup power generators, UPS systems	Cummins, Caterpillar, Emerson Network Power, APC-MGE (now part of Schneider), Emerson Liebert
Air conditioning systems	Emerson-Liebert, Carrier

Fire prevention and fire extinguishing systems	AeroK (Peripheral Manufacturing. Inc.), Ansul (Tyco), Fike,
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One of the potential partners for the Minas Gerais datacenter project is CBTC, the Central Brazil Telecommunications Company, based in the state of Minas Gerais. A list of its technology partners (Figure 19) shows that most of them are US firms.

Figure 21: CBTC Partners



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 Minas Gerais would help US suppliers get in at an early stage in the development of a new market for outsourcing of e-government infrastructure Minas Gerais and potentially other states.

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 4: 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
Backup power, UPS	Mitsubishi
Air Conditioning	Stultz

N. IMPACT ON THE ENVIRONMENT

The proposed Minas Gerais state datacenter project is unlikely to have any significant negative impact on the environment, especially since they would merely consolidate and upgrade the existing datacenters. As such, this project 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 project 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 this feasibility study and the actual execution of the datacenter project will not result in the transfer or displacement of US jobs to Minas Gerais or other states. The feasibility study is designed to facilitate communication and cooperation between the Government and the private sector both within Minas Gerais and more broadly, in Brazil, as the definitional mission conducted for Minas Gerais by H&A already have had this effect. Moreover, USTDA financing of this feasibility study 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

General Qualifications of the Consultant Team

As is evident from the accompanying Terms of Reference (Datacenter 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 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

IT Training specialist

- Experience with the Information Technology Infrastructure Library (ITIL) and related training
- Experience with both face-to-face training and e-training technologies
- Knowledge of configuration management, problem management, change management, help desk, distribution and control of software, managing of service levels (SLM), capacity management, contingency planning, availability management, and cost management – as applied to 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) IT Training specialist
- One (1) Brazilian Government Budget analyst/local liaison
- One (1) Brazilian Project Analyst
- One (1) Procurement Specialist
- One (1) Project Coordinator

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 datacenters
- 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 Minas Gerais 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, Minas Gerais, 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 Datacenter Experience

- At least ten (10) years' experience in the telecom/ICT industry, including hands-on experience with datacenters and outsourcing contracts for datacenters
- 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

IT Training specialist with datacenter-relevant experience

- At least ten (5) years' experience with IT training
- Experience with ILTL training systems
- Experience with face-to-face and e-training
- Knowledge of configuration management, problem management, change management, help desk, distribution and control of software, managing of service levels (SLM), capacity management, contingency planning, availability management, and cost management – as applied to datacenters

Change management specialist

- At least ten (10) years experience with change management involving technological and managerial change
- Experience with change management projects in public and private sector organizations
- Experience with multimedia strategic communication campaigns
- Strong diplomatic and political skills

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 Minas Gerais is heavily committed 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 – *Uai units*), and digital inclusion programs like community telecenters and Technological Training Centers (Centros Vocacionais Tecnológicos – CVTs). The US offers a rich repository of datacenter; and e-government experience. US suppliers are strong in telecommunications equipment and dominant in datacenter 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 datacenter solutions. These suppliers are strong in the major technological areas but face growing competition from foreign suppliers. H&A believes that initiatives to develop an outsourced government datacenter in Brazil present a significant export opportunity for US suppliers (see Section G), and even more so if the Minas Gerais 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 the PPP Unit and SEPLAG would represent a good use of USTDA resources.

R. TERMS OF REFERENCE

The proposed Terms of Reference for the proposed datacenters Feasibility Study are attached as Annex I.

S. BUDGET

The suggested Budget for the proposed Datacenter Feasibility Study is attached as Annex II

T. RECOMMENDATIONS

H&A recommends that USTDA fund the datacenter project under the conditions set forth in the TOR (Annex I), at a budget level of \$424,445 for Phase One and \$128,185 if a PPP framework is used for Phase Two or \$116,578 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 III.

ANNEX I: TERMS OF REFERENCE FOR MINAS GERAIS STATE DATACENTER PROJECT

INTRODUCTION

The State Government of Minas Gerais, intends to create a new datacenter associated with the new Administrative Center now under construction to integrate existing state datacenters, including the main PRODEMGE datacenter and those belonging to the *Diário Oficial* (Official Newspaper), and Secretariats of Finance, Education, and Health plus other smaller datacenters in various secretariats and other state agencies. The project would outsource day-to-day management and operations of the datacenter, to a private sector firm under the federal and Minas Gerais 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 Minas Gerais' e-Governance program (applications, services, and portals) with agility, flexibility and efficiency under the strategic management of the state. The central 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.

SEPLAG and the PPP Unit of SEDE expect 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 SEPLAG and the PPP Unit 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 the Minas Gerais PPP legislation, approved in December 2003, 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.

SEPLAG and the PPP Unit expect the feasibility study to show how the proposed datacenter can become a corporate datacenter for the entire government, providing better quality and cheaper services than the existing system of multiple un-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 Minas Gerais through its PPP Management Council 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 e-Government sector. 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 Minas Gerais datacenter project

TASK 2: INITIAL VISIT AND ASSESSMENT OF CURRENT SITUATION

The consultant team members shall travel to Minas Gerais to familiarize themselves with the current situation and to meet with the Project's Sponsors, SEPLAG and the Minas Gerais PPP Unit.

