

**REQUEST FOR PROPOSALS**

**FEASIBILITY STUDY FOR THE**

**BULGARIA: NATIONAL ICT NETWORK PROJECT**

Submission Deadline: **4:30 PM**  
**LOCAL TIME**  
**APRIL 10, 2009**

Submission Place: MR. PLAMEN VATCHKOV  
CHAIRMAN  
STATE AGENCY FOR INFORMATION TECHNOLOGY AND  
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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.

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## **Section 1: INTRODUCTION**

The U.S. Trade and Development Agency (“USTDA”) has provided a grant to the State Agency for Information Technology and Communications (“Grantee”) for a Feasibility Study (“Study”) on a proposed project to link pre-existing local and national government networks in Bulgaria. A main priority under Bulgaria’s e-government program, the proposed ICT network upgrade would expand capabilities and augment efficiency throughout the public sector. 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 carry out the Study.

### **1.1 BACKGROUND SUMMARY**

In 2002, the Government of Bulgaria (“GOB”) launched a formal e-government program aimed at modernizing the country’s public administration system. This program has promoted the development of IT services and systems designed to improve the functionality of government systems, improve government services, and create a more efficient and transparent state administration. The Grantee, which was established in 2005, is solely responsible for telecommunications network management, ICT-related policy implementation, and public-sector ICT synchronization and coordination throughout the country. Its goals are closely attuned to the wider e-government goals of the GOB, since it has identified severe limitations in the capabilities of its systems due to insufficient telecommunications infrastructure and IT systems-hosting technology.

In order to begin addressing these limitations, the Study will examine the economic and technical requirements of developing a single National ICT Network that is to connect all local and national government entities. The motivation behind this renewed impetus toward ICT network integration is that many Bulgarian government entities remain disconnected from one another. The realization of a National ICT Network in Bulgaria is now achievable because of general agreement concerning project objectives, project realization strategy and the Grantee’s singular responsibility for project organization, design, procurement and installation. Widespread political support for the rollout of the upgraded network greatly improves the likelihood that the project will be implemented. A background Definitional Mission is provided for reference in Annex 2.

### **1.2 OBJECTIVE**

In a preliminary move to unify Bulgaria’s networks along the lines of this Study, the GOB has mandated that the Grantee expand existing networks and transform it into a National ICT Network for communications between ministries, regional authorities, municipalities, and other public entities. This network is also to provide the core ICT infrastructure for broad public access to e-government services. In the near future SAITC will be responsible for:

- Building a high-speed fiber-optic ring with an initial transmission capacity of about 2.5 Gbps and with an option for a further increase to 10 Gbps
- Connecting 28 regional centers and the capital within the fiber-optic ring
- Providing national connectivity and integration of NSN with the other more or less developed networks of the state institutions

As a precursor to these activities, the Study will contribute to the full unification of Bulgaria's two current core networks – that of the SAITC (national coverage) and of the Council of Ministers (local loops) – into a single, Grantee-managed infrastructure. It will also plan the convergence of further currently separate networks into the unified national infrastructure, including those run by the Ministry of Finance, the Ministry of Labor, the National Statistics Institute, and other government entities. It will also define the precise topology of the integrated network structure, develop an implementation plan and prepare the Grantee for upcoming procurements. The Terms of Reference (“TOR”) for this Study is attached in Annex 4.

### **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.

COST will not be a factor in the evaluation and therefore, cost proposals should not be submitted; upon detailed evaluation of technical proposals, one firm will be selected for contract negotiations. The amount for the negotiated contract has been established by a USTDA grant of U.S. \$390,180.

### **1.4 CONTRACT FUNDED BY USTDA**

The negotiated contract will be funded by USTDA in accordance with the terms and conditions of its grant to the Grantee. The contract must include certain USTDA mandatory clauses relating to nationality, taxes, payment, reporting, and other matters. The USTDA nationality requirements and the USTDA mandatory clauses are attached at Annexes 3 and 4 for reference.

