

REQUEST FOR PROPOSALS

TECHNICAL ASSISTANCE FOR THE

RIO GRANDE DO SUL IT NETWORK MODERNIZATION AND BUSINESS MODEL

Submission Deadline: **4:00pm**
LOCAL TIME
November 4, 2015

Submission Place: PROCERGS
Praça dos Açorianos, S/Nº
Porto Alegre, RS
CEP 90010-340
Brazil
+ 55 51-3210-3259

SEALED PROPOSALS SHALL BE CLEARLY MARKED AND RECEIVED PRIOR TO THE TIME AND DATE SPECIFIED ABOVE. PROPOSALS RECEIVED AFTER SAID TIME AND DATE WILL NOT BE ACCEPTED OR CONSIDERED.

N.B.: Any and all questions pertaining to the RFP should be sent to:
RFPQuestions@ustda.gov

REQUEST FOR PROPOSALS

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Section 1: INTRODUCTION

The U.S. Trade and Development Agency (USTDA) has provided a grant in the amount of US\$356,920 to the *Companhia de Processamento de Dados do Estado do Rio Grande do Sul* (PROCERGS, the “Grantee”) in accordance with a grant agreement dated August 7, 2015 (the “Grant Agreement”). The objective of this Technical Assistance is to develop a roadmap to expand the State of Rio Grande do Sul's fiber and wireless broadband network and modernize the existing data center. The Grant Agreement is attached at Annex 4 for reference. The Grantee is soliciting technical proposals from qualified U.S. firms to provide expert consulting services to perform the Technical Assistance.

1.1 BACKGROUND SUMMARY

Rio Grande do Sul is the southernmost state in Brazil and it has the fourth highest Human Development Index in the country. With a population estimated at 12.2 million in 2014, it is the fifth most populous state. Digital inclusion has become a national priority under the Rousseff Administration and the state of Rio Grande do Sul seeks to be a reference for Brazil in providing extensive e-services to its population.

PROCERGS, the Grantee, began operating in Rio Grande do Sul in 1972 with a mission to provide ICT solutions for the state government. PROCERGS supports government processes; ensures continuity of IT services; integrates data processes and security; and provides a wide range of information to citizens, businesses, and civil servants through the government's web portal.

PROCERGS runs a large portion of the Infovia RS (state-wide fiber optics) network and has agreements with the power companies to use their fiber optic cables. PROCERGS also has rights to 28 pairs of fiber managed by the National Education and Research Network. PROCERGS has already begun expanding the Infovia RS network, and installed 585 miles of fiber optic cables in June 2014. PROCERGS now wants to modernize and further expand the Infovia RS network to provide e-government and public services to all municipal centers. PROCERGS also wants to replace its optical technology and install equipment such as broadband amplifiers and transceivers that can manage many different channels simultaneously. This equipment will increase transmission speeds by tenfold or more.

In addition to the modernization and expansion plan, PROCERGS is interested in implementing a new business model. The Brazilian telephone company, Oi, currently supplements the Infovia RS network. Oi has a virtual monopoly on fixed line connectivity in the state, with the exception of the capital. PROCERGS considers Oi's service to be expensive, and seeks to decrease its dependence on Oi as the network operator, possibly by implementing a public-private business model.

The Technical Assistance will evaluate new business models that PROCERGS can implement, such as partnerships, sale of telecommunications services, dark fiber leasing, and the exchange of capacity with other operators seeking to expand their own networks. These business models could generate revenue or in-kind services that would reduce the need for PROCERGS to allocate funding to provide services to government customers.

Edited portions of a background Definitional Mission is provided for reference in Annex 2.

1.2 OBJECTIVE

The objective of this Technical Assistance is to develop a roadmap to expand the State of Rio Grande do Sul's fiber and wireless broadband network and modernize the existing data center. The Terms of Reference (TOR) for this Technical Assistance are attached as Annex 5.

1.3 PROPOSALS TO BE SUBMITTED

Technical proposals are solicited from interested and qualified U.S. firms. The administrative and technical requirements as detailed throughout the Request for Proposals (RFP) will apply. Specific proposal format and content requirements are detailed in Section 3.

The amount for the contract has been established by a USTDA grant of US\$356,920. **The USTDA grant of \$US356,920 is a fixed amount. Accordingly, COST will not be a factor in the evaluation and therefore, cost proposals should not be submitted.** Upon detailed evaluation of technical proposals, the Grantee shall select one firm for contract negotiations.

1.4 CONTRACT FUNDED BY USTDA

In accordance with the terms and conditions of the Grant Agreement, USTDA has provided a grant in the amount of US\$356,920 to the Grantee. The funding provided under the Grant Agreement shall be used to fund the costs of the contract between the Grantee and the U.S. firm selected by the Grantee to perform the TOR. The contract must include certain USTDA Mandatory Contract Clauses relating to nationality, taxes, payment, reporting, and other matters. The USTDA nationality requirements and the USTDA Mandatory Contract Clauses are attached at Annexes 3 and 4, respectively, for reference.

Section 2: INSTRUCTIONS TO OFFERORS

2.1 PROJECT TITLE

The project is called Rio Grande do Sul IT Network Modernization and Business Model.

2.2 DEFINITIONS

Please note the following definitions of terms as used in this RFP.

The term "Request for Proposals" means this solicitation of a formal technical proposal, including qualifications statement.

The term "Offeror" means the U.S. firm, including any and all subcontractors, which responds to the RFP and submits a formal proposal and which may or may not be successful in being awarded this procurement.

2.3 DEFINITIONAL MISSION REPORT

USTDA sponsored a Definitional Mission to address technical, financial, sociopolitical, environmental and other aspects of the proposed project. Edited portions of the report are attached at Annex 2 for background information only. Please note that the TOR referenced in the report are included in this RFP as Annex 5.

2.4 EXAMINATION OF DOCUMENTS

Offerors should carefully examine this RFP. It will be assumed that Offerors have done such inspection and that through examinations, inquiries and investigation they have become familiarized with local conditions and the nature of problems to be solved during the execution of the Technical Assistance.

Offerors shall address all items as specified in this RFP. Failure to adhere to this format may disqualify an Offeror from further consideration.

Submission of a proposal shall constitute evidence that the Offeror has made all the above mentioned examinations and investigations, and is free of any uncertainty with respect to conditions which would affect the execution and completion of the Technical Assistance.

2.5 PROJECT Funding Source

The Technical Assistance will be funded under a grant from USTDA. The total amount of the grant is not to exceed US\$356,920.

2.6 RESPONSIBILITY FOR COSTS

Offeror shall be fully responsible for all costs incurred in the development and submission of the proposal. Neither USTDA nor the Grantee assumes any obligation as a result of the issuance of this RFP, the preparation or submission of a proposal by an Offeror, the evaluation of proposals, final selection or negotiation of a contract.

2.7 TAXES

Offerors should submit proposals that note that in accordance with the USTDA Mandatory Contract Clauses, USTDA grant funds shall not be used to pay any taxes, tariffs, duties, fees or other levies imposed under laws in effect in the Host Country.

2.8 CONFIDENTIALITY

The Grantee will preserve the confidentiality of any business proprietary or confidential information submitted by the Offeror, which is clearly designated as such by the Offeror, to the extent permitted by the laws of the Host Country.

2.9 ECONOMY OF PROPOSALS

Proposal documents should be prepared simply and economically, providing a comprehensive yet concise description of the Offeror's capabilities to satisfy the requirements of the RFP. Emphasis should be placed on completeness and clarity of content.

2.10 OFFEROR CERTIFICATIONS

The Offeror shall certify (a) that its proposal is genuine and is not made in the interest of, or on behalf of, any undisclosed person, firm, or corporation, and is not submitted in conformity with, and agreement of, any undisclosed group, association, organization, or corporation; (b) that it has not directly or indirectly induced or solicited any other Offeror to put in a false proposal; (c) that it has not solicited or induced any other person, firm, or corporation to refrain from submitting a proposal; and (d) that it has not sought by collusion to obtain for itself any advantage over any other Offeror or over the Grantee or USTDA or any employee thereof.

2.11 CONDITIONS REQUIRED FOR PARTICIPATION

Only U.S. firms are eligible to participate in this tender. However, U.S. firms may utilize subcontractors from the Host Country for up to 20 percent of the amount of the USTDA grant for specific services from the TOR identified in the subcontract. USTDA's nationality requirements, including definitions, are detailed in Annex 3.

2.12 LANGUAGE OF PROPOSAL

All proposal documents shall be prepared and submitted in English and in Portuguese. Offerors should submit one copy in English, one copy in Portuguese, and an electronic copy of both versions on a flash drive. Annex VI does not need to be translated into Portuguese.

2.13 PROPOSAL SUBMISSION REQUIREMENTS

The **Cover Letter** in the proposal must be addressed to:

PROCERGS
Praça dos Açorianos, S/Nº
Porto Alegre, RS
CEP 90010-340
Brazil

An English and Portuguese version of your proposal, as well as an electronic copy of both versions on a flash drive, must be received at the above address no later than 4:00pm, on

November 4, 2015. Please call or e-mail PROCERGS (jaeger@procergs.rs.gov.br; Tel. + 55 51-3210-3259) once your proposal is en route.

Proposals may be either sent by mail, overnight courier, or hand-delivered. Whether the proposal is sent by mail, courier or hand-delivered, the Offeror shall be responsible for actual delivery of the proposal to the above address before the deadline. Any proposal received after the deadline will be returned unopened. The Grantee will promptly notify any Offeror if its proposal was received late.

Upon timely receipt, all proposals become the property of the Grantee.

2.14 PACKAGING

Each copy of the proposal must be sealed to ensure confidentiality of the information. The proposals should be individually wrapped and sealed, and labeled for content including the name of the project and designation of "English" or "Portuguese". The English and Portuguese copies should be collectively wrapped and sealed, and clearly labeled, including the contact name and the name of the project.

Neither USTDA nor the Grantee will be responsible for premature opening of proposals not properly wrapped, sealed and labeled.

2.15 OFFEROR'S AUTHORIZED NEGOTIATOR

The Offeror must provide the name, title, address, telephone number, e-mail address and fax number of the Offeror's authorized negotiator. The person cited shall be empowered to make binding commitments for the Offeror and its subcontractors, if any.

2.16 AUTHORIZED SIGNATURE

The proposal must contain the signature of a duly authorized officer or agent of the Offeror empowered with the right to bind the Offeror.

2.17 EFFECTIVE PERIOD OF PROPOSAL

The proposal shall be binding upon the Offeror for NINETY (90) days after the proposal due date, and Offeror may withdraw or modify this proposal at any time prior to the due date upon written request, signed in the same manner and by the same person who signed the original proposal.

2.18 EXCEPTIONS

All Offerors agree by their response to this RFP announcement to abide by the procedures set forth herein. No exceptions shall be permitted.

2.19 OFFEROR QUALIFICATIONS

As provided in Section 3, Offerors shall submit evidence that they have relevant past experience and have previously delivered advisory, Technical Assistance and/or other services similar to those required in the TOR, as applicable.

2.20 RIGHT TO REJECT PROPOSALS

The Grantee reserves the right to reject any and all proposals.

2.21 PRIME CONTRACTOR RESPONSIBILITY

Offerors have the option of subcontracting parts of the services they propose. The Offeror's proposal must include a description of any anticipated subcontracting arrangements, including the name, address, and qualifications of any subcontractors. USTDA nationality provisions apply to the use of subcontractors and are set forth in detail in Annex 3. The successful Offeror shall cause appropriate provisions of its contract, including all of the applicable USTDA Mandatory Contract Clauses, to be inserted in any subcontract funded or partially funded by USTDA grant funds.

2.22 AWARD

The Grantee shall make an award resulting from this RFP to the best qualified Offeror, on the basis of the evaluation factors set forth herein. The Grantee reserves the right to reject any and all proposals received.

2.23 COMPLETE SERVICES

The successful Offeror shall be required to (a) provide local transportation, office space and secretarial support required to perform the TOR if such support is not provided by the Grantee; (b) provide and perform all necessary labor, supervision and services; and (c) in accordance with best technical and business practice, and in accordance with the requirements, stipulations, provisions and conditions of this RFP and the resultant contract, execute and complete the TOR to the satisfaction of the Grantee and USTDA.

2.24 INVOICING AND PAYMENT

Deliverables under the contract shall be delivered on a schedule to be agreed upon in a contract with the Grantee. The Contractor may submit invoices to the designated Grantee Project Director in accordance with a schedule to be negotiated and included in the contract. After the Grantee's approval of each invoice, the Grantee will forward the invoice to USTDA. If all of the requirements of USTDA's Mandatory Contract Clauses are met, USTDA shall make its respective disbursement of the grant funds directly to the U.S. firm in the United States. All

payments by USTDA under the Grant Agreement will be made in U.S. currency. Detailed provisions with respect to invoicing and disbursement of grant funds are set forth in the USTDA Mandatory Contract Clauses attached in Annex 4.

Section 3: PROPOSAL FORMAT AND CONTENT

To expedite proposal review and evaluation, and to assure that each proposal receives the same orderly review, all proposals must follow the format described in this section.

Proposal sections and pages shall be appropriately numbered and the proposal shall include a Table of Contents. Offerors are encouraged to submit concise and clear responses to the RFP. Proposals shall contain all elements of information requested without exception. Instructions regarding the required scope and content are given in this section. The Grantee reserves the right to include any part of the selected proposal in the final contract.

The proposal shall consist of a technical proposal only. A cost proposal is NOT required because the amount for the contract has been established by a USTDA grant of US\$356,920, which is a fixed amount.

Offerors shall submit one (1) English and one (1) Portuguese version of the proposal, as well as electronic versions of each. Annex VI does not need to be translated into Portuguese. Proposals received by fax cannot be accepted.

Each proposal must include the following:

- Transmittal Letter,
- Cover/Title Page,
- Table of Contents,
- Executive Summary,
- Firm Background Information,
- Completed U.S. Firm Information Form,
- Organizational Structure, Management Plan, and Key Personnel,
- Technical Approach and Work Plan, and
- Experience and Qualifications.

Detailed requirements and directions for the preparation of the proposal are presented below.

3.1 EXECUTIVE SUMMARY

An Executive Summary should be prepared describing the major elements of the proposal, including any conclusions, assumptions, and general recommendations the Offeror desires to make. Offerors are requested to make every effort to limit the length of the Executive Summary to no more than five (5) pages.

3.2 U.S. FIRM INFORMATION

A U.S. Firm Information Form in .pdf fillable format is attached at the end of this RFP in Annex 6. The Offeror must complete the U.S. Firm Information Form and include the completed U.S. Firm Information Form with its proposal.

3.3 ORGANIZATIONAL STRUCTURE, MANAGEMENT, AND KEY PERSONNEL

Describe the Offeror's proposed project organizational structure. Discuss how the project will be managed including the principal and key staff assignments for this Technical Assistance. Identify the Project Manager who will be the individual responsible for this project. The Project Manager shall have the responsibility and authority to act on behalf of the Offeror in all matters related to the Technical Assistance.

Provide a listing of personnel (including subcontractors) to be engaged in the project, including both U.S. and local subcontractors, with the following information for key staff: position in the project; pertinent experience, curriculum vitae; other relevant information. If subcontractors are to be used, the Offeror shall describe the organizational relationship, if any, between the Offeror and the subcontractor.

A manpower schedule and the level of effort for the project period, by activities and tasks, as detailed under the Technical Approach and Work Plan shall be submitted. A statement confirming the availability of the proposed project manager and key staff over the duration of the project must be included in the proposal.

3.4 TECHNICAL APPROACH AND WORK PLAN

Describe in detail the proposed Technical Approach and Work Plan (the "Work Plan"). Discuss the Offeror's methodology for completing the project requirements. Include a brief narrative of the Offeror's methodology for completing the tasks within each activity series. Begin with the information gathering phase and continue through delivery and approval of all required reports.

Prepare a detailed schedule of performance that describes all activities and tasks within the Work Plan, including periodic reporting or review points, incremental delivery dates, and other project milestones.

Based on the Work Plan, and previous project experience, describe any support that the Offeror will require from the Grantee. Detail the amount of staff time required by the Grantee or other participating agencies and any work space or facilities needed to complete the Technical Assistance.