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

Deliverable: A report providing a timetable and list of needed data and proposed mode of operation for the main mission of the feasibility study team.

TASK 3: CONDUCT A NEEDS/REQUIREMENTS ANALYSIS FOR THE CENTRALIZED DATACENTER

The consultant team members shall travel to Minas Gerais to review the current situation; meet with the Project's Sponsor and the key stakeholders in the project: SEPLAG; the PPP Unit; PRODEMGE; the Secretariats of Finance, Education, and Health; Military Police, Civil Police, DER, Official Press, and other Secretariats and government agencies; and conduct a needs/requirements analysis for the new datacenter and the five other most important existing datacenters – those belonging to PRODEMGE; the Secretariats of Finance, Education and Health and the *Diário Oficial* (Official Newspaper).

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 Minas Gerais.

The basic objectives of this project are to meet the growing demand for information and communications technology (ICT) to support the State of Minas Gerais' 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 Minas Gerais (PRODEMGE, *Diário Oficial* – Official Newspaper, and Secretariats of Finance, Education 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 PPP Unit and SEPLAG get more secretariats/agencies of the State Government to become clients of the new centralized datacenter
- Conduct basic cost/benefit analyses for these five largest potential client secretariats/agencies for the new datacenter to help the PPP Unit and SEPLAG to 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 integrated state datacenter and also the demand in the State of Minas Gerais 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 Minas Gerais.

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 datacenter
- 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: PREPARATION OF TRAINING PROGRAM

The contractor will:

- Conduct a training needs assessment for the personnel from existing state agencies who would be assigned to supervise the operation of the new state datacenter and set its policies, assuming operation will be outsourced under either PPP or Law 8666 legislation.
- Prepare a training plan for this team.
- Determine an appropriate blend of face-to-face and e-learning for carrying out the training program
- Prepare cost estimates for the training program.

Deliverable: Training program for the team responsible for supervising the datacenter

TASK 6: REVIEW OF LEGAL/REGULATORY ISSUES RELATED TO PPPs

The Contractor will

- Assess the status of PPP legislation at the Minas Gerais 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 Minas Gerais 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 7: STUDY OF ROLES AND RESPONSIBILITIES FOR THE DATACENTER

The contractor will conduct a study of the roles and responsibilities of the various actors involved, including the legal, institutional, structural and service levels for the operation of the datacenter. Questions to be addressed in this study include:

- Will the new datacenter be part of the administrative structure of the executive branch of the Minas Gerais government?
- Who will administer the new datacenter?

- What will be the role of the secretariats and agencies with applications stored in the datacenter?
- In the case of a PPP, will the datacenter furnish services only for the executive branch of the state government?
- How will performance of the datacenter be measured?
- If there is a private partner, how should it be remunerated?
- What should be the role of PRODEMGE once the new datacenter is operational? One possibility that should be studied is that it would be re-structured and downsized to serve as the supervisory authority for the private partner operating the new datacenter, setting policies both for the partner and for submissions of data from the various state agencies, subject to review by an interagency committee chaired by SEPLAG. Another would have the policy-making function located in SEPLAG, but supervisory functions in PRODEMGE. The feasibility study should suggest at least two more options for PRODEMGE's future role. OK.

Deliverable: Study of roles and responsibilities

TASK 8: 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 Minas Gerais 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 9: ORGANIZATIONAL PREPAREDNESS

To support the development of a professional human resource function designed to be an effective source of capacity building. As SEPLAG and the PPP Unit are the sponsors of the datacenter project, the consultant in this task needs to work closely with them and other key stakeholders in designing the organizational structure and requirements that would meet the needs of the project in overseeing a privately operated entity. The consultants will:

- 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 PPP Unit and SEPLAG 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

- Barriers to success
- Keys to Success
- Foster knowledge transfer and capacity building
 - Help prioritize training professional development needs and implement a regular training schedule
 - 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 10: PREPARATION OF A CHANGE MANAGEMENT PLAN

The change management consultant will consult with all stakeholders and prepare a change management plan for the transition from the present decentralized, fragmented system of datacenters to the new unified datacenter with the objectives of securing maximum buy-in of all stakeholders in the project and neutralizing resistance to the extent possible. To that end the specialist will:

- Consult with all stakeholders in the project, assessing their interests and the extent of their support or resistance to the project
- Prepare a plan to maximize support and minimize resistance to the project making use of
 - A multimedia strategic communication program in the print and electronic media, the latter including radio, television and the internet (via targeted e-mails, blogs, and websites).
 - Small group meetings of key stakeholders with the project proponents, including the Governor
 - Public speeches and conversations with stakeholders by the Governor, key secretaries including SEDEC, SEPLAG, SEF in support of the project
 - Design of a system of incentives and sanctions so that existing decentralized datacenters will accept participation in the project

Deliverable: Change Management Plan

TASK 11: CONDUCT AN ENVIRONMENTAL ASSESSMENT

The contractor will:

- Conduct, in consultation with the Minas Gerais Secretariat of Environmental Protection and municipal authorities, 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 12: 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 13: 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 an appropriate guarantee arrangement, and also address the phased approach/evolving scope of the State datacenter). The report should address the issue of how the PPP Unit and SEPLAG can adapt the PPP or service contract to incorporate the evolving scope of the project.