## **Section 2: INSTRUCTIONS TO PROPOSERS**

### **2.1 PROJECT TITLE**

The project is called "National ICT Network Project."

### **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. individual, or 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. A copy of the Report is attached at Annex 2 for background information only.

### **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 Study.

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 Study.

### **2.5 PROJECT FUNDING SOURCE**

The Study will be funded under a grant from USTDA. The total amount of the grant is not to exceed U.S. \$390,180.

## **2.6 RESPONSIBILITY FOR COSTS**

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

## **2.7 TAXES**

Offerors should submit proposals which note that in Annex 4, USTDA Mandatory Contract Provisions, USTDA funds are not to be used to pay taxes or duties under the laws of host country.

## **2.8 CONFIDENTIALITY**

The Grantee will use its best efforts to preserve the confidentiality of any business proprietary or confidential information submitted by the Offeror, which is clearly designated as such by the Offeror.

## **2.9 ECONOMY OF PROPOSALS**

Proposal documents should be prepared simply and economically, providing a comprehensive and concise description of the Offeror's capabilities to satisfy the requirements of the RFP. There is no necessity for expensive bindings, colored displays, or other promotional material unless such material is absolutely pertinent to the proposal. Emphasis should be placed on completeness and clarity of content.

## **2.10 SUBSTANTIVE PROPOSALS**

The Offeror shall certify (a) that its proposal is genuine and is not made in the interest of, or on the 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 himself 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 host country for up to 20 percent of the amount of the USTDA grant. USTDA nationality requirements are detailed in Annex 3.

## **2.12 LANGUAGE OF PROPOSAL**

All proposal documents shall be prepared and submitted in English, and only English.

## **2.13 PROPOSAL SUBMISSION REQUIREMENTS**

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

**MR. PLAMEN VATCHKOV  
CHAIRMAN  
STATE AGENCY FOR INFORMATION TECHNOLOGY AND COMMUNICATIONS  
6 GURKO STR.  
SOFIA 1000  
BULGARIA**

**TEL.: +359-2-949-2115**

**FAX: +359-2-980-3810**

**An Original and eight (8) copies of your proposal must be received at the above address no later than 4:30 PM, on APRIL 10, 2009.**

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.

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

## **2.14 PACKAGING**

Each proposal must be sealed to ensure confidentiality of the information. The proposals should be individually wrapped and sealed, and labeled for content including "original" or "copy number x"; the original and eight (8) copies should be collectively wrapped and sealed, and clearly marked for content.

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

## **2.15 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.

## **2.16 EFFECTIVE PERIOD OF PROPOSAL**

The proposal shall be binding upon the Offeror for sixty (60) 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.

## **2.17 EXCEPTIONS**

Firms agree by their response to the RFP announcement to abide by the procedures set forth therein. Material modifications in the TOR or responsibilities of the parties will not be accepted.

Any exceptions in the proposal shall be clearly identified, and shall include the scope of such exception, and its impact, on the procurement. The Grantee shall make final determination as to the responsiveness of such exceptions and their acceptability.

## **2.18 OFFEROR QUALIFICATIONS**

As provided in Section 3, Offerors shall submit evidence that they have relevant past experience and have previously delivered advisory and feasibility study services similar to those required in the TOR.

## **2.19 RIGHT TO REJECT PROPOSALS**

The Grantee reserves the right to reject any and all proposals and to accept or reject any or all of the items in the proposal, and to award the contract in whole or in part if it is deemed in the best interest of the Grantee.

## **2.20 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 consultants and subcontractors. USTDA nationality provisions are set forth in detail in Annex 3. The successful Offeror shall cause appropriate provisions of its contract, including all mandatory USTDA clauses, to be inserted in all subcontracts ensuing to ensure fulfillment of all contractual provisions by subcontractors.

