Definitional Mission to Evaluate ICT Projects in Brazil: Executive Summary

(Volumes 1, 2, 3, 4, & 5 Issued Separately)

Final Report

Submitted by

Hellerstein & Associates

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I. EXECUTIVE SUMMARY

This executive summary provides an overview of the work performed under the Information and Communications Technology sector Definitional Mission (DM) conducted in Brazil in May and July of 2014, and summarizes U.S. company and Brazilian state entities focused on, the activities evaluated, and the methodology used for project assessment.

Hellerstein and Associates (H&A), an international consulting firm based in Washington, DC, conducted a Definitional Mission (DM) to examine, assess the terms, feasibility, and impact of the six ICT projects proposed to USTDA in six different Brazilian States: Sergipe, Tocantins, Para, Santa Catarina, Rio Grande do Sul, and Rio de Janeiro. We had hoped that our analysis of these projects would show that the proposed technical assistance projects would contribute to improved competition in the Brazilian IT market, lower costs for e-government services, foster the adoption of new ICTs, and result in significant export opportunities for U.S. producers of telecommunications and computer equipment.

As the states were not near each other we broke up the mission into two parts and visited the states of Santa Catarina and Rio Grande do Sul from May 22-28 2014, and Tocantins, Para, Sergipe and Rio de Janeiro from July 7-20 2014. The purpose of this DM was to examine, assess the terms, feasibility, and impact of the six ICT projects proposed to USTDA. The purpose of this ICT Definition Mission was to identify, evaluate and recommend a range of potential activities in the ICT sector in Brazil for USTDA funding consideration. The projects recommended by the DM Contractor are intended to help promote U.S. private sector objectives as well as development of the ICT priorities of Brazil. The projects recommended by the DM Contractor should help to promote U.S. private sector objectives as well as development of the ICT priorities in Brazil.

After extensive interviews over the course of four months evaluating technical, financial and economic aspects of the potential activities, including the project sponsor's capabilities and commitment, and implementation financing of those activities recommended by Government agencies, and commercial business entities, the DM team determined that an affirmative recommendation should be made for five different projects. H&A is not recommending the project in Rio de Janeiro. We welcome the Rio de Janeiro Government to resubmit their request at a later time.

A. Strategy

The DM contractor scheduled a series of meetings with various organizations to gain the needed perspective to recommend at least four-five activities to receive USTD funding, and had conversations with Brazilian and DC based USTDA staff to learn their perceptions and priorities related to the tasks of the DM.

The consultants then conducted a wide-ranging series of meetings with potential project sponsors, funding sources and U.S. businesses.

B. Methodology for Project Assessment

The assessment methodology used to ascertain whether a project was appropriate for USTDA funding was based on the following criteria – the degree to which the project:

- represents an opportunity for the sale of U.S. goods and services that is many times greater than the proposed amount of USTDA funding;
- represents an opportunity to positively impact the development of the host country in a measurable and definable way;
- is likely to receive implementation financing;
- will have a procurement process that provides "equal access" to U.S. firms to participate in providing U.S. produced materials, equipment and services in a competitive market place; and,
- is a priority of the host country Project Sponsor and country where the project is located.

The DM contractor requested that potential grantees send a write up that contained the information listed below on proposed projects prior to scheduling a visit to the potential grantee.

- What are the Project Objectives?
- What is the Project Scope?
- Description of the Project's Sponsor. Please describe the relationship?
- How will the Project be funding or financed? Please discuss the available Options that you will use?
- What is the Implementation time frame for the Project? Please describe and use charts if possible
- Please describe the basic technical details of the project?
- What goods and services will be procured during this project?
- Please discuss the level of potential exports of U.S. Goods or Services that you expect the proejct to result in?
- How the Project will benefit Brazil?
- What type of Support are you looking for USTDA to provide?

The DM contractor then evaluated the project information they received and followed up with the potential grantees whose initial response best met the assessment criteria described above. Meetings were guided by the checklist of issues and questions used to gather information. This process required multiple follow-up visits with the "shortlisted" potential project sponsors to ascertain detailed requirements and capacities, as well as meetings with potential funding sources and U.S. businesses to investigate funding and U.S. business opportunity prospects for these projects. After H&A Consultants evaluated the projects submitted by PROCERGs we realized that PROCERG's did not understand the missions and goals of USTDA and so worked with them to provide them with a deeper understanting of USTDA's missions, goals, and objective. As a result of H&A Consultant Peter Knights briefing, maangement came up with several new projects and withdrew their requests for the other projects.