3.5 EXPERIENCE AND QUALIFICATIONS

Provide a discussion of the Offeror's experience and qualifications that are relevant to the objectives and TOR for the Technical Assistance. If a subcontractor(s) is being used, similar

information must be provided for the prime and each subcontractor firm proposed for the project. The Offeror shall provide information with respect to relevant experience and qualifications of key staff proposed. The Offeror shall include letters of commitment from the individuals proposed confirming their availability for contract performance.

As many as possible but not more than six (6) relevant and verifiable project references must be provided for each of the Offeror and any subcontractor, including the following information:

- Project name,
- Name and address of client (indicate if joint venture),
- Client contact person (name/ position/ current phone and fax numbers),
- Period of Contract,
- Description of services provided,
- Dollar amount of Contract, and
- Status and comments.

Offerors are strongly encouraged to include in their experience summary primarily those projects that are similar to the Technical Assistance as described in this RFP.

Section 4: AWARD CRITERIA

Individual proposals will be initially evaluated by a Procurement Selection Committee of representatives from the Grantee. The Committee will then conduct a final evaluation and completion of ranking of qualified Offerors. The Grantee will notify USTDA of the best qualified Offeror, and upon receipt of USTDA’s no-objection letter, the Grantee shall promptly notify all Offerors of the award and negotiate a contract with the best qualified Offeror. If a satisfactory contract cannot be negotiated with the best qualified Offeror, negotiations will be formally terminated. Negotiations may then be undertaken with the second most qualified Offeror and so forth.

The selection of the Contractor will 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

Proposals that do not include all requested information may be considered non-responsive.

Price will not be a factor in contractor selection.

ANNEX 1

PROCERGS
Praça dos Açorianos, S/Nº
Porto Alegre, RS
CEP 90010-340
Brazil

USTDA Activity Number 2015-51019A, Rio Grande do Sul IT Network Modernization and Business Model

POC: Jennifer Van Renterghem, USTDA, 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901, Tel: (703) 875-4357, Fax: (703) 875-4009, Email: RFPQuestions@ustda.gov.

Rio Grande do Sul IT Network Modernization and Business Model

The Grantee invites submission of qualifications and proposal data (collectively referred to as the "Proposal") from interested U.S. firms that are qualified on the basis of experience and capability to provide Technical Assistance for the development of a roadmap to expand the State of Rio Grande do Sul's fiber and wireless broadband network and modernize the existing data center.

PROCERGS, the Grantee, began operating in Rio Grande do Sul in 1972 with a mission to provide ICT solutions for the state government. PROCERGS supports government processes; ensures continuity of IT services; integrates data processes and security; and provides a wide range of information to citizens, businesses, and civil servants through the government's web portal. PROCERGS runs a large portion of the Infovia RS (state-wide fiber optics) network and has agreements with the power companies to use their fiber optic cables. PROCERGS also has rights to 28 pairs of fiber managed by the National Education and Research Network. PROCERGS has already begun expanding the Infovia RS network, and installed 585 miles of fiber optic cables in June 2014.

The Technical Assistance will provide PROCERGS with a modernization and expansion plan and will also evaluate new business models that PROCERGS can implement, such as partnerships, sale of telecommunications services, dark fiber leasing, and the exchange of capacity with other operators seeking to expand their own networks.

The U.S. firm selected will be paid in U.S. dollars from a \$356,920 grant to the Grantee from the U.S. Trade and Development Agency (USTDA).

A detailed Request for Proposals (RFP), which includes requirements for the Proposal, the Terms of Reference, and portions of a background definitional mission report are available from USTDA, at 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901. To request the RFP in PDF format, please go to: <https://www.ustda.gov/businessopps/rfpform.asp>. Requests for a mailed hardcopy version of the RFP may also be faxed to the IRC, USTDA at 703-875-4009. In the fax, please include your firm's name, contact person, address, and telephone number. Some firms have found that RFP materials sent by U.S. mail do not reach them in time for preparation of an adequate

response. Firms that want USTDA to use an overnight delivery service should include the name of the delivery service and your firm's account number in the request for the RFP. Firms that want to send a courier to USTDA to retrieve the RFP should allow one hour after faxing the request to USTDA before scheduling a pick-up. Please note that no telephone requests for the RFP will be honored. Please check your internal fax verification receipt. Because of the large number of RFP requests, USTDA cannot respond to requests for fax verification. Requests for RFPs received before 4:00 PM will be mailed the same day. Requests received after 4:00 PM will be mailed the following day. Please check with your courier and/or mail room before calling USTDA.

Only U.S. firms and individuals may bid on this USTDA financed activity. Interested firms, their subcontractors and employees of all participants must qualify under USTDA's nationality requirements as of the due date for submission of qualifications and proposals and, if selected to carry out the USTDA-financed activity, must continue to meet such requirements throughout the duration of the USTDA-financed activity. All goods and services to be provided by the selected firm shall have their nationality, source and origin in the U.S. or host country. The U.S. firm may use subcontractors from the host country for up to 20 percent of the USTDA grant amount. Details of USTDA's nationality requirements and mandatory contract clauses are also included in the RFP.

Interested U.S. firms should submit one copy of the Proposal in English and Portuguese, as well as an electronic copy of each proposal on a flash drive, directly to the Grantee by 4:00pm, November 4, 2015 at the above address. Evaluation criteria for the Proposal are included in the RFP. Price will not be a factor in contractor selection, and therefore, cost proposals should NOT be submitted. The Grantee reserves the right to reject any and/or all Proposals. The Grantee also reserves the right to contract with the selected firm for subsequent work related to the project. The Grantee is not bound to pay for any costs associated with the preparation and submission of Proposals.

ANNEX 2

Definitional Mission to Evaluate ICT Projects in Brazil: Volume 3: Rio Grande do Sul

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

Final Report

*Submitted by
Hellerstein & Associates*



December 2014



This report was funded by the U.S. Trade Development Agency (USTDA), an agency of the U.S. Government. The opinions, findings, conclusions, or recommendations expressed in this document are those of the author(s) and do not necessarily represent the official position or policies of USTDA. USTDA makes no representation about, nor does it accept responsibility for, the accuracy or completeness of the information contained in this report.



The U.S. Trade and Development Agency

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

USTDA's strategic use of foreign assistance funds to support sound investment policy and decision-making in host countries creates an enabling environment for trade, investment and sustainable economic development.

Operating at the nexus of foreign policy and commerce, USTDA is uniquely positioned to work with U.S. firms and host countries in achieving the agency's trade and development goals. In carrying out its mission, USTDA gives emphasis to economic sectors that may benefit from U.S. exports of goods and services

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DEFINITIONAL MISSION REPORT

RIO GRANDE DO SUL: EXPANSION OF STATE BROADBAND NETWORK

II. Project Description

A. Introduction

Brazil is a recognized leader in ICT and 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 and ICT programs, of increasing sophistication. Ever more powerful, flexible and economical, ICT present countries with formidable new opportunities for social and economic integration.

Brazil's national, state, and municipal governments recognize that social and economic development require a strong effort to bridge the digital divide in a country known for its high degree of income inequality – in Brazil this is called digital inclusion. At the end of June 2014, Brazil had 23 million fixed broadband subscribers, as well as 126 million mobile broadband (3G and 4G) subscribers as of July 2014, out of a population just over 203 million, for a penetration rate of 62%, though the effective rate is somewhat lower given that some individuals have more than one line. The Internet sector in Brazil is also supported by a large number of industry, government and civil society groups. These groups both monitor and promote access to ICTs. As a result the level of up-to-date information on broadband utilization is high, and the debate over strategy is widespread.¹

In the past several decades, the Brazilian ICT policy has focused on the growth of the domestic ICT sector. Under the governments of President Luis Inácio Lula da Silva (2003-2010) and Dilma Rousseff (2003-present), the emphasis has been on digital inclusion of the population.

Despite efforts on the part of key members of both houses of the national legislature, however, the universal service fund (assessed on the telecom operators gross proceeds) has not been used for digital inclusion, but rather to increase the primary surplus of the federal government. Government programs for digital inclusion have come largely from the regular budgets of the Ministry of Communications (most notably for satellite links to telecenters located in rural areas—the Gesac program) and to a lesser extent those of other ministries. But the federal government has also put pressure on the telecom operators to provide free connections to schools throughout the country. Several state governments have provided incentives to the operators to provide cheap broadband connections to individual homes and also have their own digital inclusion programs, often more aggressive than those of the federal government.

¹ See Peter T. Knight, *The Internet in Brazil: Origins, Strategy, Development, and Governance* (Bloomington, IL: Author House, 2014) for a detailed discussion of the Internet's evolution in Brazil.

The most rapid growth of collective access points has not come from federal, state, municipal or NGO-operated largely free to user telecenters, but rather from the explosive private “lanhouses” (public access points providing both computers and Internet connectivity) and cybercafés (providing Internet connectivity) run as small private businesses with no government subsidies. The percentage of Brazilian Internet users accessing the Internet from public paid access points has fallen from 35% in 2010 to 19% in 2012 as access from homes has risen from 56% to 74%. But the LAN houses and cybercafés continue to be very important for the lower-income population (42% of Internet users in classes D and E made use of them). Household access to the Internet is highly correlated with income and social class – fixed broadband penetration was highest for upper class households (Class A) at 78%, and lowest for the lowest classes (Classes D and E) it was less than 2%.

To help improve broadband coverage and reduce the cost of broadband access, in December 2010 the government began a major broadband infrastructure development initiative, which has set ambitious targets to triple broadband uptake by 2014. The National Broadband Plan (*Plano Nacional de Banda Larga – PNBL*) aims to ensure that broadband access is available to low-income households, especially in areas that have so far been poorly served. Many of the State Governments, including Acre, Amapá, Pará, Tocantins, Ceará, Sergipe, Espírito Santo, Rio de Janeiro, São Paulo, Paraná, Santa Catarina, and Rio Grande do Sul have created strategic plans and are implementing the projects in these plans. Most state Governors understand that they need to modernize their government secretariats and agencies, and support them with a modern information infrastructure so they can become transparent and nimble, focused on producing excellent public services in essential and key areas, such as public safety, education, health, and welfare. These states are creating public and private partnerships to help achieve these goals. For example the Rio de Janeiro Government states that Government’s role should be as an articulator, motivator and facilitator by creating conversations with public and private entities in their effort to modernize the Government and create a 21st century public administration.

At one end of the spectrum there is a high density of access in the industrialized urban areas, mostly in the southeast and south of the country. In these areas, Brazil has achieved high levels of Internet use. But at the other end there are the vast hinterlands of unconnected rural and remote areas, particularly in the north, northeast, and west of the country. For example in the Northeast region, rural fixed broadband penetration is only 1.5%, while it is over 11% in the more industrialized Sao Paulo state. The pattern of uneven access also repeats itself at the local level. Most cities have wealthy areas with high levels of domestic broadband access, while close by, in the informal townships (*favelas*) that house most of the country's urban poor, there is little fixed broadband and residents mostly depend on lanhouses, telecenters or relatively slow and more expensive 3G wireless connections.

In 2013, 43% of Brazilian households had a connection to the Internet, but of these only 66% had fixed broadband connections (cable, DSL, radio or satellite) and another 22% had mobile broadband connections. In rural areas Internet penetration was only 15% compared with 48% for urban areas. One of the principal instruments for executing the PNBL is Telebras, the federal telecommunications company that had been dormant since the privatization of the

state telephone companies in 1998 and is supervised by the Ministry of Communications. In 2010 Telebras was resurrected for this purpose.

Since the PNBL was launched, the federal, state and municipal governments have given greater priority to network expansion. The National Agency for Electric Energy (*Agência Nacional de Energia Elétrica – Aneel*), the electricity regulator, plays a key role by ruling over power generating and distributing companies. These companies have extensive fiber optic networks using what are called Optical Ground Wires (OPGW) hung from pylons that carry high-voltage lines and frequently used for internal control purposes. But since very little capacity is needed for this purpose, these cables also contain unlit (dark) fiber that can be leased to telecommunications operators, including RNP.

State-level public power distribution companies have similar high-voltage lines, and also lower-voltage lines strung on poles that can also carry fiber optic cables be used to develop a “smart grid” to improve efficiency in the use of electric power, but with enough fibers to allow leasing them to one or more telecommunications companies. Or a telco could hang the cables and lease capacity to the power company and/or other telcos.

Despite receiving considerably less investment resources than announced on various occasions by government officials (that can be considered a sign of less than urgent priority for the PNBL), Telebras has gradually created a national network of fiber optic cables, in large part through public-public and public-private partnerships that involve leasing or exchanging existing dark fiber. In 2011 Telebras established long-term rental contracts for use of fiber some 16,000 km in the OPGW cables of electric power companies that are run by Eletronet, a company that is owned by Eletrobrás and AES, an American company. Telebras also leased some 2,200 km of fiber from Petrobras. Another 2,200 km were obtained in an exchange of use of fiber with a private operator, TIM, in 2013. These arrangements allowed expansion of Telebras trunk lines in rings that provide redundant links in case of failure at any point in the system. Likewise Telebras has arranged swaps of dark fiber on Redecomep networks for dark fiber on its own backbone network.

Telebras is also investing in its own fiber optic links to provide high capacity redundant links to the six cities where the Confederations Cup soccer matches were played in 2013 and to the 12 cities that will host the World Cup matches in 2014. Traditional private telecommunications providers complement Telebras in implementation of the PNBL. Small and medium ISPs and the large operators – like Oi, Telefônica, Embratel, TIM, and Algar Telecom – offer the PNBL packages, in some cases benefiting from state tax exemptions. The operators are discovering that many PNBL customers soon want faster and more expensive connections. In this way, the PNBL is opening new markets for the private operators.

The growth of the Telebras network has increased competition and thereby led to lower prices offered by private providers. Telebras says it has not cut the wholesale prices it charges as far as it could and still cover costs so as not to drive the private operators, needed for meeting Internet penetration goals, out of the market. The federal government encourages private operators to expand digital inclusion of populations in underserved markets. Under the voluntary adoption of PNBL pricing, by the end of 2012 the number of basic 1 Mbps

connections under the PNBL had reached 2.5 million (13% of all fixed broadband connections) in 2850 municipalities.

Expansion of high-speed connections has been spurred by growth in demand for Internet access by the emerging lower middle class. This group provides voting support for the government, but also is courted by opposition parties. These new consumers are buying smartphones, tablets, and laptops (encouraged by exemptions from taxes on production of these products as discussed below) and want broadband connections.

The PNBL also aims to support the development of the Brazilian ICT equipment and related services industry that is facing strong international competition, especially from China. As with all government purchasing, Telebras is able to give preferential treatment to Brazilian firms by allowing procurement from Brazilian companies even when the costs are 25% higher than the bids of foreign companies. The primary objective of the PNBL is to ensure that 40 million households or 68% of the population are able to access broadband by the end of 2014. It is extremely unlikely that this objective will be achieved, given that at most 38% had broadband access (either fixed or mobile) in 2013.

Another strategy to support the PNBL is requiring coverage of rural areas when auctions are held for mobile spectrum allocation. Operators bidding on 450 MHz frequencies were required to provide voice and data services in rural areas and remote regions as well as free access to rural public schools. By the end of 2015 winning bidders are required to offer these services on a commercial basis within a radius of 30 km from the municipal seat (capital) in all municipalities, thus covering 91% of the rural population as well as to free service to all the public schools in these areas, thus serving 96% of public schools. Winners were determined according to the lowest price on commercial connections. In 2012 federal law 12,715 provided a full exemptions from federal taxation for telecommunications services offered on this frequency and for small satellite antennas as well as for network equipment, terminals, and transceivers for these services.

For primary and secondary education, beginning in 2008 telecommunications operators were required to provide broadband connections at increasing speeds to all urban public schools. This was obtained at virtually no budgetary cost by the so-called “exchange of obligations” agreed in April 2008 whereby the operators were relieved of the requirement to provide thousands of outmoded Telecommunication Services Posts with public phone booths, fax machines and Internet-connected computers. The number of connected public schools tripled to 70,399 by 2013, leaving only 7% of all urban public schools unwired.