Deliverable: Project Planning and Implementation Report

TASK 14: 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 Minas Gerais to formally present to the PPP Unit and SEPLAG 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 the PPP Unit to the PPP Management Council (CGP, an interagency committee chaired by the Governor)

- Create accompanying PowerPoint presentation that the PPP Unit can give to CGP
- Identify any additional suggestions or recommendations that the PPP Unit and SEPLAG might need to make prior to submission of project for Board Approval

Deliverable: Draft Final Report and Presentation

TASK 15: 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 the PPP Unit and SEPLAG 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 inopportunistically.

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 P 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 SEPLAG 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 SEPLAG and the PPP Unit 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 the PPP Unit and SEPLAG 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 Minas Gerais 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 Minas Gerais will formally present to PPP Unit and SEPLAG 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 SEPLAG and the PPP Unit 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 inopportune.

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 both SEPLAG and the PPP Unit. 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 SEPLAG and the PPP Unit, 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

Technical Assistance To The State Of Minas Gerais-Datacenter Project Phase I-Summary				
Table 1				
<i>(Breakdown of labor costs by task in Table 2)</i>				
DIRECT LABOR (DL) (*)	NAME, TITLE & LABOR CATEGORY	DAILY (8HR) RATE	# PERSON DAYS	TOTAL
	Team Leader	\$1,200	66	\$79,200
	Int'l PPP Expert	\$1,100	15	\$16,500
	ICT Specialist w/Datacenter Expertise	\$1,100	46	\$50,600
	ICT Specialist w/ ICT Governance Expertise	\$1,100	45	\$49,500
	ICT Training Specialist	\$1,100	20	\$22,000
	Change Management Specialist	\$1,100	32	\$35,200
	Procurement Specialist	\$1,100	10	\$11,000
	Local Brazilian PPP Expert	\$700	29	\$20,300
	Brazilian Govt Budget Analyst	\$700	26	\$18,200
	Brazilian Project Analyst	\$700	51	\$35,700
Total			340	
OTHER DIRECT LABOR	Project Coordinator	\$1,050	29	\$30,450
TOTAL DIRECT LABOR				\$368,650
OTHER DIRECT COSTS (ODC)				
International Travel	US-Minas Gerais	1600	7	\$11,200
Ground Transportation	Minas Gerais	750		\$750
PER DIEM -\$	Minas Gerais 105 days@195	195	147	\$28,665
OTHER				
Visas		130	6	\$780
Communications				\$550
Translation				\$13,000
Supplies, Copy & Reproduction				\$850
TOTAL OTHER DIRECT COSTS (ODC)				\$55,795
TOTAL BUDGET				\$424,445

Notes:

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

Labor rates for the local specialist are higher than might be expected, based on past experiences to account for the falling exchange rate and the growing Brazilian economy

Assumptions: 2 round trips for Team Leader, one trip each for the three ICT specialists, the Change Management & Procurement specialists

Per diems are equal to total estimated in-country days of US Consultant Team. Per diem rate is based on the US Government rates Rates shown are taken from the US State Department website:

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 - Datacenter Project Phase 1				
Table 2 -- Breakdown of Labor Costs per Task				
<i>(Total Phase I Costs in Table 1)</i>				
DIRECT LABOR (DL) (*)	NAME, TITLE & LABOR CATEGORY	DAILY (8HR) RATE	# PERSON DAYS	COST
Task 1				
Preparation & Background				
	Team Leader	\$1,200	4	\$4,800
	Int'l PPP Expert	\$1,100	2	\$2,200
	ICT Specialist w/Datacenter Expertise	\$1,100	1	\$1,100
	ICT Specialist w/ ICT Governance Expertise	\$1,100	1	\$1,100
	ICT Training Specialist	\$1,100	1	\$1,100
	Change Management Specialist	\$1,100	1	\$1,100
	Procurement Specialist	\$1,100		\$0
	Local Brazilian PPP Expert	\$700	1	\$700
	Brazilian Govt Budget Analyst	\$700	-	
	Brazilian Project Analyst	\$700	-	
	Project Coordinator	\$1,050	3	\$3,150
	Subtotal Task 1		14	\$15,250
Task 2				
Initial Visit & Assessment				
	Team Leader	\$1,200	12	\$14,400
	Int'l PPP Expert	\$1,100	8	\$8,800
	ICT Specialist w/Datacenter Expertise	\$1,100	8	\$8,800
	ICT Specialist w/ ICT Governance Expertise	\$1,100	8	\$8,800
	ICT Training Specialist	\$1,100		\$0
	Change Management Specialist	\$1,100	2	\$2,200
	Procurement Specialist	\$1,100		\$0
	Local Brazilian PPP Expert	\$700	10	\$7,000
	Brazilian Govt Budget Analyst	\$700	4	\$2,800
	Brazilian Project Analyst	\$700	4	\$2,800
	Project Coordinator	\$1,050	3	\$3,150
	Subtotal Task 2		52	\$50,000
Task 3				
Conduct A Needs/Requirement Analysis				
	Team Leader	\$1,200	5	\$6,000
	Int'l PPP Expert	\$1,100		\$0
	ICT Specialist w/Datacenter Expertise	\$1,100	8	\$8,800
	ICT Specialist w/ ICT Governance Expertise	\$1,100	8	\$8,800
	ICT Training Specialist	\$1,100	-	
	Change Management Specialist	\$1,100	4	\$4,400
	Procurement Specialist	\$1,100	2	\$2,200
	Local Brazilian PPP Expert	\$700	2	\$1,400
	Brazilian Govt Budget Analyst	\$700	3	\$2,100
	Brazilian Project Analyst	\$700	4	\$2,800
	Project Coordinator	\$1,050	2	\$910
	Subtotal Task 3		25	\$11,210
Task 4				
Develop Specs, Architecture, Business Model Etc				
	Team Leader	\$1,200	4	
	Int'l PPP Expert	\$1,100		
	ICT Specialist w/Datacenter Expertise	\$1,100	6	
	ICT Specialist w/ ICT Governance Expertise	\$1,100	6	\$6,600
	ICT Training Specialist	\$1,100	-	
	Change Management Specialist	\$1,100	2	\$2,200
	Procurement Specialist	\$1,100	2	\$2,200
	Local Brazilian PPP Expert	\$700	4	\$2,800
	Brazilian Govt Budget Analyst	\$700	4	\$2,800
	Brazilian Project Analyst	\$700	4	\$2,800
	Project Coordinator	\$1,050	2	\$2,100
	Subtotal Task 4		24	\$21,500