Meetings with potential project sponsors were guided by the checklist of issues and questions:

- A concise summary of the objectives of the proposed activity
- A brief description of the project's technical, economic, and financial prospects
- A description of the project sponsor's commitment to project implementation and ability to implement the project
- Information on the financing options for project implementation, including:
- An overall cost estimate, proposed ownership and financing structure, and schedule for project implementation; and
- Evidence that financing is available or likely to be available for the project
- A list of the procurements likely to be subject to competitive tenders in which international suppliers can participate, and a list of the equipment and services that are likely to be imported for project implementation
- A description of the most important benefits that the project will provide to Brazil
- An explanation of why USTDA's funding is needed

After extensive interviews over the course of four months evaluating technical, financial and economic aspects of the potential activities, including the project sponsor's capabilities and commitment, and implementation financing of those activities recommended by Government agencies, and commercial business entities, the DM team determined that an affirmative recommendation should be made for five different projects. At USTDA'S suggestion, each recommended project will be addressed in its own volume.

Below we list very short summaries of each project:

A. RIO DE JANEIRO: THE PROJECT

The Rio de Janeiro State IT Company is requesting USTDA technical assistance for a sole source project that will help them prepare the bidding documents and evaluate proposals related to the implementation of a statewide datacenter. Additionally, PRODERJ is looking to erect a temporary datacenter in the interim and wishes to have USTDA assistance to develop the technical specifications, including guidelines for technology and vendor selection.

The Rio de Janeiro Information and Communications Center (PRODERJ) sought USTDA funded technical assistance for a sole-source project to be completed by the Developing Market Group (DMG) to help prepare the bidding documents and evaluate proposals related to the implementation of a statewide datacenter. Additionally, PRODERJ is looking to erect a temporary datacenter in the interim and wishes to have USTDA assistance to develop the technical specifications, including guidelines for technology and vendor selection.

H&A consultant Peter Knight discussed this project at length with DMG President Flavio Feferman. Mr. Knight explained what a sole source project would entail and went over the USTDA Nationality requirements, the cost sharing and profit reimbursement requirements, and the requirements for a sole source contract. H&A Consultant Peter Knight also discussed the impact to DMG if they also worked on the Implementation of the project. A short while later, Mr. Feferman explained to H&A Consultant Peter Knight that his firm could not take on this assignment with the Rio de Janeiro Government as first envisioned. He stated that he had not understood the requirements for a sole source cost sharing project and now believed that the

requirements were too onerous for his firm. He withdrew his offer to the Rio de Janeiro Government and instead offered to provide limited follow-up advice on a pro-bono basis.

As this project no longer has the support of the DMG team, and no other sole source firm was selected, H&A can not recommend this project at this time. We welcome the Rio de Janeiro Government to resubmit their request at a later time.

B. Grantee: Empresa de Processamento de Dados do Estado do Pará - Prodepa
Activity Budget: $449,680.
U.S. Export Potential: Fiber optic cables, optical and electronic equipment for lighting the fiber, routers; wireless broadband equipment such as antennas, transmitters, and receivers; systems and applications software, totaling approximately **US$100 million**.

The ICT Company of Pará (Empresa de Processamento de Dados do Estado do Pará - PRODEPA) is a public company linked to the Pará State Administration Secretariat (Secretaria de Estado de Administração – SEA) of the Government of the State of Pará (Governo do Estado do Pará – GEPA). The company provides public information and communications technology (ICT) services to the State utilizing its own assets under a regime of administrative, financial and technical autonomy.

PRODEPA seeks an international consultancy financed by USTDA to provide technical assistance and identify global best practices for five subprojects to provide the best technological solutions for data transportation under the difficult conditions found in the Amazon, divided by huge rivers lakes and the Atlantic Ocean; with dense tropical forests, with a limited road network, and subject to heavy rainfall and high humidity throughout the year.

1. The fiber optic backbone and its architecture, both for long distances and in metropolitan networks;
2. Construction of wireless backbones in the Amazon (currently Prodepa uses microwave radios (SDH) that operate in the 7.5 and 8 Ghz frequencies for links up to 35 km and providing 155,5 Mbps with local 200 Mbps Ethernet connections operating in full duplex mode;
3. Radio Base Stations (*Estações Rádio Base* – ERBs) for wireless communication with automated remote monitoring and using off-grid sources of energy (solar, wind, etc.);
4. High capacity (above 200 connections) Wi-Fi hotspots for with managed access for users;
5. A decentralized management system for Navegapará that would replace that centralized in Belém and offers high degrees of reliability, confidentiality, and redundancy with ring topography and mirror sites for Prodepa's datacenter in several locations within the state.

The international consultancy will examine what is being done around the world in the areas of data communication (optical, radio, and satellite), safety, distance learning, IP telephony, and telepresence rooms.

C. Grantee: *PROCERGS*
Activity Budget: $356,920.
U.S. Export Potential: Servers, Network and other data center equipment totaling approximately **US$34.8 million**.

PROCERGS' primary mission has to provide ICT solutions for the public administration of the State of Rio Grande do Sul (RS).