The Gesac program mentioned above is administered by the MC and was launched during the second administration of President Fernando Henrique Cardoso (1997-2002). Gesac was then transformed and adapted to the policies of the administrations of President Lula (2003-2010). It brings Internet connectivity to telecenters (public access points offering free internet service), schools, health posts, indigenous communities, military posts, and other institutions, many in remote areas, most initially via satellite, but by landlines as that service becomes available. In October 2013, the number of Gesac installations was 13,379, and should reach

some 29,000 in 2014. Some 11,500 new connections will be for health posts and financed by the Ministry of Health.

Prior to the establishment of the PNBL, a large number of municipal and state-supported efforts to improve access to the Internet were already underway, including the use of tax incentives and provision of low-cost, or even free broadband services in public access facilities (telecenters) and schools. These efforts are now accelerating as implementation of the PNBL proceeds. For example, the state of Sao Paulo has exempted broadband from the state value-added tax for the last three years, and over the past 14 years developed a network of 757 telecenters with 2.8 million registered users supported by over 1,100 supervisors in 624 *municípios*. 177 more telecenters are currently under construction.

A growing number of states and municipalities are participating in the PNBL and others, such as Ceará and Pará, have built their own terrestrial networks making use of various kinds of partnerships, usually with the National Education and Research Network (*Rede Nacional de Educação e Pesquisa – RNP*), electric power distributors, and companies such as Petrobrás and Vale that own fiber networks of their own. Their objectives have been to reduce costs of connectivity and reach previously underserved or unserved residents.

In 2005 RNP began a new program to build fast metropolitan fiber optic networks in Brazil's major cities in association with a variety of partners. This program is called Redecomep, and as of August 2014 had 39 community networks in operation and another 5 under construction.

The Ministry of Science, Technology and Innovation (MCTI) finances fiber optic cables and equipment for operation of the fibers in these cables that serve academic and research institutions. But the number of pairs of fiber in these cables is much larger than needed for the academic and research institutions, allowing allocation to other partners that provide services in kind of direct leasing payments. For example, metros, light rail lines, urban toll roads, and state and municipal governments can offer rights of way and ducts. Electric power companies can provide poles on which the cables can be hung. And Telebras can offer fibers in its backbone network.

These partners are responsible for investing their own resources for lighting their fibers, routing traffic, building extensions to serve their own clients, and sharing operations and maintenance costs. The advantage these partners gain is usually cheaper bandwidth than available from commercial operators. For RNP, in addition to providing connectivity for educational and research institutions, the partnerships can cover most if not all costs for operation and maintenance of the metropolitan networks, making them financially sustainable.

RNP's newest program is called *Veredas Novas* (New Paths). It is a joint program with MCTI, MC, the Ministry of Education, and Telebras. Its objective is to provide fiber connections to research and educational institutions in the interior of the states, and also digital inclusion of the as yet unserved population in the vicinity of these institutions. In each city RNP is establishing a local access point, with radio and eventually fiber connections to

ISPs that agree to offer Internet service of at least 1 Mbps at PNBL prices. These ISPs can also offer faster connections at market prices.

The program's goals, as set forth in 2012, were to reach 250 locations with 335 institutions by the end of 2014. Minimum speeds to major institutions are to be 1 Gbps, to smaller ones, 100 Mbps. This should make it possible to store data and collections of scientific and technological works in the cloud. High-speed links to research networks outside Brazil were included, facilitated by new submarine cables to Africa and Europe. The program appears unlikely to meet these goals so soon. Partnerships with state networks described below appear to be one way to accelerate the program, and some such partnerships are being undertaken, beginning with Ceará.

To obtain cheaper broadband service, several states are building their own fiber optic networks outside the capitals. The leaders are Pará and Ceará. A fundamental characteristic of these growing state networks is partnerships between the RNP, electric power companies, municipal governments, private telecommunications operators, and, more recently, Telebras.

Among the characteristics of the best state and municipal networks are:

- The state or municipality takes advantage of dark fiber allocated to it in the state capital's Redecomep;
- Partnerships are established with RNP; municipalities, state and federal public enterprises, private telecoms, and Telebras to extend the network's reach and share costs of operation and maintenance;
- Complementary fiber and wireless networks are built to fill in gaps and provide capillarity (urban as well as rural);
- Maintenance and operation are outsourced to private firms; and
- States or municipalities lease dark fiber in their networks to private operators to generate additional revenue, helping to cover operating and maintenance costs.

In Paraná the state government has used another route to building a state network, namely purchasing bandwidth from Copel Telecom, a subsidiary of the state electric power company. Copel Telecom has an extensive fiber optic network launched in 2010 that by the end of 2012 reached all 399 municipalities in the state.

B. Rio Grande do Sul

Rio Grande do Sul is the southernmost state in Brazil, and the state with the fourth highest Human Development Index (HDI) in the country, and the third and last in the Brazilian South Region. With a population estimated at 12.2 million in 2014, it is the country's fifth most populous state, and it's eighth largest with 109,789 square miles of territory. Rio Grande do

Sul had an estimated GDP per capita of about US\$8,200 in 2008. It borders the Atlantic Ocean on the East, Uruguay on the Southwest, Argentina on the Northwest and the Santa Catarina state on the North (Figures 1 and 2). Rio Grande do Sul is bordered to the north by the Brazilian State of Santa Catarina, to the east by the Atlantic Ocean, on the south by Uruguay, and to the west by Argentina.

Figure 1: Political Map of Brazil



The northern part of the state lies on the southern slopes of the elevated plateau extending southward from São Paulo across the states of Paraná and Santa Catarina, and is much broken by low mountain ranges. A range of low mountains extends southward from the Serra do Mar of Santa Catarina and crosses the state into Uruguay. West of this range is a vast grassy plain devoted principally to stock-raising – the northern and most elevated part being suitable in pasturage and climate for sheep, and the southern for cattle. East of it is a wide coastal zone only slightly elevated above the sea; within it are two great lagoons, the Lagoa dos Patos and Lagoa Mirim, which are separated from the ocean by two sandy, partially barren peninsulas.

Figure 2: Map of Rio Grande do Sul

Table 1: 20 Most Populous Municipalities in Rio Grande do Sul,

Rank	Municipality	Population	Rank	Municipality	Population
1	Porto Alegre	1,472,482	11	Alvorada	205,683
2	Caxias do Sul	470,223	12	Passo Fundo	195,620
3	Pelotas	342,053	13	Sapucaia do Sul	137,750
4	Canoas	339,979	14	Uruguaiana	129,580
5	Santa Maria	274,838	15	Santa Cruz do Sul	125,353
6	Gravataí	270,689	16	Cachoeirinha	125,246
7	Viamão	251,033	17	Bagé	121,500
8	Novo Hamburgo	248,251	18	Bento Gonçalves	112,318
9	São Leopoldo	226,968	19	Erechim	101,752
10	Rio Grande	207,036	20	Guaíba	98,654

Source: ftp://ftp.ibge.gov.br/Estimativas_de_Populacao/Estimativas_2014/estimativa_dou_2014.pdf

PROCERGS (Rio Grande do Sul State ICT Company) mission, structure, and datacenter

Since the beginning of its operations at the end of 1972, PROCERGS’ primary mission has to provide ICT solutions for the public administration of the State of Rio Grande do Sul (RS). PROCERGS has detailed knowledge of the functions and processes of the state’s government. Figure 1 provides a concise statement of PROCERS mission and values.

Figure 1: PROCERGS Strategic Focus

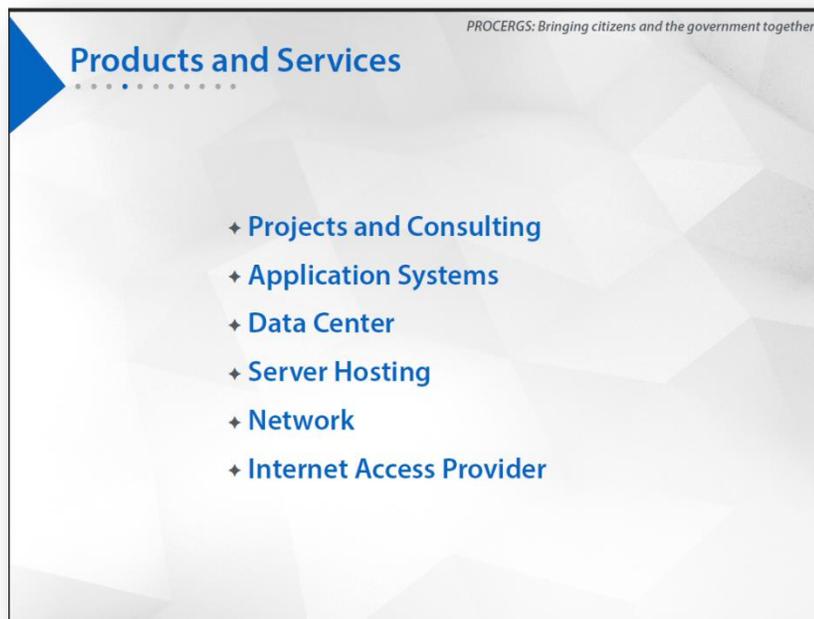
PROCERGS: Bringing citizens and the government together

Strategic Statements

- + Business**
 Solutions in public administration information technology and communications
- + Mission**
 Provide Information and Communication Technology solutions to improve government efficiency and transparency and **bring citizens and the government together.**
- + Values**
 Quality, **Innovation**, Ethics, Dedication, Trust and Solidarity
- + Vision**
 To be recognized by the Rio Grande do Sul state government as the **reference** and best choice in ICT solutions.

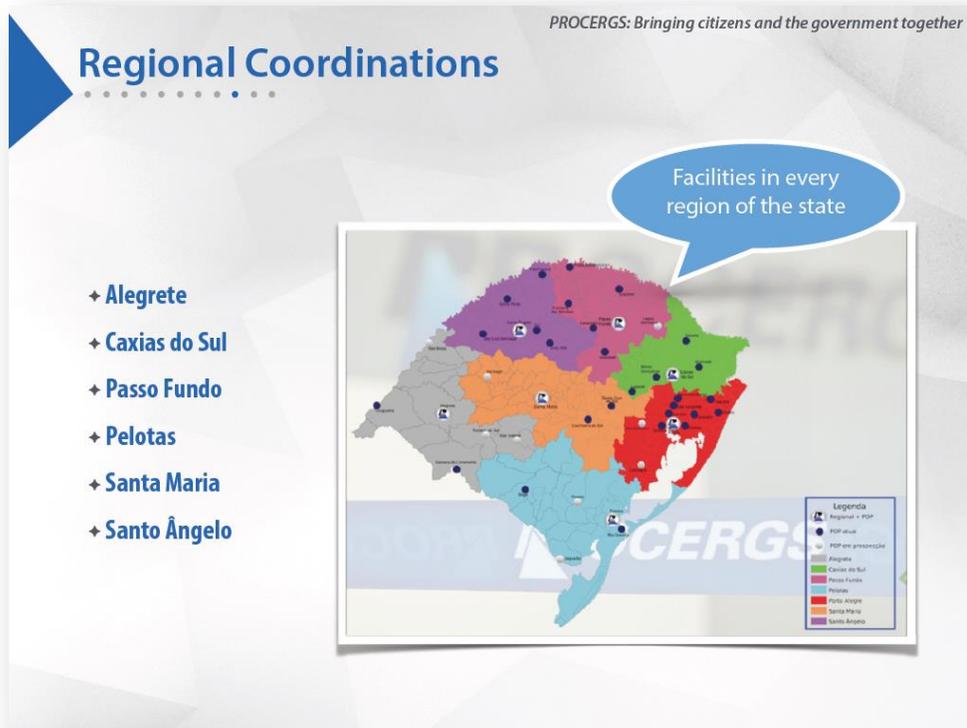
PROCERGS supports government processes, ensures continuity of services, integrates data processes and security, and provides a wide range of information to citizens, businesses, and civil servants through its web extensive web portal (<http://www.rs.gov.br>) that includes many interactive services allowing citizens and business to exchange information with state secretariats and other agencies. Interactive services are clearly distinguished from simple provision of information, but financial transactions are not available. State value added tax (ICMS) is collected directly from firms via an electronic invoicing system, and PROCERGS has sold this service to a number of other state governments. Of particular note on the portal are the sections on transparency of government expenditures and citizen participation in government. The company's products and services are shown in Figures 2 and 5.

Figure 2: PROCERGS Products and Services



In addition to its central offices in the capital, Porto Alegre, it maintains regional coordination offices in six of the state's largest cities, the locations of which are shown in Figure 3. PROCERGS currently has 1,167 full-time employees, making it one of the larger state ICT companies in Brazil. Most employees work in direct provision of services to clients (Figure 4).

PROCERGS has been a leader in the provision of ICT solutions for both RGS, and for 13 other states (Figure 5 and 6). To support this work PROCERJS has a substantial data center (Figures 7 and 8), and had originally sought support for a major big data and analytics project for which considerable work had already been done in collaboration with Gartner, with which PROCERGS has a standing consultancy contract. But PROCERGS management was under the illusion that USTDA funds equipment and not just technical assistance, feasibility studies and the like. And the existing studies for this project have already identified major U.S. suppliers for equipment and software, e.g. IBM and EMC.



Figure

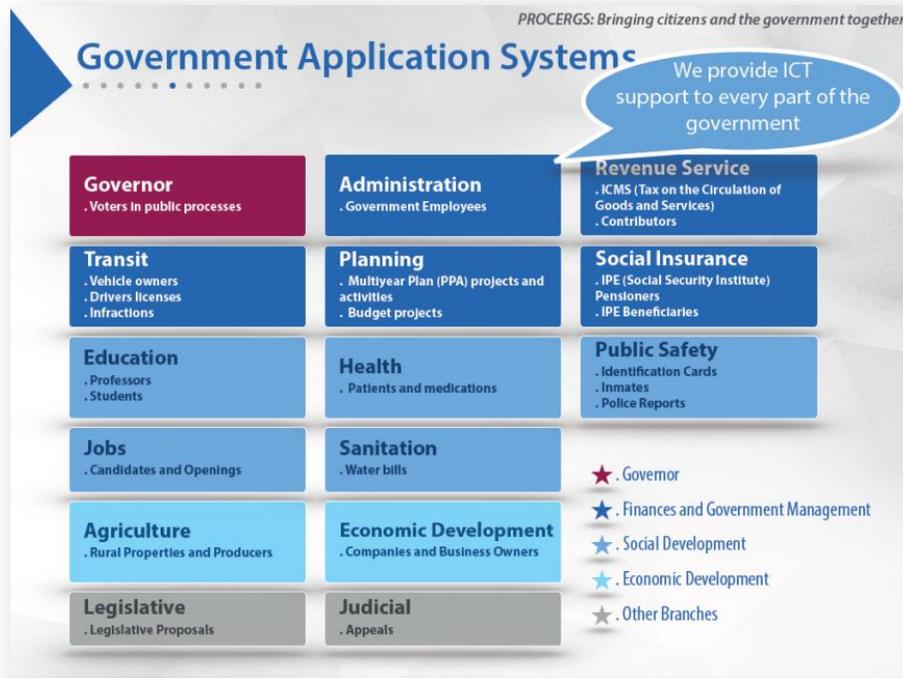
3:
PROCERGS Regional Coordination Offices

4: PROCERGS Personnel by Function

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Figure
Main

5:



Government Services Provided by PROCERGS

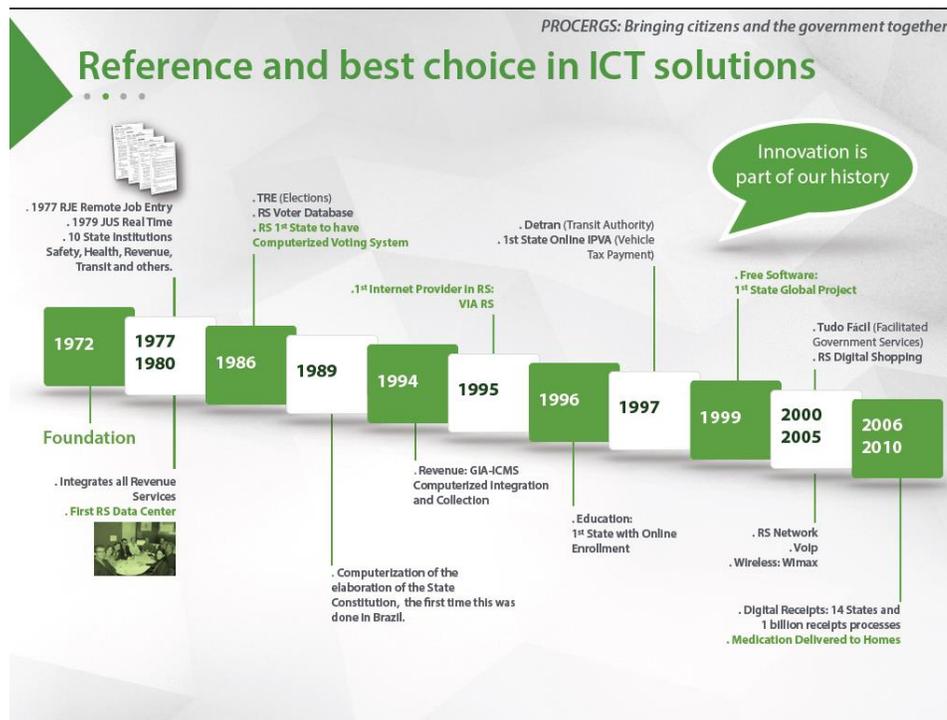


Figure 6: Timeline of Innovations by PROCERGS

Figure 7: PROCERGS Data Center

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Figure 8: PROCERGS Data Processing

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Proposed project for USTDA Funding

H&A discussed with PROCERGS staff and management how to structure a new project more suited for a USTDA-funded feasibility study..