Task 5**Preparation of a Training Program**

Team Leader	\$1,200	2	\$2,400
Int'l PPP Expert	\$1,100		\$0
ICT Specialist w/Datacenter Expertise	\$1,100	2	\$2,200
ICT Specialist w/ ICT Governance Expertise	\$1,100	2	\$2,200
ICT Training Specialist	\$1,100	15	\$16,500
Change Management Specialist	\$1,100	4	\$4,400
Procurement Specialist	\$1,100	1	\$1,100
Local Brazilian PPP Expert	\$700		\$0
Brazilian Govt Budget Analyst	\$700		\$0
Brazilian Project Analyst	\$700	2	\$1,400
Project Coordinator	\$1,050	2	\$2,100

Subtotal Task 5**\$32,300****Task 6****Review Of Legal/Regulatory Issues**

Team Leader	\$1,200	2	\$2,400
Int'l PPP Expert	\$1,100	3	\$3,300
ICT Specialist w/Datacenter Expertise	\$1,100		\$0
ICT Specialist w/ ICT Governance Expertise	\$1,100		\$0
ICT Training Specialist	\$1,100		\$0
Change Management Specialist	\$1,100		\$0
Procurement Specialist	\$1,100	2	\$2,200
Local Brazilian PPP Expert	\$700	5	\$3,500
Brazilian Govt Budget Analyst	\$700		\$0
Brazilian Project Analyst	\$700		\$0
Project Coordinator	\$1,050	2	\$2,100

Subtotal Task 6**14****\$13,500****Task 7****Study Of Roles And Responsibilities For The Data Center**

Team Leader	\$1,200	2	\$2,400
Int'l PPP Expert	\$1,100		\$0
ICT Specialist w/Datacenter Expertise	\$1,100	2	\$2,200
ICT Specialist w/ ICT Governance Expertise	\$1,100	2	\$2,200
ICT Training Specialist	\$1,100		\$0
Change Management Specialist	\$1,100	2	\$2,200
Procurement Specialist	\$1,100	2	\$2,200
Local Brazilian PPP Expert	\$700		\$0
Brazilian Govt Budget Analyst	\$700		\$0
Brazilian Project Analyst	\$700	5	\$3,500
Project Coordinator	\$1,050	2	\$2,100

Subtotal Task 7**\$13,300****Task 8****Economic And Financial Analysis**

Team Leader	\$1,200	5	\$1,000
Int'l PPP Expert	\$1,100		\$0
ICT Specialist w/Datacenter Expertise	\$1,100	4	\$1,000
ICT Specialist w/ ICT Governance Expertise	\$1,100	4	\$1,000
ICT Training Specialist	\$1,100		\$0
Change Management Specialist	\$1,100		\$0
Procurement Specialist	\$1,100		\$0
Local Brazilian PPP Expert	\$700		\$0
Brazilian Govt Budget Analyst	\$700	8	\$1,000
Brazilian Project Analyst	\$700	8	\$5,600
Project Coordinator	\$1,050	2	\$2,100