## **2.21 AWARD**

An award resulting from this RFP shall be made to the best qualified Offeror, taking into consideration the evaluation factors set forth herein; however, the right is reserved to reject any and all proposals received and, in all cases, the Grantee will be the judge as to whether a proposal has or has not satisfactorily met the requirements of this RFP.

## **2.22 COMPLETE SERVICES**

The successful Offeror shall be required to (a) furnish all supplies, supervision, transportation, and other execution accessories, services, and facilities; (b) provide and perform all necessary labor; and (c) in accordance with good technical practice, with due diligence, and in accordance with the requirements, stipulations, provisions and conditions of this RFP and the resultant contract, execute and complete all specified work to the satisfaction of the Grantee.

### **2.23 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. Upon approval of each invoice, the Grantee will forward the invoice to USTDA which will process payment to the Contractor. All payments by USTDA under the Grant Agreement will be made in U.S. currency.

### **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. No cost proposal is required as the value of the USTDA grant is established at U.S. \$390,180.

Offerors shall submit one (1) original and eight (8) copies of the proposal. Proposals received by fax cannot be accepted.

The following sections and content are required for each proposal:

- Transmittal Letter,
- Cover/Title Page,
- Table of Contents,
- Introduction and Executive Summary,
- Company Information,
- Organizational Structure, Management Plan, and Key Personnel,
- Technical Approach and Work Plan,
- Experience and Qualifications, and
- Miscellaneous.

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

#### **3.1 SECTION 1: INTRODUCTION AND EXECUTIVE SUMMARY**

An Executive Summary should be prepared describing the major facts or features of the proposal, including any conclusions, assumptions, and generalized 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 SECTION 2: COMPANY INFORMATION**

### **3.2.1 Company Profile**

Provide the information listed below relative to the Offeror's firm. If the Offeror is proposing to subcontract some of the proposed work to another firm(s), similar information must be provided for each subcontractor. Offerors are requested to limit the length of the Company Profile Information to one (1) page per firm.

1. Name of firm and business address, including telephone and fax numbers.
2. Year established (include former firm names and year established, if applicable).
3. Type of ownership and parent company, if any.
4. Project Manager's name, address, telephone and fax number, if different from (1).

### **3.2.2 Offeror's Authorized Negotiator**

Provide name, title, address, telephone 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.

### **3.2.3 Negotiation Prerequisites**

1. Discuss any impact of any current or anticipated commitments which may impact the ability of the Offeror or its subcontractors to complete the Study as proposed and within the project schedule.
2. Identify any specific information which is needed from the Grantee before commencing contract negotiations.

## **3.3 SECTION 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 Study. Identify the Project Manager who will be the individual responsible for this project. The Project Manager must have the responsibility and authority to act on behalf of the Offeror in matters related to the proposed Study.

Provide a listing of personnel (including subcontractors and consultants) to be engaged in the project, either U.S. or local 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 organizational relationship between the firms must be described.

A manpower schedule and the level of effort for the project period, by activities and tasks, as detailed under the 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 SECTION 4: TECHNICAL APPROACH AND WORK PLAN**

Describe in detail the proposed technical approach and work plan. Discuss the project requirements as perceived by the Offeror. Include a brief narrative of 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 Technical Work Plan, including periodic reporting or review points, incremental delivery dates, and other project milestones.

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

#### **3.5 SECTION 5: EXPERIENCE AND QUALIFICATIONS**

Provide a discussion of the Offeror's experience and qualifications which are relevant to the objectives and TOR for the Study. If a subcontractor(s) is being used, similar information must be provided for the prime and each subcontractor firm proposed for the project. Relevant experience and qualifications of key staff proposed shall be provided including letters of commitment from the individuals proposed concerning their availability for contract performance.

As many as possible but not more than six (6) relevant and verifiable project references must be provided, 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 or larger in scope than the Study 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, and the Grantee shall promptly 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 shall then be undertaken with the second most qualified Offeror and so forth.