Infovia RS Modernization and Expansion subproject.

The existing and parts of the planned statewide fiber optic network, which, duly expanded and with wireless extensions would support the IoT sub-project is shown in Figures 9-11. The current network, called InfoviaRS is supplemented by connections provided by the incumbent operator Oi (merged with Brasil Telecom in 2008), that has a virtual monopoly on fixed line connectivity in RGS outside the state capitals as in most other states, the principal exceptions being São Paulo (where Telefônica is the incumbent) and parts of Minas Gerais (*Companhia de Telecomunicações do Brasil Central - CTBC*). Oi service is viewed by PROCERGS as excessively expensive and with poor compliance with SLAs, again as in other states having contracts with this operator.

Figure 9: Existing PROCERGS State Broadband Network

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Figure 10: Planned and Existing State Fiber Optic Backbone

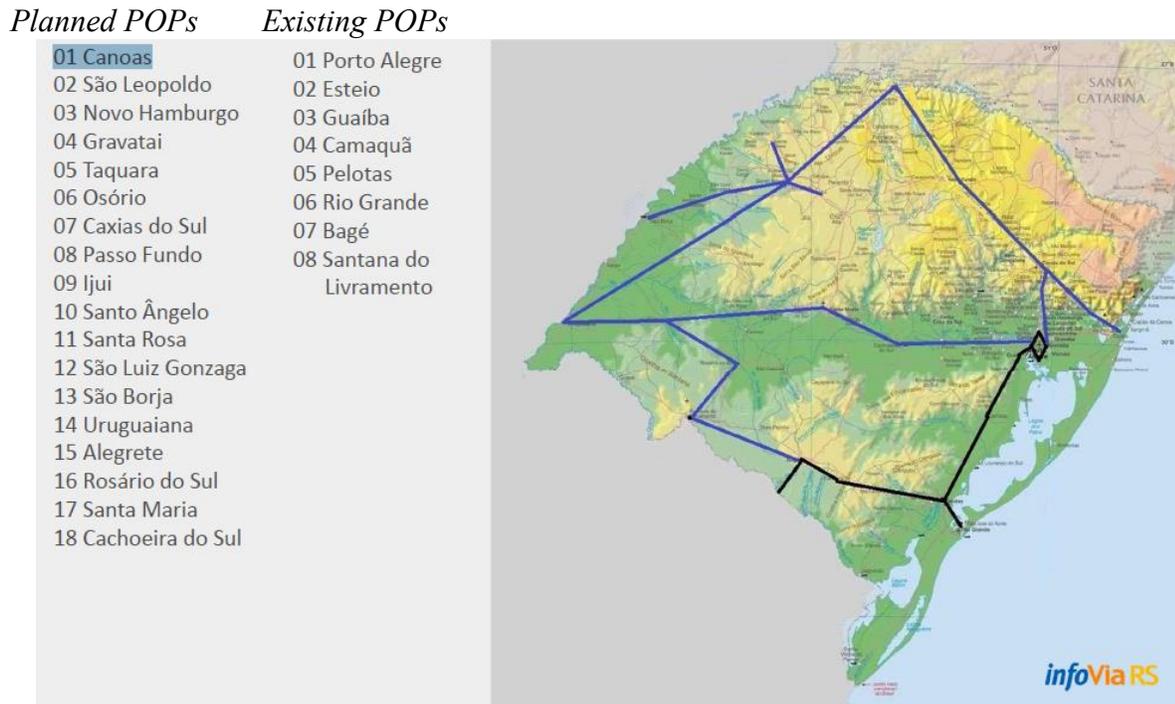


Figure 11: Existing and Planned State Fiber Optic Broadband Network By Source of Fiber



Beginning in 2005 the RNP (National Education and Research Network) began building a fiber optic metropolitan network (METROPOA) in the state capital, Porto Alegre that was

to research and higher education institutions in the interior of Brazil’s 26 states, provides for the use and 666 Km of fiber that will benefit the existing stretch between the cities of Porto Alegre, Santa Cruz, Santa Maria and Alegrete. On the route from Porto Alegre to Bagé with an eventual destination in Santana de Livramento on the border with Uruguay, RNP has already signed an agreement PROCERGS to light a pair of CEEE fibers, given to PROCERGS (4 x 10 G). RNP is seeking resources to start this project. At Livramento this fiber would connect to the Uruguayan part of Rede Clara (*Cooperação Latino-Americana de Redes Avançadas*). By road the distance from Bagé to Livramento is 163 km, where, according to Figure 10, PROCERGS already has a POP. RNP already has a connection with the Uruguiana on the border with Argentina, where the network connects with the Argentine section of Rede CLARA, from which that network crosses Argentina to Chile (Figure 13).

Figure 13: Topology of Rede CLARA, as of November 2013



Source: http://www.redclara.net/index.php?option=com_content&view=article&id=51&Itemid=347&lang=en

The network strategy is designed to use the shared infrastructure that provides the creation of a backbone and also the last mile deployments that are established directly in each municipality.

Current state of Infovia RS: Lit, Dark, and yet to be created fiber optic backbone

As of July 2014, PROCERGS had lit its fiber linking Porto Alegre, Esteio, Guaíba, Camaquã, Pelotas, Bagé, Santana do Livramento e Rio Grande. These portions of InfoviaRS are shown in black in Figure 10. PROCERGS has rights to existing dark fiber in existing cables obtained through sharing agreements with Eletrosul, RNP e Telebras. Lines in orange, blue, and black in Figure 11 represent these segments. They will be used to link the following cities: Canoas, São Leopoldo, Novo Hamburgo, Gravataí, Taquara, Osório, Caxias do Sul, Passo Fundo, Ijuí, Santo Ângelo, Santa Rosa, São Luiz Gonzaga, São Borja, Uruguaiiana, Alegrete, Rosário do Sul, Santa Maria e Cachoeira do Sul.

The fiber backbone that is yet to be constructed but for which a project is being prepared will link the cities of Três Passos, Palmeira das Missões, Santiago, São Gabriel, Santa Cruz do Sul, Viamão, Canela, Gramado, Vacaria, Lagoa Vermelha, Erechim, Soledade, Cruz Alta, Carazinho, Candiota, Lajeado, Venâncio Aires, Jaguarão, Frederico Westphalen, Bento Gonçalves e Farroupilha.

Increased capillary network also requires investments for replacement of obsolete equipment, to acquire new network structures and also for creating new PoPs being deployed in the cities of Cinnamon, Candiota and Venancio Aires. At the end of the project it is expected that the InfoviaRS will have 47 PoPs as shown in Figure 10. As of August 2014, 8 had been installed, 19 were under construction, and 20 more were planned.

PROCERGS seeks to expand its own fiber optic network to provide public services to all municipal centers with rings and sub-rings which provide redundancy and security, reducing its dependence on third parties for leased connections, and reducing costs to the Government. This can be achieved by investing in excess capacity so as to take advantage of the huge returns to scale in fiber cables by leasing excess fiber to private or public sector operators, creating a win-win scenario where all partners enjoy costs well below what they would pay if each were to invest in its own fiber.

These scale economies are derived from the very low marginal cost of adding more fibers to a cable before it is purchased and installed and also the fact that the same fiber base can subsequently be made more effective by replacing the optical technology used. Some additional equipment is needed, but these are broadband amplifiers and transceivers that can deal with many different channels simultaneously. Such equipment can multiply the initial speeds of transmission by tenfold or more.

In partnership with government, private sector operators can reduce customers' costs, thereby encouraging digital inclusion of underserved populations who previously could not afford broadband access.

PROCERGS estimates that the average cost savings for each city with a POP the monthly savings obtained are R\$15,000. For the cities where the POPs are already established, the monthly savings are \$75,000. When the project is finished, the estimated monthly cost savings compared with purchasing connectivity from commercial operators is estimated to be R\$250,000 or US\$1 million a year at an exchange rate of R\$2.5 per US\$.

The PROCERGS seeks USTDA funding for a study on the modernization and expansion of InfoviaRS (including wireless extensions) and to recommend proven and effective business models, such as partnerships, sale of telecommunications services, dark fiber leasing, and the exchange of capacity with other operators seeking to expand their own networks. Such business models should seek to generate revenue and / or in-kind services that would reduce PROCERGS' need for budget allocations to provide services to government customers and also reduce the costs of telecommunications services to end users throughout the state, thus promoting digital inclusion and economic development.¹

III. GOVERNMENT COMMITMENT

The Infovia RS is in the State of Rio Grande do Sul's Multiyear Plan (Plano Plurianual – PPA) and listed as an official project on the state's internet portal.²

IV. POSSIBLE SOURCES OF PROJECT FINANCING

Domestic sources of finance include the National Bank for Economic and Social Development (BNDES), either through direct financing of the State of Para or through suppliers of equipment; or the budget of the State of Para directly. International sources include the World Bank. It might be possible to reprogram an existing loan to the state or the federal government having categories that embrace the projects' objectives and are not disbursing. This could be of interest to the federal government, given that the Ministry of Communications and other ministries, for example the Ministry of Health for its hospitals, clinics, and health posts) have an interest in using the network. The Inter-American Development Bank (IADB) is another potential source of international funding, under conditions similar to the World Bank. A third potential international source is supplier's credits from firms interested in providing equipment and/or software. New loans from the World Bank or IADB would most likely be ruled out given the time it takes to receive federal government priority, appraise, approve and make them effective, though they cannot be ruled out, possibly in the context of a public administration reform loan. Another option would be to include the projects in a World Bank or IADB project already under preparation.

For the broadband network, H&A ascertained that one option is to convert a capital expense into a current expense via a contract with a private enterprise or consortium of private enterprises. These companies then finance the project from their own or borrowed funds. Interviews were conducted with representatives of several U.S. enterprises that might be interested in this kind of arrangement: Cisco, Oracle, and IBM.

- Cisco. Cisco works closely with other companies like EMC and Oracle. For this kind of project their main competitors are Hewlett Packard and IBM. They could

¹ For examples of such partnerships, see Carvalho, Feferman, Knight and Woroch (2014). "Private-public partnerships for expanding broadband access: lessons from the digital ring in Ceará, Brazil ". Paper presented at the International Telecommunications Society Conference, 1 December 2014.

² See <http://www.rs.gov.br/conteudo/177270/infovia-rs->

participate in a PPP. It would also be possible to do an operation under Law 8666 to turn the investment cost into a series of rental payments. These would be higher in the first 3-4 years, because the 8666 operations cannot exceed five years each (4+1, 3+2) and, not knowing with certainty what would happen after the end of the contract, the consortium of suppliers would have to recover their entire investment, the costs of operation and maintenance, and their profit over only five years. The principle obstacle Cisco sees is how to guarantee that the payments, that could be monthly or quarterly, could be guaranteed to take place on time, in the contracted amounts, without interruption. The example of the Poupatempo project in São Paulo that had to be “unplugged” for several hours because of non-payment by PRODESP.

- Oracle. Oracle is now merged with Sun Microsystems, so it could supply both hardware and software. Oracle prefers not to participate in consortiums. But it has partnerships with firms like Deloitte and Odebrecht. It also has a financing department. It could do the kind of operation envisaged.
- IBM. IBM is interested in participating in the project, and can work as part of a consortium. IBM has its own bank to finance projects like this. But again, the problem IBM representatives see is how to guarantee that the payments by PROCERGS would take place on time and in the amounts contracted.

V. POTENTIAL FOR U.S. EXPORTS AND FOREIGN COMPETITION

We estimated the cost of the broadband network using a detailed breakdown for the needed equipment and services, as shown in Table 2 at 184.2 million, about US\$73.7million. Our estimate for the export potential of this project is US\$34.8 million.

PROCERGS	Quantity	Unit Value R\$	Value R\$	Export Coefficient	Export US\$
Wireless Network					(R\$2.5/US\$)
Telecommunications towers, self-supporting, 100 meters	60	325,000	19,500,000	0%	-
Telecommunications containers	60	30,000	1,800,000	80%	576,000
Point-to-point radio links - 300 Mbps	160	30,000	4,800,000	90%	1,728,000
Laticed poles - 30 meters	172	63,000	10,836,000	0%	-
Point-to-point radio links - 150 Mbps	550	40,000	22,000,000	90%	7,920,000
Refrigerated telecommunications cabinets	550	6,700	3,685,000	80%	1,179,200
Point-multipoint radios (client)	550	2,000	1,100,000	90%	396,000
Point-multipoint radios (server)	3,200	7,000	22,400,000	90%	8,064,000
No-Breaks - 8 Kva	544	8,500	4,624,000	80%	1,479,680
Layer 3 switches	544	16,000	8,704,000	85%	2,959,360
Solar energy systems	44	50,000	2,200,000	90%	792,000
Core switch	1	60,000	60,000	90%	21,600
Firewalls	2	30,000	60,000	100%	24,000

Racks	50	8,000	400,000	75%	120,000
<i>Subtotal Wireless Network</i>			<i>102,169,000</i>	<i>25%</i>	<i>25,259,840</i>
Fiber Optic Network					-
Trenching (meters)	400,000	28	11,200,000	0%	-
Ducts (HDP, 3 tubes) and duct installation (meters)	400,000	30	12,000,000	40%	1,920,000
Paving of trenches - concrete (meters)	400,000	65	26,000,000	0%	-
Installation of fiber on electric poles	400,000	10	4,000,000	0%	-
Cable installation (meters)	800,000	3	2,560,000	0%	-
Boxes - R2	3,900	417	1,626,300	75%	487,890
DGO Infrastructure	400	4,000	1,600,000	90%	576,000
Seamless splicing	3,900	35	136,500	25%	13,650
Certification of installation	400	17	6,952	0%	-
As built	1	1,500	1,500	100%	600
Splicing boxes	400	1,174	469,600	80%	150,272
36 fiber cables (meters)	800,000	20	16,000,000	80%	5,120,000
Rectifiers 5kVA	32	21,828	698,496	90%	251,458
Air conditioning	16	12,570	201,120	25%	20,112
DWDM	16	249,094	3,985,504	90%	1,434,781
Switches	25	62,160	1,554,000	90%	559,440
<i>Subtotal Fiber Optic Network</i>			<i>82,039,972</i>		<i>10,534,204</i>
Total for Rio Grande do Sul Hybrid Network			184,208,972	19%	35,794,044

e

U.S. firms are very strong in the ICT sector. Those who might bid on RFPs for this project include Cisco, Freescale, HP, Dell, Oracle, Microsoft, and IBM. Other U.S. firms that manufacture equipment that could be used in the project and might be interested in bidding include Corning (fiber); Brocade, Juniper, Force 10, and Extreme (high performance switches, routers, and DWDM equipment); Texas Instruments, General Electric, Kingston (memory chips); and Streakwave, Netgear and Belkin (wireless broadband equipment). Several U.S. suppliers with Brazilian operations contacted by H&A are open to providing supplier financing: Cisco, Oracle, EMC, IBM, Dell, and Hewlett Packard.