Subtotal Task 8**31****\$11,700**

Task 9				
Organizational Preparedness				
	Team Leader	\$1,200	4	\$4,800
	Int'l PPP Expert	\$1,100		\$0
	ICT Specialist w/Datacenter Expertise	\$1,100	3	\$3,300
	ICT Specialist w/ ICT Governance Expertise	\$1,100	3	\$3,300
	ICT Training Specialist	\$1,100	1	\$1,100
	Change Management Specialist	\$1,100		\$0
	Procurement Specialist	\$1,100		\$0
	Local Brazilian PPP Expert	\$700		\$0
	Brazilian Govt Budget Analyst	\$700		\$0
	Brazilian Project Analyst	\$700	4	\$2,800
	Project Coordinator	\$1,050	2	\$2,100
	Subtotal Task 9		17	\$17,400
Task 10				
Preparation Of A Change Management Plan				
	Team Leader	\$1,200	2	\$2,400
	Int'l PPP Expert	\$1,100		\$0
	ICT Specialist w/Datacenter Expertise	\$1,100	1	\$1,100
	ICT Specialist w/ ICT Governance Expertise	\$1,100	1	\$1,100
	ICT Training Specialist	\$1,100	2	\$2,200
	Change Management Specialist	\$1,100	12	\$13,200
	Procurement Specialist	\$1,100		\$0
	Local Brazilian PPP Expert	\$700		\$0
	Brazilian Govt Budget Analyst	\$700		\$0
	Brazilian Project Analyst	\$700	4	\$2,800
	Project Coordinator	\$1,050	1	\$1,050
	Subtotal Task 10			\$23,850
Task 11				
Environmental Assessment				
	Team Leader	\$1,200	2	\$2,400
	Int'l PPP Expert	\$1,100		\$0
	ICT Specialist w/Datacenter Expertise	\$1,100		\$0
	ICT Specialist w/ ICT Governance Expertise	\$1,100		\$0
	ICT Training Specialist	\$1,100		\$0
	Change Management Specialist	\$1,100		\$0
	Procurement Specialist	\$1,100		\$0
	Local Brazilian PPP Expert	\$700		\$0
	Brazilian Govt Budget Analyst	\$700		\$0
	Brazilian Project Analyst	\$700	2	\$1,400
	Project Coordinator	\$1,050	1	\$1,050
	Subtotal Task 11		5	\$4,850
Task 12				
Developmental Impact Analysis				
	Team Leader	\$1,200	4	\$4,800
	Int'l PPP Expert	\$1,100		\$0
	ICT Specialist w/Datacenter Expertise	\$1,100		\$0
	ICT Specialist w/ ICT Governance Expertise	\$1,100		\$0
	ICT Training Specialist	\$1,100		\$0
	Change Management Specialist	\$1,100		\$0
	Procurement Specialist	\$1,100		\$0
	Local Brazilian PPP Expert	\$700		\$0
	Brazilian Govt Budget Analyst	\$700	1	\$700
	Brazilian Project Analyst	\$500	4	\$2,000
	Project Coordinator	\$1,050	1	\$910
	Subtotal Task 12		10	\$8,410

Task 13			
Project Planning And Implementation			
Team Leader	\$1,200	3	\$3,600
Int'l PPP Expert	\$1,100		
ICT Specialist w/Datacenter Expertise	\$1,100	4	\$4,400
ICT Specialist w/ ICT Governance Expertise	\$1,100	4	\$4,400
ICT Training Specialist	\$1,100		
Change Management Specialist	\$1,100		
Procurement Specialist	\$1,100		
Local Brazilian PPP Expert	\$700	2	\$1,400
Brazilian Govt Budget Analyst	\$700	2	\$1,400
Brazilian Project Analyst	\$500	5	\$2,500
Project Coordinator	\$1,050	2	\$910
Subtotal Task 13		22	\$18,610
Task 14			
Draft Final Report, Presentation, & Approval			
Team Leader	\$1,200	12	\$14,400
Int'l PPP Expert	\$1,100	2	\$2,200
ICT Specialist w/Datacenter Expertise	\$1,100	6	\$6,600
ICT Specialist w/ ICT Governance Expertise	\$1,100	5	\$5,500
ICT Training Specialist	\$1,100	1	\$1,100
Change Management Specialist	\$1,100	4	\$4,400
Procurement Specialist	\$1,100	1	\$1,100
Local Brazilian PPP Expert	\$700	4	\$2,800
Brazilian Govt Budget Analyst	\$700	3	\$2,100
Brazilian Project Analyst	\$500	4	\$2,000
Project Coordinator	\$1,050	2	\$910
Subtotal Task 14		44	\$43,110
Task 15			
Presentation And Final Report			
Team Leader	\$1,200	3	\$3,600
Int'l PPP Expert	\$1,100		\$0
ICT Specialist w/Datacenter Expertise	\$1,100	1	\$1,100
ICT Specialist w/ ICT Governance Expertise	\$1,100	1	\$1,100
ICT Training Specialist	\$1,100		
Change Management Specialist	\$1,100	1	
Procurement Specialist	\$1,100		
Local Brazilian PPP Expert	\$700	1	\$700
Brazilian Govt Budget Analyst	\$700	1	\$700
Brazilian Project Analyst	\$500	1	\$500
Project Coordinator	\$1,050	2	\$910
Subtotal Task 15		11	\$8,610
Total Direct Labor Phase 1			
Team Leader	\$1,200	66	\$79,200
Int'l PPP Expert	\$1,100	15	\$16,500
ICT Specialist w/Datacenter Expertise	\$1,100	46	\$50,600
ICT Specialist w/ ICT Governance Expertise	\$1,100	45	\$49,500
ICT Training Specialist	\$1,100	20	\$22,000
Change Management Specialist	\$1,100	32	\$35,200
Procurement Specialist	\$1,100	10	\$11,000
Local Brazilian PPP Expert	\$700	29	\$20,300
Brazilian Govt Budget Analyst	\$700	26	\$18,200
Brazilian Project Analyst	\$500	51	\$25,500
Project Coordinator	\$1,050	29	\$30,450
Total Phase I Specialists		369	\$358,450
TOTAL DIRECT LABOR			\$358,450