The selection of the Contractor will be based on the following criteria:

1. Study team's experience in the evaluation of complex telecoms and IT projects with emphasis on the following systems/technologies: IP/MPLS, DWDM, SDH, ATM, PBX, NGN softswitch; experience in fiber optic infrastructure support and systems integration. [25 points]
2. Study team's experience in planning and/or managing large-scale public sector telecoms network procurements, including vendor neutral specifications development. [25 points]
3. Study team's experience in the establishment of enterprise architecture governance models (including organizational framework, processes, rolls, and responsibilities). [20 points]
4. Study team's experience in project management, implementation planning, and project financing. [15 points]
5. Study team's experience in conducting similar ICT projects in the country and/or region. [10 points]
6. Study team's experience in conducting developmental impact, legal/regulatory, and environmental assessments of ICT projects. [5 points]

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

Price will not be a factor in contractor selection.

**ANNEX 1**

MR. PLAMEN VATCHKOV, CHAIRMAN, STATE AGENCY FOR INFORMATION TECHNOLOGY AND COMMUNICATIONS, 6 GURKO STR., SOFIA 1000, BULGARIA, TEL.: +359-2-949-2115, FAX: +359-2-980-3810

CODE R: BULGARIA: NATIONAL ICT NETWORK PROJECT

POC John Kusnierek, USTDA, 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901, Tel: (703) 875-4357, Fax: (703) 875-4009. BULGARIA: NATIONAL ICT NETWORK PROJECT. The Grantee invites submission of qualifications and proposal data (collectively referred to as the "Proposal") from interested U.S. firms which are qualified on the basis of experience and capability to develop a feasibility study ("Study") on a proposed project to link pre-existing local and national government networks in Bulgaria.

In 2002, the Government of Bulgaria launched a formal e-government program aimed at modernizing the country's public administration system. This program has promoted the development of IT services and systems designed to improve the functionality of government systems, improve government services, and create a more efficient and transparent state administration. The Grantee, which was established in 2005, is solely responsible for telecommunications network management, ICT-related policy implementation, and public-sector ICT synchronization and coordination throughout Bulgaria. Its goals are closely attuned to wider Bulgarian e-government goals, since it has identified severe limitations in the capabilities of its systems due to insufficient telecommunications infrastructure and IT systems-hosting technology.

In order to begin addressing these limitations, the Study will examine the economic and technical requirements of developing a single National ICT Network that is to connect all local and national government entities. Specifically, the Study will contribute to the full unification of Bulgaria's two current core networks – that of the SAITC (national coverage) and of the Council of Ministers (local loops) – into a single, Grantee-managed infrastructure. It will also plan the convergence of further currently separate networks into the unified national infrastructure, including those run by the Ministry of Finance, the Ministry of Labor, the National Statistics Institute, and other government entities. It will also define the precise topology of the integrated network structure, develop an implementation plan and prepare the Grantee for upcoming procurements.

The U.S. firm selected will be paid in U.S. dollars from a \$390,180 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 a background definitional mission/desk study 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/USTDA/FedBizOpps/RFP/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 their Proposal in English directly to the Grantee by 4:30 PM, APRIL 10, 2009 at the above address. Evaluation criteria for the Proposal are included in the RFP. Requests for clarification on any aspect of the RFP should be directed to POC John Kusnierek, USTDA, 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901, Tel: (703) 875-4357, Fax: (703) 875-4009. Any such request must be received no later than 4:30 PM, March 27, 2009 in order to be honored. 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 FINAL REPORT

Submitted to:  
The U.S. Trade and Development Agency

For the:  
Bulgaria Information and Communications Technology  
(ICT) Sector Definitional Mission

Submitted by:  
Pythia International Inc.  
415 Mountain Road; Halifax, VA 24558 USA;  
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20 November 2008



This report was funded by the U.S. Trade and Development Agency (USTDA), an agency of the United States 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.