U.S. firms have been important suppliers of equipment and software to PROCERGS. Over the period 2011-April 2014 PROCERGS has spent US\$32 million on just its top ten U.S. suppliers (Table 3).

Table 3: Top Ten U.S. Suppliers to PROCEREGS

Company	Value (R\$)	Estimated Value (US\$)
IBM	21,959,527.67	9,759,790.08
UNISYS	19,072,071.65	8,476,476.29
XEROX	6,702,077.57	2,978,701.14
CA	4,956,617.67	2,202,941.19
ORACLE	4,769,668.43	2,119,852.64
CISCO	4,013,440.40	1,783,751.29
HP	3,834,186.00	1,704,082.67
SYMANTEC	3,772,414.75	4,495,270.81
LEVEL 3	1,713,475.82	761,544.81
EMC	1,201,517.12	534,007.61
TOTAL	71,994,997	31,997,776

Additionally several U.S. suppliers with Brazilian operations contacted by H&A are open to providing supplier financing: Cisco, Oracle, EMC, IBM, Dell, and Hewlett Packard.

VI. FOREIGN COMPETITION AND MARKET ENTRY ISSUES

Potential foreign competitors could include ZTE, Huawei, Bosch, Nokia-Siemens, Furukawa, Fujitsu, Libelium, SAP, Ericsson, and Alvarion. Most major U.S. suppliers have Brazilian subsidiaries, so market entry should not be an issue for them.

VII. PRELIMINARY DEVELOPMENT IMPACT REVIEW

The broadband network should not present any significant regulatory or legal problems. The project to build and lease a statewide fiber optic network could promote competition and reduce prices for telecommunications services. It will also facilitate both digital inclusion of the population and improved e-government services in such areas as telemedicine, education, and public safety.

Technology Transfer and Productivity Enhancement:

The broadband network will use relatively well-known technologies. The network will enable improved e-government services that include G2G (internal operations of the government, including reliable cloud computing), G2C/C2G (government to citizen and feedback of citizens to government) and G2B/B2G (government to businesses and vice versa). In addition to improved tax, education, health, public safety and other traditional government services that can be provided online (often with improved quality, efficiency, and user-friendliness), support for digital inclusion programs can also be provided. Costs for broadband internet service should fall steeply for the government, encouraging greater substitution of electronic for conventional services and allowing a more rational use of skilled personnel, as in the health system, where highly skilled specialists like radiologists can read MRIs from a few central locations but provide the service to hospitals throughout

the state. Similar improvements can be expected in real-time crime reporting, mapping, and deployment of police forces..

Infrastructure:

All e-government services depend on the availability of high quality/high bandwidth connectivity that will be provided by the statewide broadband network. Increased broadband penetration can be achieved by reducing the prices of connectivity. The statewide broadband network can help make this a reality, as could reducing the value added tax on telecommunications, 25% (on the gross value including the taxes) in the case of Rio Grande do Sul. Increased broadband penetration and improved e-Government services facilitated by the new data center can help promote economic development, a major government objective, and also increase. The broadband network is indispensable for the IoT project.

Market Oriented Reform

In the broadband network sub-project, the probable issue of an RFP for leasing of dark fiber and wireless capacity to public and private sector firms is an important move in public-private cooperation and the use of market-based approaches to cost-sharing.

Human Capacity Building

Most suppliers will provide training to clients purchasing their equipment and software. This would improve the skills of PROCERGS technical staff and possibly local firms providing outsourced services to PROCERGS.

VIII. EVALUATION STRATEGY

[This portion has been removed for RFP distribution.]

IX. ENVIRONMENTAL IMPACT

As for fiber optic networks, the impact is minimal, and for wireless extensions of the fiber network, there are clear regulations in Brazil regarding acceptable strength of signals and potential interference with other users of the electromagnetic spectrum.

X. IMPACT ON U.S. LABOR

The impact on U.S. labor would be negligible or positive. Brazilian government broadband networks do not displace U.S. data centers like those of Amazon, since the Brazilian governments (federal, state, and municipal) want the data centers to be in Brazilian territory, usually with a preference for their own states or municipalities. There will be no displacement of U.S. facilities for the broadband network. Thus the impact on U.S. labor is expected to be positive to the extent that U.S.-based firm provide equipment, software and services produced in the U.S..

XI. JUSTIFICATIONS & RECOMMENDATIONS

As this report has documented, the project will have high developmental impact in the State of Rio Grande do Sul by supporting improved and lower-cost government services, increased competition in the telecommunications sector, and private sector development. The statewide hybrid broadband network will allow development of an integrated governance system to link all departments and public agencies throughout the state, provide greater speed and efficiency in the delivery of public services, and thereby reducing costs through the use of an efficient multiservice communications infrastructure that serves government, businesses, and agricultural producers.

This broadband network sub-project also has a social objective. The population will gain access to broadband Internet connectivity, allowing every citizen to have free access through public telecenters and schools. At the municipal level, priority will be given to the poorest strata of the population, including indigenous communities, and agrarian reform settlements.

The project will directly benefit U.S. companies and it will foster the development of partnerships between Government agencies and U.S. IT companies by bringing proven private sector solutions to the challenges that the Government faces. This project meets USTDA's goals of providing technical assistance in cases where that assistance helps create partnerships based on the premise that private sector experience, technology, and ingenuity are integral to development and project sustainability.

Moreover, the involvement of a U.S.-based Consultant Team in carrying out the proposed feasibility studies should work to the advantage of U.S.-based suppliers of telecom, IT, database solutions, such as Cisco, EMC, Freestyle, HP, IBM, Oracle and Microsoft as well as others mentioned above in forming key partnerships with different Government agencies. These suppliers are strong in the major technological areas but face growing competition from foreign suppliers.

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

XII. QUALIFICATIONS OF CONSULTANTS

[This portion has been removed for RFP distribution.]

XIII: TERMS OF REFERENCE

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XIV SUGGESTED EVALUATION CRITERIA

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XV. BUDGET

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ANNEX I BUDGET

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ANNEX II: SUMMARY OF MEETINGS

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ANNEX III CONTACT PEOPLE

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ANNEX 3



U.S. TRADE AND DEVELOPMENT AGENCY
Arlington, VA 22209-3901

NATIONALITY, SOURCE, AND ORIGIN REQUIREMENTS
[As of January 17, 2014]

The purpose of USTDA's nationality, source, and origin requirements is to ensure the maximum practicable participation of American contractors, technology, equipment and materials in the prefeasibility, feasibility, and implementation stages of a project.

USTDA STANDARD RULE (GRANT AGREEMENT STANDARD LANGUAGE):

Except as USTDA may otherwise agree, the following provisions shall govern the delivery of goods and professional services funded by USTDA under the Grant Agreement:

- (a) the Contractor must be a U.S. firm;
- (b) the Contractor may use U.S. subcontractors without limitation;
- (c) employees of U.S. Contractor or U.S. subcontractor firms shall be U.S. citizens, non-U.S. citizens lawfully admitted for permanent residence in the United States or non-U.S. citizens lawfully admitted to work in the United States, except as provided pursuant to subpart (d) below;
- (d) up to twenty percent (20%) of the USTDA Grant amount may be used to pay for services performed by (i) Host Country subcontractors, and/or (ii) Host Country nationals who are employees of the Contractor;
- (e) a Host Country subcontractor may only be used for specific services from the Terms of Reference identified in the subcontract;
- (f) subcontractors from countries other than the United States or Host Country may not be used;
- (g) goods purchased for performance of the Study and associated delivery services (e.g., international transportation and insurance) must have their nationality, source and origin in the United States; and

(h) goods and services incidental to Study support (e.g., local lodging, food, and transportation) in Host Country are not subject to the above restrictions.

NATIONALITY:

1) Application

A U.S. firm that submits a proposal must meet USTDA's nationality requirements as of the date of submission of the proposal and, if selected, must continue to meet such requirements throughout the duration of the USTDA-funded activity. These nationality provisions apply to all portions of the Terms of Reference that are funded with the USTDA grant.

2) Definitions

A "U.S. firm" is a privately owned firm that is incorporated in the U.S., with its principal place of business in the U.S., and which is either (a) more than 50% owned by U.S. citizens and/or non-U.S. citizens lawfully admitted for permanent residence in the United States, or (b) has been incorporated in the U.S. for more than three (3) years prior to the issuance date of the request for proposals; has performed similar services in the U.S. for that three (3) year period; employs U.S. citizens in more than half of its permanent full-time positions in the U.S.; and has the existing capability in the U.S. to perform the work in question.

A partnership that is organized in the U.S., has its principal place of business in the U.S., and is more than 50% owned by U.S. citizens and/or permanent residents, qualifies as a "U.S. firm".

A nonprofit organization, such as an educational institution, foundation, or association, also qualifies as a "U.S. firm" if it is incorporated in the U.S. and managed by a governing body, a majority of whose members are U.S. citizens and/or permanent residents.

SOURCE AND ORIGIN:

Definitions

"Source" means the country from which shipment is made.

"Origin" means the place of production, through manufacturing, assembly or otherwise.

Questions regarding these nationality, source and origin requirements may be addressed to the USTDA Office of General Counsel.

Version 01.17.2014

ANNEX 4

GRANT AGREEMENT

This Grant Agreement is entered into between the Government of the United States of America, acting through the U.S. Trade and Development Agency ("USTDA") and Companhia de Processamento de Dados do Estado do Rio Grande do Sul ("Grantee"). USTDA agrees to provide the Grantee under the terms of this Grant Agreement US\$356,920 ("USTDA Grant") to fund the cost of goods and services required for a Technical Assistance ("Technical Assistance") on the proposed Rio Grande do Sul IT Network Modernization and Business Model ("Project") in Brazil ("Host Country").

1. USTDA Funding

The funding to be provided under this Grant Agreement shall be used to fund the costs of the Technical Assistance in accordance with an agreement of understanding between the Grantee and the U.S. firm selected by the Grantee ("U.S. Firm"), under which the U.S. Firm will perform the Technical Assistance ("Agreement of Understanding"). Payment to the U.S. Firm will be made directly by USTDA on behalf of the Grantee with the USTDA Grant funds provided under this Grant Agreement.

2. Terms of Reference

The Terms of Reference for the Technical Assistance ("Terms of Reference") are attached as Annex I and are hereby made a part of this Grant Agreement. The Technical Assistance will examine the technical, financial, environmental, and other critical aspects of the proposed Project. The Terms of Reference for the Technical Assistance shall also be included in the Agreement of Understanding.

3. Standards of Conduct

USTDA and the Grantee recognize the existence of standards of conduct for public officials and commercial entities in their respective countries. Therefore, USTDA, the Grantee, and the U.S. Firm shall not directly or indirectly provide, offer or promise to provide money or anything of value to any public official in violation of any United States or Host Country laws relating to corruption or bribery.

4. Grantee Responsibilities

The Grantee shall undertake its best efforts to provide reasonable support for the U.S. Firm, such as local transportation, office space, and secretarial support.

5. Agreement of Understanding Matters and USTDA's Rights as Financier

(A) Grantee Competitive Selection Procedures

Selection of the U.S. Firm shall be carried out by the Grantee according to its established procedures for the competitive selection of U.S. firms with advance notice of the procurement published online through *Federal Business Opportunities* (www.fedbizopps.gov). Upon request, the Grantee will submit these procedures and related documents to USTDA for information and/or approval.

(B) USTDA's Right to Approve U.S. Firm Selection

The Grantee shall notify USTDA at the address of record set forth in Article 16 below upon selection of the U.S. Firm to perform the Technical Assistance. USTDA then shall notify the Grantee whether or not USTDA approves the Grantee's U.S. Firm selection. Upon USTDA approval of the Grantee's U.S. Firm selection, the Grantee shall notify in writing the U.S. firms that submitted unsuccessful proposals to perform the Technical Assistance that they were not selected. The Grantee and the U.S. Firm then shall enter into an Agreement of Understanding for performance of the Technical Assistance.

(C) USTDA's Right to Approve Agreement of Understanding Between Grantee and U.S. Firm

(1) Agreement of Understanding

The Grantee and the U.S. Firm shall enter into an Agreement of Understanding for performance of the Technical Assistance. The Grantee (or the U.S. Firm on the Grantee's behalf) shall transmit to USTDA, at the address set forth in Article 16 below, a photocopy of an English language version of the signed Agreement of Understanding or a final negotiated draft version of the Agreement of Understanding. USTDA then shall notify the Grantee and the U.S. Firm whether or not USTDA approves the Agreement of Understanding.

(2) Amendments and Assignments

The Grantee or the U.S. Firm may submit any proposed amendment to the Agreement of Understanding, including any proposed amendment to any annex thereto, or any proposed assignment of the Agreement of Understanding, to USTDA at the address set forth in Article 16 below. USTDA then shall notify the Grantee and the U.S. Firm whether or not USTDA approves the proposed amendment or assignment.

(D) USTDA Not a Party to the Agreement of Understanding

It is understood by the parties that USTDA has reserved certain rights such as, but not limited to, the right to approve the terms of the Agreement of Understanding and any amendments thereto, including assignments, the selection of all U.S. firms, the Terms of Reference, the Final Report, and any and all documents related to any Agreement of Understanding funded under the Grant Agreement. The parties hereto further understand and agree that USTDA, in reserving any or all of the foregoing approval rights, has acted solely as a financing entity to assure the proper use of United States Government funds, and that any decision by USTDA to exercise or refrain from exercising these approval rights shall be made as a financier in the course of funding the Technical Assistance and shall not be construed as making USTDA a party to the Agreement of Understanding. The parties hereto understand and agree that USTDA may, from time to time, exercise the foregoing approval rights, or discuss matters related to these rights and the Project with the parties to the Agreement of Understanding or any sub-contract, jointly or separately, without thereby incurring any responsibility or liability to such parties. Any approval or failure to approve by USTDA shall not bar the Grantee or USTDA from asserting any right they might have against the U.S. Firm, or relieve the U.S. Firm of any liability which the U.S. Firm might otherwise have to the Grantee or USTDA.

(E) Grant Agreement Controlling

Regardless of USTDA approval, the rights and obligations of any party to the Agreement of Understanding or any sub-contract thereunder must be consistent with this Grant Agreement. In the event of any inconsistency between the Grant Agreement and the Agreement of Understanding or any sub-agreement of understanding funded by the Grant Agreement, the Grant Agreement shall control.

6. Disbursement Procedures

(A) USTDA Approval of Agreement of Understanding Required

USTDA will make disbursements of USTDA Grant funds directly to the U.S. Firm only after USTDA approves the Grantee's Agreement of Understanding with the U.S. Firm.

(B) U.S. Firm Invoice Requirements

The Grantee should request disbursement of funds by USTDA to the U.S. Firm for performance of the Technical Assistance by submitting invoices in accordance with the procedures set forth in the USTDA Mandatory Agreement of Understanding Clauses in Annex II.

7. Effective Date

The effective date of this Grant Agreement ("Effective Date") shall be the date of signature by both parties or, if the parties sign on different dates, the date of the last signature.

8. Technical Assistance Schedule

(A) Technical Assistance Completion Date

The completion date for the Technical Assistance, which is October 31, 2016, is the date by which the parties estimate that the Technical Assistance will have been completed.

(B) Time Limitation on Disbursement of USTDA Grant Funds

Except as USTDA may otherwise agree, (i) no USTDA funds may be disbursed under this Grant Agreement for goods and services which are provided prior to the Effective Date of the Grant Agreement; and (ii) no USTDA funds may be disbursed more than four (4) years after the Effective Date of the Grant Agreement.