ANNEX II

Technical Assistance To The State of Minas Gerais - Datacenter Project Phase II- PPP Structure				
Table 3				
<i>(Breakdown of labor costs by task in Table 4)</i>				
DIRECT LABOR (DL) (*)	NAME, TITLE & LABOR CATEGORY	DAILY (8HR) RATE	# PERSON DAYS	TOTAL
	Team Leader	\$1,200	18	\$21,600
	Int'l PPP Expert	\$1,100	3	\$3,300
	ICT Specialist w/Datacenter Expertise	\$1,100	15	\$16,500
	ICT Specialist w/ ICT Governance Expertise	\$1,100	15	\$16,500
	Local Brazilian PPP Expert	\$700	15	\$10,500
	Brazilian Govt Budget Analyst	\$700	10	\$7,000
	Brazilian Project Analyst	\$700	10	\$7,000
	Procurement Specialist	\$1,100	14	\$15,400
Total			100	\$97,800
OTHER DIRECT LABOR	Project Coordinator, Brazil	\$1,050	9	\$9,450
TOTAL DIRECT LABOR			109	\$107,250
OTHER DIRECT COSTS	(ODC)			
International Travel	US-Minas Gerais	1600	4	\$6,400
Ground Transportation	Minas Gerais	400		\$400
PER DIEM -\$	Minas Gerais 31 days@195	195	43	\$8,385
OTHER				
Communications				\$450
Translation				\$5,000
Supplies, Copy & Reproduction				\$300
TOTAL OTHER DIRECT COSTS (ODC)				\$20,935
TOTAL BUDGET				\$128,185

Notes:

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

Labor rates for the local specialist are higher than might be expected, based on past experiences to account for the falling exchange rate and the growing Brazilian economy

Assumptions: 1 round trip for Team Leader and 1 round trip each for the Procurement and ICT specialists.

Per diems are equal to total estimated in-country days of US Consultant Team. Per diem rate is based on the US Government rates Rates shown are taken from the US State Department website:

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

Technical Assistance To The State of Minas Gerais - Datacenter Project Phase II- 8666 Structure				
Table 3				
<i>(Breakdown of labor costs by task in Table 4)</i>				
DIRECT LABOR (DL) (*)	NAME, TITLE & LABOR CATEGORY	DAILY (8HR) RATE	# PERSON DAYS	TOTAL
	Team Leader	\$1,200	18	\$21,600
	ICT Specialist w/Datacenter Expertise	\$1,100	15	\$16,500
	ICT Specialist w/ ICT Governance Expertise	\$1,100	15	\$16,500
	Brazilian Govt Budget Analyst	\$700	10	\$7,000
	Brazilian Project Analyst	\$700	10	\$7,000
	Procurement Specialist	\$1,100	14	\$15,400
Total			82	\$84,000
OTHER DIRECT LABOR	Project Coordinator, Brazil	\$1,050	9	\$9,450
TOTAL DIRECT LABOR			91	\$93,450
OTHER DIRECT COSTS	(ODC)			
International Travel	US-Minas Gerais	1600	4	\$6,400
Ground Transportation	Minas Gerais	400		\$400
PER DIEM -\$	Minas Gerais 31 days@195	246	43	\$10,578
OTHER				
Communications				\$450
Translation				\$5,000
Supplies, Copy & Reproduction				\$300
TOTAL OTHER DIRECT COSTS (ODC)				\$23,128
TOTAL BUDGET				\$116,578

Notes:

(*) Labor rates for each specialist and/or subcontractor contain no mark-up for holidays, vacation, or sick-leave.
 Labor rates for the local specialist are higher than might be expected, based on past experiences to account for the falling exchange rate and the growing Brazilian economy
 Assumptions: 1 round trip for Team Leader, 1 round trip each for the Procurement and ICT specialists.

Per diems are equal to total estimated in-country days of US Consultant Team. Per diem rate is based on the US Government rates
 Rates shown are taken from the US State Department website:

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

Technical Assistance To The State Of Minas Gerais - Datacenter Project Phase II - PPP Structure				
Table 4 -- Breakdown of Labor Costs per Task				
<i>(Total Phase II Costs in Table 3)</i>				
DIRECT LABOR (DL) (*)	NAME, TITLE & LABOR CATEGORY	DAILY (8HR) RATE	# PERSON DAYS	COST
Task 1				
Preparation of TOR For PPP Edital	Team Leader	\$1,200	11	\$13,200
	Int'l PPP Expert	\$1,100	2	\$2,200
	ICT Specialist w/Telecom Network Expertise	\$1,100	10	\$11,000
	ICT Specialist w/ ICT Governance Expertise	\$1,100	10	\$11,000
	Local Brazilian PPP Expert	\$700	11	\$7,700
	Brazilian Govt Budget Analyst	\$700	7	\$4,900
	Brazilian Project Analyst	\$700	7	\$4,900
	Procurement Specialist	\$1,100	8	\$8,800
	Project Coordinator	\$1,050	3	\$3,150
Subtotal Task 1			69	\$66,850
Task 2				
Present. & Approval For Publication	Team Leader	\$1,200	3	\$3,600
	Int'l PPP Expert	\$1,100	1	\$1,100
	ICT Specialist w/Datacenter Expertise	\$1,100	3	\$3,300
	ICT Specialist w/ ICT Governance Expertise	\$1,100	3	\$3,300
	Local Brazilian PPP Expert	\$700	3	\$2,100
	Brazilian Govt Budget Analyst	\$700	2	\$1,400
	Brazilian Project Analyst	\$700	2	\$1,400
	Procurement Specialist	\$1,100	3	\$3,300
	Project Coordinator	\$1,050	3	\$3,150
Subtotal Task 2			23	\$22,650
Task 3				
Preparation of Phase II Report	Team Leader	\$1,200	4	\$4,800
	Int'l PPP Expert	\$1,100		\$0
	ICT Specialist w/Telecom Network Expertise	\$1,100	2	\$2,200
	ICT Specialist w/Datacenter Expertise	\$1,100	2	\$2,200
	Local Brazilian PPP Expert	\$700	1	\$700
	Brazilian Govt Budget Analyst	\$700	1	\$700
	Brazilian Project Analyst	\$700	1	\$700
	Procurement Specialist	\$1,100	3	\$3,300
	Project Coordinator	\$1,050	3	\$3,150
Subtotal Task 2			17	\$17,750
Total Direct Labor Phase 2	Team Leader	\$1,200	18	\$21,600
	Int'l PPP Expert	\$1,100	3	\$3,300
	ICT Specialist w/Datacenter Expertise	\$1,100	15	\$16,500
	ICT Specialist w/ ICT Governance Expertise	\$1,100	15	\$16,500
	Local Brazilian PPP Expert	\$700	15	\$10,500
	Brazilian Govt Budget Analyst	\$700	10	\$7,000
	Brazilian Project Analyst	\$700	10	\$7,000
	Procurement Specialist	\$1,100	14	\$15,400
	Project Coordinator	\$1,050	9	\$9,450
GRAND TOTAL			109	\$107,250