The project and sub-projects

The original projects that PROCERGs had in mind for USTDA to finance would not be the objectives of USTDA so H&A consultant Peter Knight worked closely with PROCERGS staff and management to structure a new project more suited for a USTDA-funded feasibility study. PROCERG's staff revised their request and requested technical assistance on the expansion of the state's broadband network.

D. Grantee: Secretaria de Planejamento e Modernização da Gestão Pública SEPLAN/TO
Activity Budget: $707,930.
U.S. Export Potential: Servers, Switches, Storage, air conditioning, virtualization software, and other data center equipment; Fiber optic cables; optical electronics; wireless equipment such as antennas, transmitters, and receivers; systems and application software, totaling approximately **US$ 60.7 million** (US$32 million for the Broadband Network +US$28.7 million for the Data Center).

The Tocantins State Secretariat of Planning, Modernization and Public Management (*Secretaria de Planejamento e Modernização da Gestão Pública* – SEPLAN/TO) Sub-Secretariat of Informatics (*Sub-Secretaria de Informática* - SSI) is responsible for the conduct of the State of Tocantins' ICT policies. Unlike most other states, SSI/SEPLAN/TO is not a public enterprise, but a part of the state's government.

The Project And Sub-Projects

SSI/SEPLAN seeks USTDA financing to conduct feasibility studies for three related projects that are part of a broader effort to modernize Tocantins' public administration:

1. A hybrid fiber-wireless broadband network reaching all 139 municipalities (*municípios*);
2. Expansion and consolidation of the existing datacenter with construction of a new safe room; and

E. Grantee: Empresa Sergipana de Tecnologia da Informação – EMGETIS
Activity Budget: $741,790.
U.S. Export Potential: Servers, Switches, Storage, air conditioning, virtualization software, and other data center equipment; Fiber optic cables; optical electronics; wireless equipment such as antennas, transmitters, and receivers; systems and application software, total approximately US$15.3 million.

The Sergipe Information Technology Company (Empresa Sergipana de Tecnologia da Informação – EMGETIS) is an *autarquia*, a type of decentralized autonomous public entity carrying out typical functions of public administration, created by a specific law. An autarquia has its own capital and sources of revenue, but is supervised by a government entity, typically a secretariat or ministry.

EMGETIS is supervised by the State Secretariat of Planning, Budget and Management (*Secretaria Estadual de Planejamento, Orçamento e Gestão*) of Sergipe. It was created in November 2008 through transformation of the former Data Processing Company of Sergipe (*Companhia de Processamento de Dados de Sergipe* - Prodase) into a public enterprise as authorized by State Law 6,396 of 4 April 2008. EMGETIS' mission is to promote, execute and manage the State ICT Policy for the State Public Administration, emphasizing innovation and the use of modern management methodologies based on management of projects and processes. Furthermore, the enterprise seeks to use ICT as a strategic element in the provision of public services to citizens.

EMGETIS seeks technical assistance for an international consultancy financed by USTDA to develop detailed plans for:

1. Extending the existing Sergipe hybrid fiber/wireless public broadband network to reach all 75 municipalities (*municípios*) in Sergipe, to offer Internet connectivity and e-government services to the entire population of the state through telecenters and schools (called the Digital Cities Project);
2. Establishing a business continuity and disaster recovery plan for the existing EMGETIS data center, including risk analysis, business impact analysis, recovery strategy, business continuity plan, disaster recovery plan for the EMGETIS datacenter, specification of the necessary software and hardware; and
3. Upgrading the existing data center and a designing a backup safe room (*sala cofre*) to replace the current backup facility shared with the Bank of the State of Sergipe.

F. Grantee: The Informatics and Automation Company of Santa Catarina State (CIASC)

Activity Budget: $696,820.

U.S. Export Potential: Servers, Switches, Storage, air conditioning, virtualization software, and other data center equipment; Fiber optic cables; optical electronics; wireless equipment such as antennas, transmitters, and receivers; systems and application software, total approximately **US$44.1 million** (US$ 21.6 million for Hybrid Fiber Network and US$22.5 for Data Center)

The Informatics and Automation Company of Santa Catarina State (CIASC) requests USTDA funding to finalize its plans for a new data center being built for the State of Santa Catarina's Civil Defense Secretariat that would also serve as an active-active backup for SIASC's main data center, and to analyze potential business models for its expanding statewide fiber optic network.

It is also seeking funding for a study to recommend best practices and to scale security equipment, software and ICT appropriate for operation in the aforementioned conditions. The principal objectives of the study would be show how best o reduce the energy footprint of the new data center through use of "green" data center technology, achieve scalability to accommodate growth in demand for data center services.