9. USTDA Mandatory Agreement of Understanding Clauses

All Agreements of Understanding funded under this Grant Agreement shall include the USTDA Mandatory Agreement of Understanding Clauses set forth in Annex II to this Grant Agreement. All sub-agreements funded or partially funded with USTDA Grant funds shall include the USTDA Mandatory Agreement of Understanding Clauses, except for clauses B(1), G, H, I, and S.

10. Use of U.S. Carriers

(A) Air

Transportation by air of persons or property funded under this Grant Agreement shall be on U.S. flag carriers in accordance with the Fly America Act, 49 U.S.C. 40118, to the extent service by such carriers is available, as provided under applicable U.S. Government regulations.

(B) Marine

Transportation by sea of property funded under this Grant Agreement shall be on U.S. carriers in accordance with U.S. cargo preference law.

11. Nationality, Source and Origin

Except as USTDA may otherwise agree, the following provisions shall govern the delivery of goods and professional services funded by USTDA under this Grant Agreement:

- (a) the U.S. Firm must be a U.S. firm;
- (b) the U.S. Firm may use U.S. subcontractors without limitation;
- (c) employees of U.S. Firm or U.S. subcontractors shall be U.S. citizens or non-U.S. citizens lawfully admitted for permanent residence in the United States or non-U.S. citizens lawfully admitted to work in the United States, except as provided pursuant to subpart (d) below;
- (d) up to twenty percent (20%) of the USTDA Grant amount may be used to pay for services performed by (i) Host Country subcontractors, and/or (ii) Host Country nationals who are employees of the U.S. Firm;
- (e) a Host Country subcontractor may only be used for specific services from the Terms of Reference identified in the sub-agreement;
- (f) subcontractors from countries other than the United States or Host Country may not be used;
- (g) goods purchased for performance of the Technical Assistance and associated delivery services (e.g., international transportation and insurance) must have their nationality, source and origin in the United States; and
- (h) goods and services incidental to Technical Assistance support (e.g., local lodging, food, and transportation) in Host Country are not subject to the above restrictions.

USTDA will make available further details concerning these provisions upon request.

12. Taxes

USTDA funds provided under this Grant Agreement shall not be used to pay any taxes, tariffs, duties, fees or other levies imposed under laws in effect in Host Country, except for taxes of a de minimis nature imposed on local lodging, food, transportation, or airport arrivals or departures. Neither the Grantee nor the U.S. Firm will seek reimbursement from USTDA for taxes, tariffs, duties, fees or other levies, except for taxes of a de minimis nature referenced above.

13. USTDA Project Evaluation

The parties will cooperate to assure that the purposes of the Grant Agreement are accomplished. For five (5) years following receipt by USTDA of the Final Report, the Grantee agrees to respond to any reasonable inquiries from USTDA about the status of the Project. Inquiries will include, but not be limited to, whether the Final Report recommendations have been or will be used to implement the Project, anticipated Project implementation timeline, and likely source of financing. In addition, the Grantee agrees to notify USTDA any time the Grantee selects a new primary contact person for this Project during the five-year period referenced above.

14. Recordkeeping and Audit

The Grantee agrees to maintain books, records, and other documents relating to the Technical Assistance and this Grant Agreement adequate to demonstrate implementation of its responsibilities under this Grant Agreement, including the selection of U.S. firms, receipt and approval of Agreement of Understanding deliverables, and approval or disapproval of U.S. Firm invoices for payment by USTDA. Such books, records, and other documents shall be separately maintained for three (3) years after the date of the final disbursement by USTDA. The Grantee shall afford USTDA or its authorized representatives the opportunity at reasonable times to review books, records, and other documents relating to the Technical Assistance and the Grant Agreement.

15. Representation of Parties

For all purposes relevant to this Grant Agreement, the Government of the United States of America will be represented by the U. S. Ambassador to Host Country or USTDA and Grantee will be represented by its President. The parties hereto may, by written notice, designate additional representatives for all purposes under this Grant Agreement.

16. Addresses of Record for Parties

Any notice, request, document, or other communication submitted by either party to the other under the Grant Agreement shall be in writing or through an electronic medium that produces a tangible record of the transmission, such as a facsimile or e-mail message, and will be deemed duly given or sent when delivered to such party at the following:

To: PROCERGS
Praça dos Açorianos, S/Nº
Porto Alegre, RS
CEP 90010-340
Brazil
+ 55 51-3210-3259
jaeger@procergs.rs.gov.br

To: U.S. Trade and Development Agency
1000 Wilson Boulevard, Suite 1600
Arlington, Virginia 22209-3901
USA

Phone: (703) 875-4357
Fax: (703) 875-4009
E-Mail: lac@ustda.gov

All such communications shall be in English, unless the parties otherwise agree in writing. Any communication relating to this Grant Agreement shall include the following fiscal data:

Appropriation No.: 11 15/16 1001
Activity No.: 2015-51019A
Reservation No.: 2015166
Grant No.: GH201551166

17. Implementation Letters

To assist the Grantee in the implementation of the Technical Assistance, USTDA may, from time to time, issue implementation letters that will provide additional information about matters covered by this Grant Agreement. USTDA may also issue implementation letters to (i) extend the estimated completion date set forth in Article 8(A) above, or (ii) change the fiscal data set forth in Article 16 above. The parties may also use jointly agreed upon implementation letters to confirm and record their mutual understanding of matters covered by this Grant Agreement.

18. Grant Agreement Amendments

Either party may submit to the other party at any time a proposed amendment to the Grant Agreement. A Grant Agreement amendment shall be effective only if it has been signed by both parties.

19. Termination Clause

Either party may terminate this Grant Agreement by giving the other party written notice thereof. The termination of the Grant Agreement will end any obligations of the parties to provide financial or other resources for the Technical Assistance, except for payments that may be made pursuant to Clause H of the USTDA Mandatory Agreement of Understanding Clauses set forth in Annex II to this Grant Agreement. This article and Articles 5, 12, 13, 14, and 21 of the Grant Agreement shall survive termination of the Grant Agreement.

20. Non-waiver of Rights and Remedies

No delay in exercising any right or remedy accruing to either party in connection with the Grant Agreement shall be construed as a waiver of such right or remedy.

21. U.S. Technology and Equipment

By funding this Technical Assistance, USTDA seeks to promote the project objectives of the Host Country through the use of U.S. technology, goods, and services. In recognition of this purpose, the Grantee agrees that it will allow U.S. suppliers to compete in the procurement of technology, goods and services needed for Project implementation.

22. Governing Law

This Grant Agreement shall be governed by, and construed in accordance with, the applicable laws of the United States of America. In the absence of federal law, the laws of the State of New York shall apply.

23. Counterparts

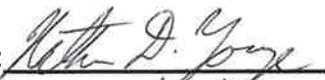
This Grant Agreement may be executed in counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same agreement. Counterparts may be delivered via electronic mail or other transmission method and any counterpart so delivered shall be deemed to be valid and effective for all purposes.

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IN WITNESS WHEREOF, the Government of the United States of America and Companhia de Processamento de Dados do Estado do Rio Grande do Sul, each acting through its duly authorized representative, have caused this Grant Agreement to be signed in the English language in their names and delivered as of the day and year written below. In the event that this Grant Agreement is signed in more than one language, the English language version shall govern.

For the Government of the United States of America

For Companhia de Processamento de Dados do Estado do Rio Grande do Sul

By: 
Nathan D. Young
Date: 07/08/15

By: 
ANTONIO RAMOS GOMES
Date: 07/08/2015

Witnessed:

Witnessed:

By: 
STEVE KNIDE

By: 
DEBORAH PILLA VILELA

Annex I -- Terms of Reference

Annex II -- USTDA Mandatory Agreement of Understanding Clauses



Annex II

USTDA Mandatory Agreement of Understanding Clauses

A. USTDA Mandatory Agreement of Understanding Clauses Controlling

The parties to this Agreement of Understanding acknowledge that this Agreement of Understanding is funded in whole or in part by the U.S. Trade and Development Agency (“USTDA”) under the Grant Agreement between the Government of the United States of America acting through USTDA and Companhia de Processamento de Dados do Estado do Rio Grande do Sul (“Client”), dated _____ (“Grant Agreement”). The Client has selected _____ (“U.S. Firm”) to perform the Technical Assistance (“Technical Assistance”) for the Rio Grande do Sul IT Network Modernization and Business Model (“Project”) in Brazil (“Host Country”). The Client and the U.S. Firm are the parties to this Agreement of Understanding, and they hereinafter are referred to collectively as the “Agreement of Understanding Parties.” Notwithstanding any other provisions of this Agreement of Understanding, the following USTDA Mandatory Agreement of Understanding Clauses shall govern. All subcontracts entered into by U.S. Firm funded or partially funded with USTDA Grant funds shall include these USTDA Mandatory Agreement of Understanding Clauses, except for Clauses B(1), G, H, I, and S. In addition, in the event of any inconsistency between the Grant Agreement and the Agreement of Understanding or any subcontract thereunder, the Grant Agreement shall be controlling.

B. USTDA as Financier

(1) USTDA Approval of Agreement of Understanding

This Agreement of Understanding, and any amendment thereto, including any amendment to any annex thereto, and any proposed assignment of this Agreement of Understanding, must be approved by USTDA in writing in order to be effective with respect to the expenditure of USTDA Grant funds. USTDA will not authorize the disbursement of USTDA Grant funds until the Agreement of Understanding conforms to modifications required by USTDA during the Agreement of Understanding review process and the Agreement of Understanding has been formally approved by USTDA. To make this review in a timely fashion, USTDA must receive from either the Client or the U.S. Firm an English language version of a final negotiated draft Agreement of Understanding or a signed Agreement of Understanding to the attention of the General Counsel's office at USTDA's address listed in Clause M below.

(2) USTDA Not a Party to the Agreement of Understanding

It is understood by the Agreement of Understanding Parties that USTDA has reserved certain rights such as, but not limited to, the right to approve the terms of this Agreement of Understanding and amendments thereto, including assignments, the selection of all U.S. firms, the Terms of Reference, the Final Report, and any and all documents related to any agreement of understanding funded under the Grant Agreement. The agreement of understanding Parties hereto further understand and agree that USTDA, in reserving any or all of the foregoing approval rights, has acted solely as a financing entity to assure the proper use of United States Government funds, and that any decision by USTDA to exercise or refrain from exercising these approval rights shall be made as a financier in the course of financing the Technical Assistance and shall not be construed as making USTDA a party to the Agreement of Understanding. The Agreement of Understanding Parties hereto understand and agree that USTDA may, from time to time, exercise the foregoing approval rights, or discuss matters related to these rights and the Project with the Agreement of Understanding Parties or the parties to any subcontract, jointly or separately; and in consideration of USTDA's role as financier, the Agreement of Understanding Parties further agree that USTDA's rights may be exercised without thereby incurring any responsibility or liability, in contract, tort, or otherwise, to the Agreement of Understanding Parties or the parties to any subcontract. Any approval or failure to approve by USTDA shall not bar the Client or USTDA from asserting any right they might have against the U.S. Firm, or relieve the U.S. Firm of any liability which the U.S. Firm might otherwise have to the Client or USTDA.

C. Nationality, Source and Origin

Except as USTDA may otherwise agree, the following provisions shall govern the delivery of goods and professional services funded by USTDA under the Grant Agreement:

- (a) the Contractor must be a U.S. firm;
- (b) the U.S. Firm may use U.S. subcontractors without limitation;
- (c) employees of U.S. Contractor or U.S. subcontractor firms shall be U.S. citizens, non-U.S. citizens lawfully admitted for permanent residence in the United States or non-U.S. citizens lawfully admitted to work in the United States, except as provided pursuant to subpart (d) below;
- (d) up to twenty percent (20%) of the USTDA Grant amount may be used to pay for services performed by (i) Host Country subcontractors, and/or (ii) Host Country nationals who are employees of the U.S. Firm;
- (e) a Host Country subcontractor may only be used for specific services from the Terms of Reference identified in the subcontract;
- (f) subcontractors from countries other than the United States or Host Country may not be used;

(g) goods purchased for performance of the Technical Assistance and associated delivery services (e.g., international transportation and insurance) must have their nationality, source and origin in the United States; and

(h) goods and services incidental to Technical Assistance support (e.g., local lodging, food, and transportation) in Host Country are not subject to the above restrictions.

USTDA will make available further details concerning these provisions upon request.

D. Recordkeeping and Audit

The U.S. Firm and subcontractors funded under the Grant Agreement shall maintain, in accordance with generally accepted accounting procedures, books, records, and other documents, sufficient to reflect properly all transactions under or in connection with the Agreement of Understanding. These books, records, and other documents shall clearly identify and track the use and expenditure of USTDA funds, separately from other funding sources. Such books, records, and documents shall be maintained during the period of performance of work provided for by this Agreement of Understanding, and for a period of three (3) years after final disbursement by USTDA. The U.S. Firm and subcontractors shall afford USTDA, or its authorized representatives, the opportunity at reasonable times for inspection and audit of such books, records, and other documentation.

E. U.S. Carriers

(1) Air

Transportation by air of persons or property funded under the Grant Agreement shall be on U.S. flag carriers in accordance with the Fly America Act, 49 U.S.C. 40118, to the extent service by such carriers is available, as provided under applicable U.S. Government regulations.

(2) Marine

Transportation by sea of property funded under the Grant Agreement shall be on U.S. carriers in accordance with U.S. cargo preference law.

F. Workman's Compensation Insurance

The U.S. Firm shall provide adequate Workman's Compensation Insurance coverage for work performed under this Agreement of Understanding.

G. Disbursement Procedures

(1) USTDA Approval of Agreement of Understanding

Disbursement of Grant funds will be made only after USTDA approval of this Agreement of Understanding.

(2) Payment Schedule Requirements

A payment schedule for disbursement of Grant funds to the U.S. Firm shall be included in this Agreement of Understanding. Such payment schedule must conform to the following USTDA requirements: (1) up to twenty percent (20%) of the total USTDA Grant amount may be used as a mobilization payment; (2) all other payments, with the exception of the final payment, shall be based upon Agreement of Understanding performance milestones; and (3) the final payment may be no less than fifteen percent (15%) of the total USTDA Grant amount, payable upon approval by USTDA of a Final Report that has been (i) prepared and submitted in accordance with the requirements set forth in Clause I below, and (ii) approved in writing by the Client in the manner provided for by Clause G(3)(b)(iii) below. Invoicing procedures for all payments are described below.

(3) U.S. Firm Invoice Requirements

USTDA will make all disbursements of USTDA Grant funds directly to the U.S. Firm. The U.S. Firm must provide USTDA with an ACH Vendor Enrollment Form (available from USTDA) with the first invoice. The Client shall request disbursement of funds by USTDA to the U.S. Firm for performance of the Agreement of Understanding by submitting the following to USTDA:

(a) U.S. Firm's Invoice

The U.S. Firm's invoice shall include reference to an item listed in the Agreement of Understanding payment schedule, the requested payment amount, and an appropriate certification by the U.S. Firm, as follows:

(i) For a mobilization payment (if any):

“As a condition for this mobilization payment, the U.S. Firm certifies that it will perform all work in accordance with the terms of its Agreement of Understanding with the Client. To the extent that the U.S. Firm does not comply with the terms and conditions of the Agreement of Understanding, including the USTDA Mandatory Agreement of Understanding Clauses contained therein, it will, upon USTDA’s request, make an appropriate refund to USTDA.”

(ii) For Agreement of Understanding performance milestone payments:

“The U.S. Firm has performed the work described in this invoice in accordance with the terms of its Agreement of Understanding with the Client and is entitled to payment thereunder. To the extent the U.S. Firm has not complied with the terms and conditions of the Agreement of Understanding, including the USTDA Mandatory

Agreement of Understanding Clauses contained therein, it will, upon USTDA's request, make an appropriate refund to USTDA.”

(iii) For final payment:

“The U.S. Firm has performed the work described in this invoice in accordance with the terms of its Agreement of Understanding with the Client and is entitled to payment thereunder. Specifically, the U.S. Firm has submitted the Final Report to the Client, as required by the Agreement of Understanding, and received the Client’s approval of the Final Report. To the extent the U.S. Firm has not complied with the terms and conditions of the Agreement of Understanding, including the USTDA Mandatory Agreement of Understanding Clauses contained therein, it will, upon USTDA’s request, make an appropriate refund to USTDA.”