Technical Assistance To The State Of São Paulo - Datacenter Project Phase II - 8666 Structure				
Table 4 -- Breakdown of Labor Costs per Task				
<i>(Total Phase II Costs in Table 3)</i>				
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	10	\$10,000
	ICT Specialist w/ ICT Governance Expertise	\$1,000	10	\$10,000
	Brazilian Govt Budget Analyst	\$500	7	\$3,500
	Brazilian Project Analyst	\$500	7	\$3,500
	Procurement Specialist	\$1,000	8	\$8,000
	Project Coordinator	\$910	3	\$2,730
Subtotal Task 1			56	\$49,830
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	4	\$4,000
	Project Coordinator	\$910	3	\$2,730
Subtotal Task 2			20	\$18,030
Task 3				
Preparation of Phase II Report	Team Leader	\$1,100	4	\$4,400
	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	2	\$2,000
	Project Coordinator	\$910	3	\$2,730
Subtotal Task 2			15	\$14,130
Total Direct Labor Phase 2	Team Leader	\$1,100	18	\$19,800
	ICT Specialist w/Datacenter Expertise	\$1,000	15	\$15,000
	ICT Specialist w/ ICT Governance Expertise	\$1,000	15	\$15,000
	Brazilian Govt Budget Analyst	\$500	10	\$5,000
	Brazilian Project Analyst	\$500	10	\$5,000
	Procurement Specialist	\$1,000	14	\$14,000
	Project Coordinator	\$910	9	\$8,190
GRAND TOTAL			91	\$81,990

ANNEX III – CONTACTS

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ANNEX IV – EXPRESSIONS OF INTEREST BY US-BASED COMPANIES

From: Renato Da Silveira Pazotto (rpazotto) [mailto:rpazotto@cisco.com]
Sent: Tuesday, March 18, 2008 9:03 AM
To: Peter T. Knight
Cc: Amos Maidantchik (amaidant); Pedro Ripper (pripper)
Subject: RE: Minas Gerais Datacenter Project

Peter,

Bom dia,

A CISCO através de seus parceiros e distribuidores atua diretamente no fornecimento de equipamentos para a construção de DataCenters tanto para a iniciativa privada, operadoras e entidades governamentais.

Nossa atuação engloba todos os aspectos de comunicação de dados, comunicação com servidores, armazenagem, segurança de rede e segurança física.

Estamos acompanhando a evolução dos projetos no âmbito do governo federal e dos governos estaduais no que tange a necessidade deles para os serviços que prestam aos órgãos públicos.

Agradeço o interesse pela CISCO neste projeto em particular e estamos a sua disposição para fornecer-lhe mais informações no tocante da aplicação de nossas tecnologias.

Atenciosamente,

Renato da Silveira Pazotto
Mgr, System Engineering
Public Sector

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From: Rafael.Lage@Sun.COM [mailto:Rafael.Lage@Sun.COM]
Sent: Tuesday, March 18, 2008 2:37 PM
To: ptknight@gmail.com
Subject: Sun e Governo de Minas Gerais

Sun e o Governo de Minas Gerais



Dr. Knight,

Conforme conversamos, a Sun Microsystems tem todo interesse em participar do projeto de implementação do ambiente de Tecnologia da Informação (TIC) do novo Centro Administrativo do Governo de Minas Gerais.

De fato, a Sun Microsystems, como provedora de soluções de infra-estrutura tecnológica, possui, no seu conjunto de produtos e serviços, desde [servidores](#), [armazenamento](#), [software](#) e [serviços](#) para o planejamento, implementação e operação de um [DataCenter](#), sendo hoje um importante fornecedor de TI para a Secretaria de Estado de Fazenda de Minas Gerais, Prodemge, Tribunal de Justiça de Minas Gerais e a Polícia Militar de Minas Gerais.