Mailing and Delivery Address: 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901  
Phone: 703-875-4357 • Fax: 703-875-4009 • Web site: [www.tda.gov](http://www.tda.gov) • email: [mfo@tda.gov](mailto:mfo@tda.gov)



## 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.

Mailing and Delivery Address: 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901  
Phone: 703-875-4357 • Fax: 703-875-4009 • Web site: [www.tda.gov](http://www.tda.gov) • email: [info@tda.gov](mailto:info@tda.gov)

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## I. EXECUTIVE SUMMARY

### A. Definitional Mission Overview

On behalf of USTDA, Pythia International Inc., a Virginia based international consulting firm, represented by Holt Evans, conducted a Definitional Mission (DM) in Bulgaria to evaluate potential ICT sector projects.

The primary objective of the Definitional Mission (DM) was to assess, define, and develop Terms of Reference for technical assistance projects on behalf of the Government of Bulgaria (GOB). Among the projects evaluated by Pythia were: a feasibility study for the Council of Ministers to assess the development of a National ICT Network connecting all local and national government entities; technical assistance to the Municipality of Sofia to examine the economic and technical feasibility of expanding and upgrading the city's 311 Non-Emergency Call Center; and a feasibility study to establish an outline and action plan for the Digital City of Sofia project, which would include evaluating the existing municipal ICT infrastructure and identifying key systems integration and interoperability issues.

During separate trips to Bulgaria in June and September 2008, Pythia held detailed discussions with representatives from the State Agency for IT and Communications (SAITC), the Council of Ministers, and the Municipality of Sofia to define, evaluate and clarify the above projects. Before, during, and after the in-country visits, discussions were held with U.S. telecommunications equipment vendors, systems integrators, and communications providers who were either proponents of, or potential suppliers to, the various initiatives. Pythia also advised and consulted with the U.S. Commercial Section in Sofia on the status of the projects.

### B. Description of Projects Reviewed

A brief description of the three projects reviewed by Pythia International in Bulgaria under the DM is provided below:

#### National ICT Network Project

Pythia evaluated a request from the Government of Bulgaria (GOB) for USTDA assistance on a feasibility study that would examine the economic and technical feasibility of developing a single national ICT network that would ultimately connect all local and national government entities. Despite previous efforts to create such a network, many government entities in Bulgaria remain largely disconnected from one another. The lack of interoperability hinders cooperation between government entities, thus reducing the quality of public services and increasing their cost. As a result, the GOB has



identified the creation of a national network as one of its top priorities under the e-government program. Adding to the urgency of this initiative, a new e-governance law, approved by the Bulgarian Parliament this past June, introduces strong requirements for interoperability among administrative information systems as well as for network and information security.

The Grantee is the State Agency for IT and Communications (SAITC), which operates the National Government ICT network. SAITC was initially established by the Bulgarian Government in 2005 to manage government activities and implement state policies in the ICT field, and to develop a national network. The backbone of the current SAITC network was carved out of the BTC (Bulgarian national telecoms operator) prior to its privatization. BTC allocated to the Bulgarian Government (via the SAITC) two pairs of dark fiber linking 20 major Bulgarian cities. One pair of fibers is based on SDH technology and is dedicated to security and defense, while the other is based on Level 3 IP/MPLS.

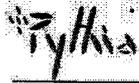
The project would entail the development of a roadmap for expanding the SAITC network and unifying it with other ICT networks operated by various government agencies. In a preliminary move to unify these networks, the SAITC has officially been mandated by the Government of Bulgaria to expand its present network and to evolve it into a National State Network (NSN) for communications between ministries, regional authorities, municipalities, etc. This network would also provide the core ICT infrastructure for broad public access to electronic services (e-government platform).