(b) Client's Approval of the U.S. Firm's Invoice

(i) The invoice for a mobilization payment must be approved in writing by the Client.

(ii) For Agreement of Understanding performance milestone payments, the following certification by the Client must be provided on the invoice or separately:

“The services for which disbursement is requested by the U.S. Firm have been performed satisfactorily, in accordance with applicable Agreement of Understanding provisions and the terms and conditions of the USTDA Grant Agreement.”

(iii) For final payment, the following certification by the Client must be provided on the invoice or separately:

“The services for which disbursement is requested by the U.S. Firm have been performed satisfactorily, in accordance with applicable Agreement of Understanding provisions and the terms and conditions of the USTDA Grant Agreement. The Final Report submitted by the U.S. Firm has been reviewed and approved by the Client.”

(c) USTDA Address for Disbursement Requests

Requests for disbursement shall be submitted to the attention of the Finance Department at USTDA's address listed in Clause M below, or by e-mail to invoices@ustda.gov.

H. Termination

(1) Method of Termination

Either Agreement of Understanding Party may terminate this Agreement of Understanding upon giving written notice to the other party and USTDA. This notice shall be effective after either 30 days, or any other period set forth elsewhere in this Agreement of Understanding. Furthermore, this Agreement of Understanding shall

terminate immediately upon notification of USTDA's termination of the Grant Agreement or the term of availability of any funds thereunder.

(2) Ramifications of Termination

In the event that this Agreement of Understanding is terminated prior to completion, the U.S. Firm will be eligible, subject to USTDA approval, for payment for the value of the work performed pursuant to the terms of this Agreement of Understanding. Likewise, in the event of such termination, USTDA is entitled to receive from the U.S. Firm all USTDA Grant funds previously disbursed to the U.S. Firm (including but not limited to mobilization payments) which exceed the value of the work performed pursuant to the terms of this Agreement of Understanding.

(3) Survivability

Clauses B, D, G, H, N and S of the USTDA Mandatory Agreement of Understanding Clauses shall survive the termination of this Agreement of Understanding.

I. USTDA Final Report

(1) Definition

“Final Report” shall mean the Final Report described in the attached Annex I Terms of Reference or, if no such “Final Report” is described therein, “Final Report” shall mean a substantive and comprehensive report of work performed in accordance with the attached Annex I Terms of Reference, including any documents delivered to the Client.

(2) Final Report Submission Requirements

The U.S. Firm shall provide the following to USTDA:

(a) One (1) complete hard copy of the Final Report for USTDA's records. This version shall have been approved by the Client in writing and must be in the English language. It is the responsibility of the U.S. Firm to ensure that confidential information, if any, contained in this version be clearly marked. USTDA will maintain the confidentiality of such information in accordance with applicable law.

and

(b) One (1) hard copy of the Final Report suitable for public distribution (“Public Version”). The Public Version shall have been approved by the Client in writing and must be in the English language. As this version will be available for public distribution, it must not contain any confidential information. If the report in (a) above contains no confidential information, it may be used as the Public Version. In any event, the Public Version must be informative and contain sufficient Project detail to be useful to prospective equipment and service providers.

and

(c) Two (2) CD-ROMs, each containing a complete copy of the Public Version of the Final Report. The electronic files on the CD-ROMs shall be submitted in a commonly accessible read-only format. As these CD-ROMs will be available for public distribution, they must not contain any confidential information. It is the responsibility of the U.S. Firm to ensure that no confidential information is contained on the CD-ROMs.

The U.S. Firm shall also provide one (1) hard copy of the Public Version of the Final Report to the Commercial or Economic Section of the U.S. Embassy in Host Country for informational purposes.

(3) Final Report Presentation

All Final Reports submitted to USTDA must be paginated and include the following:

(a) The front cover of every Final Report shall contain the name of the Client, the name of the U.S. Firm who prepared the report, a report title, USTDA's logo, and USTDA's address. If the complete version of the Final Report contains confidential information, the U.S. Firm shall be responsible for labeling the front cover of that version of the Final Report with the term "Confidential Version". The U.S. Firm shall be responsible for labeling the front cover of the Public Version of the Final Report with the term "Public Version". The front cover of every Final Report shall also contain the following disclaimer:

"This report was funded by the U.S. Trade and Development Agency (USTDA), an agency of the U.S. Government. The opinions, findings, conclusions or recommendations expressed in this document are those of the author(s) and do not necessarily represent the official position or policies of USTDA. USTDA makes no representation about, nor does it accept responsibility for, the accuracy or completeness of the information contained in this report."

(b) The inside front cover of every Final Report shall contain USTDA's logo, USTDA's address, and USTDA's mission statement. Camera-ready copy of USTDA Final Report specifications will be available from USTDA upon request.

(c) The U.S. Firm shall affix to the front of the CD-ROM a label identifying the Host Country, USTDA Activity Number, the name of the Client, the name of the U.S. Firm who prepared the report, a report title, and the following language:

"The U.S. Firm certifies that this CD-ROM contains the Public Version of the Final Report and that all contents are suitable for public distribution."

(d) The U.S. Firm and any subcontractors that perform work pursuant to the Grant Agreement must be clearly identified in the Final Report. Business name, point of

contact, address, telephone and fax numbers, and e-mail address shall be included for U.S. Firm and each subcontractor.

(e) The Final Report, while aiming at optimum specifications and characteristics for the Project, shall identify the availability of prospective U.S. sources of supply. Business name, point of contact, address, telephone and fax numbers, and e-mail address shall be included for each commercial source.

(f) The Final Report shall be accompanied by a letter or other notation by the Client which states that the Client approves the Final Report. A certification by the Client to this effect provided on or with the invoice for final payment will meet this requirement.

(g) The Client, USTDA, and the Commercial and/or Economic Section(s) of the U.S. Embassy in Host Country shall have irrevocable, worldwide, royalty-free, non-exclusive rights to use and distribute the Final Report.

J. Modifications

All changes, modifications, assignments or amendments to this Agreement of Understanding, including the appendices, shall be made only by written agreement by the Agreement of Understanding Parties hereto, subject to written USTDA approval.

K. Technical Assistance Schedule

(1) Technical Assistance Completion Date

The completion date for the Technical Assistance, which is October 31, 2016, is the date by which the Agreement of Understanding Parties estimate that the Technical Assistance will have been completed.

(2) Time Limitation on Disbursement of USTDA Grant Funds

Except as USTDA may otherwise agree, (a) no USTDA funds may be disbursed under this Agreement of Understanding for goods and services which are provided prior to the Effective Date of the Grant Agreement; and (b) no USTDA funds may be disbursed more than four (4) years after the Effective Date of the Grant Agreement.

L. Business Practices

The Agreement of Understanding Parties recognize the existence of standards of conduct for public officials and commercial entities in their respective countries. Therefore, the Agreement of Understanding Parties shall fully comply with all United States and Host Country laws relating to corruption or bribery. For example, the U.S. Firm and its subcontractors shall fully comply with the requirements of the Foreign Corrupt Practices Act, as amended (15 U.S.C. §§ 78dd-1 et seq.). Each Agreement of Understanding Party agrees

that it shall require that any agent or representative hired to represent it in connection with the Technical Assistance will comply with this paragraph and all laws which apply to activities and obligations of that Agreement of Understanding Party, including, but not limited to, those laws and obligations referenced above.

M. USTDA Address and Fiscal Data

Any communication with USTDA regarding this Agreement of Understanding shall be sent to the following address and include the fiscal data listed below:

U.S. Trade and Development Agency
1000 Wilson Boulevard, Suite 1600
Arlington, Virginia 22209-3901
USA

Phone: (703) 875-4357
Fax: (703) 875-4009

Fiscal Data:

Appropriation No.: 11 15/16 1001
Activity No.: 2015-51019A
Reservation No.: 2015166
Grant No.: GH201551166

N. Taxes

USTDA funds provided under the Grant Agreement shall not be used to pay any taxes, tariffs, duties, fees or other levies imposed under laws in effect in Host Country, except for taxes of a de minimis nature imposed on local lodging, food, transportation, or airport arrivals or departures. Neither the Client nor the U.S. Firm will seek reimbursement from USTDA for taxes, tariffs, duties, fees or other levies, except for taxes of a de minimis nature referenced above.

O. Export Licensing

The U.S. Firm and all subcontractors are responsible for compliance with U.S. export licensing requirements, if applicable, in the performance of the Terms of Reference.

P. Contact Persons

The Client designates the following person as the contact person for matters concerning this Agreement of Understanding:

PROCERGS
Praça dos Açorianos, S/Nº

Rio Grande do Sul, RS
CEP 90010-340
Brazil
+ 55 51-3210-3259
jaeger@procergs.rs.gov.br

The U.S. Firm designates the following person as the contact person for matters concerning this Agreement of Understanding:

Name:
Title:
Phone:
Fax:
E-Mail:

If anyone designated by an Agreement of Understanding Party as a contact person ceases service as a contact person at any point during the ten-year period following the date of signing of this Agreement of Understanding, the Agreement of Understanding Party that had designated that contact person shall provide USTDA and the other Agreement of Understanding Party with the name and contact information of a replacement contact person.

Q. Liability

This Agreement of Understanding may include a clause that limits the liability of the Agreement of Understanding Parties, provided that such a clause does not (i) disclaim liability for damages that are natural, probable, and reasonably foreseeable as a result of a breach of this Agreement of Understanding, or (ii) limit the total amount of damages recoverable to an amount less than the total amount disbursed to the U.S. Firm pursuant to this Agreement of Understanding. If any clause included by the Agreement of Understanding Parties is inconsistent with either or both of these limitations, it shall be invalid and unenforceable to the extent of the inconsistency.

R. Arbitration

If the Agreement of Understanding Parties submit any dispute arising under this Agreement of Understanding for arbitration, the scope of any such arbitration shall be limited to the Agreement of Understanding Parties' rights and/or obligations under this Agreement of Understanding and may not extend to any right or obligation of USTDA. The arbitrator(s) shall not arbitrate issues directly affecting the rights or obligations of USTDA.

S. Reporting Requirements

The U.S. Firm shall advise USTDA by letter as to the status of the Project on March 1st annually for a period of two (2) years after completion of the Technical Assistance. In addition, if at any time the U.S. Firm receives follow-on work from the Client, the U.S. Firm shall so notify USTDA and designate the U.S. Firm's contact point including name, telephone, fax number, and e-mail address. Since this information may be made publicly

available by USTDA, any information which is confidential shall be designated as such by the U.S. Firm and provided separately to USTDA. USTDA will maintain the confidentiality of such information in accordance with applicable law.

ANNEX 5

Annex I

Terms of Reference

Objective

The objective of these terms of reference is to develop a roadmap to expand the state of Rio Grande do Sul's fiber and wireless broadband network and modernize its existing data center, and to develop a new business model (the "Project"). The Grantee is Companhia de Processamento de Dados do Estado do Rio Grande do Sul ("PROCERGS").

All deliverables for all tasks shall be provided in both English and Portuguese.

Task 1: PREPARATION AND BACKGROUND RESEARCH – STATEWIDE HYBRID BROADBAND NETWORK

The U.S. firm selected by PROCERGS to implement the Project (the "U.S. Firm") shall research past and current state and federal government initiatives in the planning, financing, construction, and operation of municipal, state-wide and national broadband networks in Brazil and internationally, identifying best practices in technology, finance, construction and operation. The U.S. firm shall analyze the demands (in terms of capacity) on such networks of typical e-government programs, including:

- internal administration;
- tax collection;
- operation of citizen service centers;
- distance education;
- telemedicine;
- cloud computing; and
- big data analysis.

Based on the initial research described above, the U.S. Firm shall identify and analyze in detail a minimum of four Brazilian government broadband networks and four international case studies involving both fiber and wireless technologies. The U.S. Firm shall summarize the best practices technology, finance, construction and operation, drawing on these case studies and a review of the relevant literature on state-of-the art hybrid (fiber/wireless) networks.

Deliverable #1: The U.S. Firm shall prepare a report detailing the case studies and best practices identified for the expansion of Rio Grande do Sul's hybrid broadband network.

Task 2: KICK-OFF MEETINGS AND ASSESSMENT OF CURRENT HYBRID NETWORK INFRASTRUCTURE

The U.S. Firm shall travel to Porto Alegre to review the current hybrid network infrastructure and meet with PROCERGS. The U.S. Firm shall also meet with key stakeholders in the Project, including: the Secretariats of Finance and Education and the Military Police, Civil Police, DETRAN, and other relevant Secretariats and government agencies. PROCERGS shall assist the U.S. firm in scheduling these meetings. Prior to these meetings, PROCERGS shall provide the U.S. Firm with all documents relevant to assessing the current hybrid network infrastructure, and the U.S. Firm shall review such documents prior to these meetings. The U.S. Firm should familiarize itself with the Brazilian governmental public budget finance and project analysis, and PROCERGS shall assist in obtaining relevant documentation for the U.S. Firm's review, as reasonably requested.

Deliverable #2: The U.S. Firm shall prepare a report of all work performed and findings under Task 2, including a timetable, list of needed data, and proposed mode of operation to carry out the technical assistance.

Task 3: CONDUCT A NEEDS/REQUIREMENTS ANALYSIS FOR THE EXPANSION OF THE HYBRID BROADBAND NETWORK

While in Porto Alegre, the U.S. Firm shall conduct a needs/requirements analysis for the hybrid broadband network. The U.S. Firm shall also analyze the needs and capabilities of potential partners in the hybrid network, including Eletrosul (ELS), Telebras, the National Education and Research Network (RNP), the Ministry of Education (MEC), private telecommunications companies (e.g. Oi, Vivo, Embratel, & Claro) and local Internet service providers. The U.S. Firm shall also assess the interest of such potential partners and conditions under which they would be willing to partner with PROCERGS.

The U.S. Firm shall familiarize itself with e-Government communications initiatives, partnership and business models for fiber and hybrid broadband networks in Brazil and Rio Grande do Sul. PROCERGS shall assist the U.S. Firm in obtaining relevant documentation and scheduling meetings related to this Task, as reasonably requested.

The U.S. Firm shall:

- Meet with PROCERGS and (with facilitation from PROCERGS as reasonably requested) major state government stakeholders to gain additional insights into their needs, interests, and expectations;
- Visit each of the current datacenters in PROCERGS and the Secretariats of Finance, and servers with e-government applications in the Secretariats of Education and Health, DETRAN, and the Civilian and Military Police and conduct a statewide broadband connectivity needs and requirement analysis of each of these;
- Identify factors which would help PROCERGS get more secretariats/agencies of the State Government and municipal governments in the state to become clients of the hybrid broadband network;
- Conduct basic cost/benefit analyses for the expansion of the hybrid broadband network, taking into consideration the needs of its prospective clients; and

- Quantify the benefits in unit cost reduction and improved quality for broadband communications that can be achieved with the state-owned hybrid network compared with continued contracting with commercial operators (Oi and Embratel).

Deliverable #3: The U.S. Firm shall prepare a report of all work done under this Task, including a Needs/Requirement Assessment Report for the expansion of the hybrid broadband network.

Task 4: PREPARE ROADMAP FOR EXPANSION OF THE STATEWIDE HYBRID BROADBAND NETWORK ARCHITECTURE

The U.S. Firm shall:

- Analyze the findings from Task 3 and develop specifications regarding the architecture and design of the hybrid broadband network;
- Develop detailed estimates of network designs, equipment needs and capacity, and resulting capital expenditure and operating costs;
- Propose service level agreements (SLAs) for the statewide hybrid broadband network;
- Prepare a list of prospective U.S.-based sources of supply for the network and contact information;

Deliverable #4: The U.S. Firm shall prepare a report on all work done under this Task, including a roadmap for the architecture, functional specifications, and expansion of the hybrid broadband network.

Task 5: STUDY OF ROLES AND RESPONSIBILITIES FOR THE EXPANISON OF THE HYBRID BROADBAND NETWORK AND ANALYSIS OF BUSINESS MODELS

The U.S. Firm shall 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 network. After studying these roles and responsibilities, the U.S. Firm shall provide an analysis of the most appropriate business models for the operation and maintenance of the network.