No que tange a implementação de um DataCenter, anunciamos em janeiro de 2008, o [Sun Modular DataCenter](#), um ambiente completo de infra-estrutura para permitir a rápida implementação de recursos computacionais, respeitando as políticas de eco-eficiência de um ambiente de TI ("Green IT").

Coloco-me à disposição para evoluirmos neste projeto.

Um abraço,

Rafael Lage
31-8428-7232
Territory Manager
Sun Microsystems

From: Campos, Firmino [mailto:firmينو.campos@eds.com]
Sent: Monday, April 21, 2008 11:00 AM
To: Peter T. Knight
Cc: Marconi Martins de Laia; Galvao, Marcio; Bozola, Celio; Reis, Nelson
Subject: RE: Interesse da EDS no novo datacenter integrado do Estado de MG
Importance: High

Prezado Peter,

Como é do conhecimento público, a **EDS** é a empresa líder, globalmente, na prestação de serviços a diversos Governos. Recentemente, a **EDS** decidiu constituir no Brasil uma estrutura organizacional dedicada para a prestação de serviços de tecnologia da informação ao segmento Governo, que contará com todo o suporte e experiência da equipe do *Global Government Industry Group*.

Iniciamos as nossas atividades de identificação de oportunidades neste segmento através de contato com a Sra. Renata Vilhena, Secretária de Planejamento e Gestão do Estado de Minas Gerais.

Participamos de uma reunião, no último dia 17 de abril em Belo Horizonte, com a equipe da Secretaria de Planejamento e Gestão para conhecermos com mais profundidade o Programa de Transformação que está ocorrendo naquele Estado. Adicionalmente, foi-nos apresentado o status do projeto a ser desenvolvido em conjunto com a USTDA, no qual V.Sa. está envolvido, relativo á **construção/consolidação/gestão do Data Center** em linha com a construção do novo Centro Administrativo do Governo do Estado.

Tendo em vista a nossa vasta experiência em **constituição e gestão de Data Centers** para o segmento de Governo, externamos à equipe da Secretaria o nosso grande interesse em contribuir, se permitido pela legislação brasileira, na fase de elaboração dos estudos de viabilidade técnica e econômico-financeira e, também, nos estudos de modelos de gestão e contratação de **Data Center**. Adicionalmente, manifestamos o nosso grande interesse em avaliar, por ocasião da divulgação da respectiva RFP, as condições para a participação no processo de licitação para a seleção do fornecedor para o referido projeto.

Aproveitamos este contato com V.Sa. para reafirmar o nosso grande interesse em avaliar, tanto na fase de projeto como na resposta à RFP, a nossa participação neste importante empreendimento para o Governo do Estado de Minas Gerais.

Ficamos à disposição de V.Sa. para esclarecimentos adicionais.

Atenciosamente,

Firmino A.V.S. Campos
EDS Brasil

Phone:+1- 55 11 4399-8888
Mobile : +1- 55 11 8596-9058

<mailto:firmينو.campos@eds.com>

From: Adriano Chemin [mailto:adriano.chemin@oracle.com]
Sent: Tuesday, April 22, 2008 2:34 PM
To: Peter T. Knight; 'Marconi Martins deLaia'
Subject: Datacenter Governo de Minas Gerais

Prezados Peter e Marconi

Vemos por meio deste manifestar nosso interesse em participar do processo licitatorio que o Goveno de Minas Gerais irá publicar objetivando adquirir servicos de dados corporativos (DataCenter) para atender às demandas de tecnologia do Estado.

Permancemos à disposição para futuras discussões referentes a questões técnicas pertinentes aos nossos produtos.

Sem mais,

Adriano Chemin
Vice Presidente
Oracle Do Brasil

From: Alexandre Barbosa [mailto:abarbosa@certisign.com.br]
Sent: Wednesday, March 19, 2008 7:34 PM
To: ptknight@gmail.com
Cc: grebollo@certisign.com.br
Subject: Projeto DataCenter do Centro Administrativo do Governo do Estado de MG

Prezado Peter Knight,

A **CERTISIGN** destaca-se no cenário nacional como líder na oferta de serviços e soluções tecnológicas inovadoras em certificação digital e vem contribuindo com organizações públicas e privadas no mercado nacional e internacional na entrega de soluções avançadas e na elaboração de formulações estratégicas na área de certificação digital e segurança da informação. Fundada em 1996, a **CERTISIGN** é líder no mercado brasileiro de certificação digital e responsável por mais de 70% dos certificados emitidos no país. Entre seus usuários estão contribuintes da Receita Federal, cerca de 80% dos sites de comércio eletrônico, a quase totalidade do setor bancário, empresas de todos os portes e entidades governamentais. Uma das três primeiras Autoridades Certificadoras do mundo a emitir certificados digitais e única no mercado brasileiro credenciada para operar em múltiplas hierarquias, como ICP-Brasil, VeriSign Trust Network (VTN) e hierarquia privada.

Sabendo do projeto de construção do Datacenter do novo Centro Administrativo do Governo do Estado de Minas Gerais, venho informar-lhe que temos todo o interesse em participar da construção deste empreendimento no que diz respeito a toda infra-estrutura tecnológica relativa à segurança da informação.

Gostaríamos que nos mantivesse informado a respeito deste importante projeto.

Atenciosamente,

Alexandre Barbosa



Alexandre F. Barbosa
Vice-Presidente de Tecnologia
(11) 4501 1972

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