CIASC is also seeking to expand its broadband network throughout the State and to recommend proven and effective business models such as partnerships, sale of telecommunications services, leasing of dark fiber, selling and trading transmission capacity in the market and pouches, and providing services to large users. It seeks USTDA Assistance on this project. Such business models should seek to generate revenue and/or in-kind services that would reduce CIASC's need for budgetary allocations to provide services to government clients and also reduce costs of telecommunications services to end-users throughout the state, thus promoting digital inclusion and economic development.

The scope of work of the DM requires the development of detailed terms of reference (TOR) for activities recommended by the consultants, detailed consultant qualifications and a detailed Project budget, with final approval of the activities by USTDA. This Final Report contains a summary of the DM process and findings. The DM Contractor's recommendations and the TOR, consulting team qualifications, and budget for the project are listed here.

II. U.S. COMPANIES CONTACTED DURING THE COURSE OF THE DEFINITIONAL MISSION

The Chart on the next page lists all the US companies that H&A contacted over the course of the project.

Sector/Firm/Organization	Products	First/Last Name	Title	Address	Phone	E-mail Address	City	State	Postal Code	Country
Data Center Equipment and Software and others										
Cisco	Network equipment, data center equipment	Gilberto Chagastelles	Public Sector Director	Avenida das Américas, 700 Citá America - B1-5A 3 andar Barra	55 21 9 7629 8154	gchagast@cisco.com	Rio de Janiero	RJ	22640-100	Brazil
Oracle	Data center equipment and software	Cassiano Bonani	Director, Government	Rua Dr. José Áureo Bustamante, 455	55 (11) 5189-1257	cassiano.bonani@oracle.com	São Paulo	SP	04710-090	Brazil
EMC	Data center equipment and software	Nilmar Marinho	Public Sector Business Exec.	Av. das Américas, 3.443, Bloco 1	55 (21) 3082-4269	nilmar.marinho@emc.com	Rio de Janiero	RJ	22631-003	Brazil
Microsoft Technology Center	Software and servers			Av. Nações Unidas, 12495, 17th floor	55 (11) 3538-4001	mtcsp@microsoft.com	Sãp Paulo	SP		
IBM	Data center equipment and software IoT equipment and software	Octavius A. Azevedo	Geo Expansion Director	Av. Pasteur, 138/146, Botafogo	55 11-96846-9315	guto2@br.ibm.com	Rio de Janiero	RJ	22290-240 06454-000	Brazil Brazil
Hewlet Packard (Sales)	Data center equipment			Alameda Rio Negro, 750; Alphaville	55 ((11) 4197.8000		Barueri	SP	06454-000	Brazil
Fiber Optic and Wireless Network Equipment										
Clearfield	Passive fiber optic network equipment	Ted Morris (referred by Tom Brown)	Business Development Mgr.	5480 Nathan Lane	763-519-9744	tmorris@clfd.net	Plymouth	MA	55442	USA
Calix	Fiber optic networking equipment and software	Steven Abraham	Sr. Sales Engineer	6 Bowman Lane	707-766-3500	steven.abraham@calix.com	Westborough	MA	1581	USA
Alphion	GPON fiber optic access systems and subsystems	Darrell Sager	VP Manufacturiing	196 Princeton heightstown Road, Bldg.1A	609-936-9001x7053	dsager@alphion.com	Princeton Junction	NJ	8550	USA
Corning Comunicações Ópticas	Fiber optic cables and equipment			Estr. do Camorim 633	55 21 3416 5150		Rio de Janeiro	RJ	22780-070	
Corning Brasil Indústria e Comércio Ltda.	Fiber optic cables and accessories			Rua Dr. Renato Paes de Barros, 714 - 11° and;Av. Das Nações Unidas 12551 , Suite 2203/04	55 11 3089 7380, 55-11-3443-7799		Sãp Paulo	SP	04530-001	Brazil
Brocade,	Data center equoiipment, switches			Av. Das Nações Unidas 12551			São Paulo	SP	04578-000	Brazil
Streakwave,	Wireless broadband equipment			Av Desembargador Hugo Simas 1176	55 41 3076-4270	vendas@streakwave.com.br	Curitiba	PR	80520-250	Brazil
Memory Link	Wireless broadband equipment			590 Tollgate Road, Suite B	847-259-9680		Elgin	IL	60123	USA
Juniper,	Networking equipment, routers, switches			Av. Das Nacoes Unidas, 12551	55 11-3443-1468		São Paulo	SP	04578-903	Brazil
Internet of Things in Agriculture										
ThingWorx	IoT software, flexible control platform	Frank King	Business Development Rep.	350 Eagleview Blvd Suite 150	610.594.6200 ext 5	frank.king@thingworx.com	Exton	PA	19341	USA
Freescale Semicondutores Brasil Ltda.	IoT controllers, sensors, microprocessors			Condominio TechnoPark Rodovia Anhanguera, km 104 Rua James Clerk Maxwell, 400			Campinas		13069-380	