Questions to be addressed in this study include:

- What will be the role of the secretariats and agencies that will use the network?;
- How will performance of the broadband network be measured?;
- If there is a private partner, how should it be remunerated?;
- What should be the role of PROCERGS once the new network is operational?; and
- The analysis of business models should present at least three viable options for the operation and maintenance of the network, including leasing and/or exchange of infrastructure with partners such as telecommunications and electric power distribution companies.

Deliverable #5: The U.S. Firm shall prepare a report on all work performed under this Task, including a report of the roles and responsibilities for the expansion of the hybrid broadband network.

Task 6: ECONOMIC AND FINANCIAL ANALYSIS OF THE PROJECT

The U.S. Firm shall develop a financial model to estimate the cost of ownership and operation, and funding options for the Project. This model shall be based on the ownership scenario chosen by PROCERGS out of the options described under Task 5. The financial model shall also include a high-level cost of ownership and sensitivity analysis. The sensitivity analysis shall guide PROCERGS in deciding the number of priorities and objectives that can be accomplished, given the different budget scenarios. The U.S. Firm shall also consider all relevant technical and strategic deployment issues when preparing the financial analysis.

As part of the economic and financial analysis, the U.S. Firm shall:

- Quantify the benefits in unit cost reduction and improved quality for broadband connectivity services that could be achieved with the new hybrid broadband network;
- Assess all aspects of Project feasibility (technical, economic, financial, political, legal and organizational) and their interrelations; and
- Prepare economic scenarios, risk analysis, rate return analysis, and analysis of total cost of operation.

Deliverable #6: The U.S. Firm shall prepare an economic and financial analysis report.

Task 7: PRELIMINARY ENVIRONMENTAL ASSESSMENT

The U.S. Firm shall:

- Conduct, in consultation with the Rio Grande do Sul Secretariat of Environmental Protection and municipal authorities (with assistance from PROCERGS in setting up relevant meetings), a preliminary review and evaluation of the expected environmental impacts of the broadband network and their compatibility with both regulations of federal, state, and municipal governments and the requirements of potential lending agencies, especially the World Bank, the IFC, and the Inter-American Development Bank;
- Discuss how any potential negative impacts can be mitigated;
- 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); and
- Verify possible transfers of effects, identify and adopt preventive measures and actions to obtain synergies with other departments and agencies involved.

Deliverable #7: The U.S. Firm shall prepare a report of all the work performed and findings under Task 7.

Task 8: DEVELOPMENTAL IMPACT ANALYSIS

The U.S. Firm shall identify and assess the developmental outcomes that would be expected if the Project is implemented in accordance with the recommendations of the Technical Assistance. The U.S. Firm should focus on estimating the Project's potential benefits in the four areas listed below. 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 of such four areas that is relevant for the Project. Any significant developmental impacts outside the four areas listed below should also be included.

1. **Infrastructure:** Provide a statement on the physical or financial infrastructure improvements that would result if the Project were implemented and an estimate of the scale of construction/installation expected.
2. **Market-Oriented Reform:** Discuss any market-oriented reforms that are recommended to facilitate implementation of the Project, or would result from implementation of the Project. This would include any policy changes, which result in the liberalization of prices, privatization of previously State-owned assets, or increase competition in a given sector.
3. **Human Capacity Building:** Estimate the number and type of jobs that would be created during the installation/construction phase if the Project is implemented as recommended. Provide separate estimates of the number of jobs that would be created or sustained once installation is complete (or the number of jobs that would be lost due to labor saving technology). Comment on any prospective training recommended in the study, including an estimate of the number of persons to be trained, type of training needed, and the desired outcome of the training.
4. **Technology Transfer and Productivity Enhancement:** Provide a description of any advanced technologies/processes that would be introduced as a result of the Project, and a description of any efficiency that would be gained.

Other: Describe any other developmental impacts or benefits that would result from the Project, for example, follow-on or replication projects, improved, governance or enhanced revenue flows to Rio Grande do Sul and Brazil.

Deliverable #8: The U.S. Firm shall prepare a report of all the work performed and findings under Task 8.

Task 9: Presentation of the Draft Final Report

Upon concluding all tasks listed above, the lead participants in the Technical Assistance conducted by the U.S. Firm shall travel to Rio Grande do Sul to formally present to PROCERGS the findings and recommendations and a near final version of the report. PROCERGS 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. To support the presentation of the study the U.S. Firm shall:

- Create accompanying PowerPoint presentation; and
- Identify any additional suggestions or recommendations derived from the responses of the Project sponsor to the presentation.

Deliverable #9: The U.S Firm shall travel to Porto Alegre to present the draft Final Report and PowerPoint Presentation.

Task 10: Final Report

The U.S. Firm shall prepare and deliver to PROCERGS and USTDA a substantive and comprehensive report of all of the work performed in accordance with these Terms of Reference (“Final Report”). The Final Report shall be organized according to the above tasks, and shall include all deliverables and documents that have been provided to PROCERGS. The U.S. Firm shall provide one copy of the Final Report in Portuguese to PROCERGS. The Final Report shall be prepared and delivered to USTDA, in English, in accordance with Clause I of Annex II of the Grant Agreement.

The Final Report shall be a comprehensive document covering and synthesizing the findings of all the preceding tasks, providing PROCERGS with the appropriate information, recommendations and guidelines.

ANNEX 6



USTDA-Funded Feasibility Study, Technical Assistance, or Training Grant

U.S. Firm Information Form

This form is designed to enable the U.S. Trade and Development Agency ("USTDA") to obtain information about entities and individuals proposed for participation in USTDA-funded activities. Information in this form is used to conduct screening of entities and individuals to ensure compliance with legislative and executive branch prohibitions on providing support or resources to, or engaging in transactions with, certain individuals or entities with which USTDA must comply.

USTDA Activity Number [<i>To be completed by USTDA</i>]							
Activity Type [<i>To be completed by USTDA</i>]		Feasibility Study		Technical Assistance		Other (specify)	
Activity Title [<i>To be completed by USTDA</i>]							
Full Legal Name of U.S. Firm							
Business Address (street address only)							
Telephone		Fax		Website			
Year Established (include any predecessor company(s) and year(s) established, if appropriate). Please attach additional pages as necessary.							
Type of Ownership		Publicly Traded Company					
		Private Company					
		Other (please specify)					
Please provide a list of directors and principal officers as detailed in Attachment A. Attached? (Not Applicable for U.S. Publicly Traded Company)						Yes	
If Private Company or Other (if applicable), provide a list of shareholders and the percentage of their ownership. In addition, for each shareholder that owns 15% or more shares in U.S. Firm, please complete Attachment B.							
Is the U.S. Firm a wholly-owned or partially owned subsidiary?		Yes					
		No					
If so, please provide the name of the U.S. Firm's parent company(ies). In addition, for any parent identified, please complete Attachment B.							
Is the U.S. Firm proposing to subcontract some of the proposed work to another firm?		Yes					
		No					
If yes, U.S. Firm shall complete Attachment C for each subcontractor. Attached?		Yes					
		Not applicable					
Project Manager							
Name		Surname					
		Given Name					
Address							
Telephone							
Fax							
Email							
Negotiation Prerequisites							
Discuss any current or anticipated commitments which may impact the ability of the U.S. Firm or its subcontractors to complete the Activity as proposed and reflect such impact within the project schedule.							
Identify any specific information which is needed from the Grantee before commencing negotiations.							

U.S. Firm may attach additional sheets, as necessary.

U.S. Firm's Representations

U.S. Firm shall certify to the following (or provide an explanation as to why any representation cannot be made):

1. U.S. Firm is a [check one] Corporation LLC Partnership Sole Proprietor Other:
 duly organized, validly existing and in good standing under the laws of the State of: .
 The U.S. Firm has all the requisite corporate power and authority to conduct its business as presently conducted, to submit this proposal, and if selected, to execute and deliver a contract to the Grantee for the performance of the USTDA Activity. The U.S. Firm is not debarred, suspended, or to the best of its knowledge or belief, proposed for debarment or ineligible for the award of contracts by any federal or state governmental agency or authority.
2. The U.S. Firm has included herewith, a copy of its Articles of Incorporation (or equivalent charter or document issued by a designated authority in accordance with applicable laws that provides information and authentication regarding the legal status of an entity) and a Certificate of Good Standing (or equivalent document) issued within 1 month of the date of signature below by the State of: .
 The U.S. Firm commits to notify USTDA and the Grantee if it becomes aware of any change in its status in the state in which it is incorporated. USTDA retains the right to request an updated certificate of good standing. **(U.S. publicly traded companies need not include Articles of Incorporation or Good Standing Certificate)**
3. Neither the U.S. Firm nor any of its directors and principal officers have, within the ten-year period preceding the submission of this proposal, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a federal, state or local government contract or subcontract; violation of federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, violating federal or state criminal tax laws, or receiving stolen property.
4. Neither the U.S. Firm, nor any of its directors and principal officers, is presently indicted for, or otherwise criminally or civilly charged with, commission of any of the offenses enumerated in paragraph 3 above.
5. There are no federal or state tax liens pending against the assets, property or business of the U.S. Firm. The U.S. Firm, has not, within the three-year period preceding the submission of this proposal, been notified of any delinquent federal or state taxes in an amount that exceeds US\$3,000 for which the liability remains unsatisfied. Taxes are considered delinquent if (a) the tax liability has been fully determined, with no pending administrative or judicial appeals; and (b) a taxpayer has failed to pay the tax liability when full payment is due and required.
6. The U.S. Firm has not commenced a voluntary case or other proceeding seeking liquidation, reorganization or other relief with respect to itself of its debts under any bankruptcy, insolvency or other similar law. The U.S. Firm has not had filed against it an involuntary petition under any bankruptcy, insolvency or similar law.
7. The U.S. Firm certifies that it complies with USTDA Nationality, Source, and Origin Requirements and shall continue to comply with such requirements throughout the duration of the USTDA-funded activity. The U.S. Firm commits to notify USTDA and the Grantee if it becomes aware of any change which might affect U.S. Firm's ability to meet the USTDA Nationality, Source, and Origin Requirements.

The U.S. Firm shall notify USTDA if any of the representations are no longer true and correct.

U.S. Firm certifies that the information provided in this form is true and correct. U.S. Firm understands and agrees that the U.S. Government may rely on the accuracy of this information in processing a request to participate in a USTDA-funded activity. If at any time USTDA has reason to believe that any person or entity has willfully and knowingly provided incorrect information or made false statements, USTDA may take action under applicable law. The undersigned represents and warrants that he/she has the requisite power and authority to sign on behalf of the U.S. Firm.

Name		Signature	
Title			
Full Legal Name of U.S. Firm		Date	



ATTACHMENT B

USTDA-Funded Feasibility Study, Technical Assistance, or Training Grant

U.S. Firm Information Form – Shareholder(s) and Parent Company(ies)

If applicable, U.S. Firm provided a list of shareholders and the percentage of their ownership. This form shall be completed for each shareholder that owns 15% or more shares in U.S. Firm, as well as any parent corporation of the U.S. Firm (“Shareholder”). In addition, this form shall be completed for each shareholder identified in Attachment B that owns 15% or more shares in any Shareholder, as well as any parent identified in Attachment B.

USTDA Activity Number [To be completed by USTDA]	
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Activity Title [To be completed by USTDA]	
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Full Legal Name of U.S. Firm	
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Full Legal Name of Shareholder	
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Business Address of Shareholder (street address only)	
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Telephone number		Fax Number	
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Year Established (include any predecessor company(s) and year(s) established, if appropriate). Please attach additional pages as necessary.	
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Country of Shareholder’s Principal Place of Business	
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Please provide a list of directors and principal officers as detailed in Attachment A. Attached?	Yes
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Type of Ownership	Publicly Traded Company
	Private Company
	Other

If applicable, provide a list of shareholders and the percentage of their ownership. In addition, for each shareholder that owns 15% or more shares in Shareholder, please complete Attachment B.	
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Is the Shareholder a wholly-owned or partially owned subsidiary?	Yes
	No

If so, please provide the name of the Shareholder’s parent(s). In addition, for any parent identified, please complete Attachment B.	
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Shareholder may attach additional sheets, as necessary.



ATTACHMENT C

USTDA-Funded Feasibility Study, Technical Assistance, or Training Grant

Subcontractor Information Form

This form is designed to enable the U.S. Trade and Development Agency ("USTDA") to obtain information about entities and individuals proposed for participation in USTDA-funded activities. Information in this form is used to conduct screening of entities and individuals to ensure compliance with legislative and executive branch prohibitions on providing support or resources to, or engaging in transactions with, certain individuals or entities with which USTDA must comply.

USTDA Activity Number [*To be completed by USTDA*]

Activity Title [*To be completed by USTDA*]

Full Legal Name of Prime Contractor U.S. Firm ("U.S. Firm")

Full Legal Name of Subcontractor

Business Address of Subcontractor (street address only)

Telephone Number

Fax Number

Year Established (include any predecessor company(s) and year(s) established, if appropriate). Please attach additional pages as necessary.

Subcontractor Point of Contact

Name	Surname	
	Given Name	

Address

Telephone

Fax

Email

Subcontractor's Representations

Subcontractor shall provide the following (or any explanation as to why any representation cannot be made), made as of the date of the proposal:

1. Subcontractor is a <i>[check one]</i>	<input type="checkbox"/> Corporation	<input type="checkbox"/> LLC	<input type="checkbox"/> Partnership	<input type="checkbox"/> Sole Proprietor	<input type="checkbox"/> Other
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duly organized, validly existing and in good standing under the laws of: .

2. The subcontractor has all the requisite corporate power and authority to conduct its business as presently conducted, to participate in this proposal, and if the U.S. Firm is selected, to execute and deliver a subcontract to the U.S. Firm for the performance of the USTDA Activity and to perform the USTDA Activity. The subcontractor is not debarred, suspended, or to the best of its knowledge or belief, proposed for debarment or ineligible for the award of contracts by any federal or state governmental agency or authority.
3. Neither the subcontractor nor any of its directors and principal officers have, within the ten-year period preceding the submission of the Offeror's proposal, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a federal, state or local government contract or subcontract; violation of federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, violating federal or state criminal tax laws, or receiving stolen property.
4. Neither the subcontractor, nor any of its directors and principal officers, is presently indicted for, or otherwise criminally or civilly charged with, commission of any of the offenses enumerated in paragraph 2 above.
5. There are no federal or state tax liens pending against the assets, property or business of the subcontractor. The subcontractor, has not, within the three-year period preceding this RFP, been notified of any delinquent federal or state taxes in an amount that exceeds \$3,000 for which the liability remains unsatisfied. Taxes are considered delinquent if (a) the tax liability has been fully determined, with no pending administrative or judicial appeals; and (b) a taxpayer has failed to pay the tax liability when full payment is due and required.
6. The subcontractor has not commenced a voluntary case or other proceeding seeking liquidation, reorganization or other relief with respect to itself or its debts under any bankruptcy, insolvency or other similar law. The subcontractor has not had filed against it an involuntary petition under any bankruptcy, insolvency or similar law.
7. The Subcontractor certifies that it complies with the USTDA Nationality, Source, and Origin Requirements and shall continue to comply with such requirements throughout the duration of the USTDA-funded activity. The Subcontractor commits to notify USTDA, the Contractor, and the Grantee if it becomes aware of any change which might affect U.S. Firm's ability to meet the USTDA Nationality, Source, and Origin Requirements.

The selected Subcontractor shall notify the U.S. Firm, Grantee and USTDA if any of the representations included in its proposal are no longer true and correct.

Subcontractor certifies that the information provided in this form is true and correct. Subcontractor understands and agrees that the U.S. Government may rely on the accuracy of this information in processing a request to participate in a USTDA-funded activity. If at any time USTDA has reason to believe that any person or entity has willfully and knowingly provided incorrect information or made false statements, USTDA may take action under applicable law. The undersigned represents and warrants that he/she has the requisite power and authority to sign on behalf of the Subcontractor.

Name	<input type="text"/>	Signature	<input type="text"/>
Title	<input type="text"/>		
Full Legal Name of Subcontractor	<input type="text"/>	Date	<input type="text"/>