#### Sofia Municipality 311 Non-Emergency Call Center

311 systems, which provide citizens with easy, fast access to non-emergency government services using an easily remembered telephone number, have recently evolved into an important e-government tool, and have impacted government service delivery in almost every dimension. For the Municipality of Sofia, Pythia International evaluated a request for USTDA assistance to examine the economic and technical feasibility of expanding and upgrading Sofia's 311 non-emergency call center, including the purchase of new equipment. The 311 call center was created in 2007 as an integrated way to receive and process calls from city residents concerning a variety of non-emergency city services. In addition to examining the potential expansion and improvement of Sofia's non-emergency call center, the proposed feasibility study would also examine the possibility of replicating the call center in each of Bulgaria's 28 largest cities.

#### Sofia Municipality ICT Network Enhancement Project

Pythia International examined Sofia Municipality's request for USTDA support in upgrading its existing ICT network, developing interconnectivity between the central and district offices of the Municipality, and in defining the strategic requirements of implementing the 'Digital City' project. In particular, the proposed feasibility study



would: evaluate current ICT infrastructure in Sofia and identify opportunities to integrate current capacity into an interoperable, city-wide system; identify areas in which new technologies can help the municipal government to meet the needs of its citizens and businesses; and propose systems to optimize public administrative processes in the city.

The municipal ICT network is in urgent need of an upgrade. At the same time, the current level of connectivity between the central municipality and the district offices is practically non-existent. Therefore, based on Pythia's discussions with municipality officials, it was decided that the emphasis of the feasibility study should be on Sofia's core ICT infrastructure. Over the past few years, the City's administration has been working actively to introduce concepts of e-government and to implement pilot e-services for its businesses and citizens. However, lack of core ICT network infrastructure and connectivity is a major impediment to development of these programs. Creation of a modern and fully interoperable ICT network would enable Sofia Municipality to develop city-wide applications and services and to achieve its long-term e-government goals.

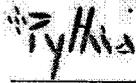
Sofia is undertaking many initiatives for optimizing its administrative processes as well as providing better quality services to its citizens. Based on the lessons learned from these recent implementations, as well as examples taken from other capital cities, Sofia Municipality now understands the need to take a more holistic approach towards organizing its information and communication system. Development of a single shared municipal infrastructure capable of supporting all services would lead to substantial cost savings and would provide maximum control over the management of service quality.

### C. Recommendations and Key Considerations

#### National ICT Network Project

The National ICT Network project has the full support of the Bulgarian Government. It is one of the main priorities under the new e-government program, and is in full conformity with Bulgaria's strategic objectives under the EU Lisbon Agenda. Initial planning and securing of rights of way for expansion of the core national backbone infrastructure are already underway. The grantee, the State Agency for IT and Communications (SAITC) has the mandate, legal rights, and political support to be the implementing and ongoing management authority for the government network. The extended and upgraded national ICT network will significantly enhance the capabilities and efficiency of the Bulgarian Government, will have a positive impact on the country's economic development, and will lead to increased inward investment. The network will be the backbone and enabler for a wide range of e-government services for citizens and businesses.

Partial financing for build-out of the national ICT network has already been allocated from the 2009 national budget. Follow-on financing, both from EU Structural Funds (Operational Program for Regional Development), and from the national budget is



available from 2010 onwards. If implemented, the national network project in Bulgaria project has the potential to generate substantial US exports of telecommunications networking equipment, hardware, software, and services. USTDA involvement at the feasibility study stage will also provide US technology providers with a level playing field in an increasingly competitive environment.

Pythia International recommends that USTDA fund a technical assistance project that would: assess the status of the current government ICT networks and develop a plan and timetable for integrating existing networks into a unified system; assess the current level of connectivity and interoperability among the ministry networks and determine needs for upgrading and enhancement; develop a framework for the creation of a government-wide enterprise architecture; and develop a high-level implementation plan for the national ICT network. The proposed budget for the TA project is \$390,180.

#### Sofia Municipality 311 Non-Emergency Call Center

Based on the discussions Pythia held with representatives from Sofia Municipality, it appears there is currently no functional 311 call center in operation at the Municipality. While some call center equipment was purchased from Cisco in 2007, this was apparently never integrated into a fully functioning system. In June 2008, we were informed that a decision had been made by the Municipal Council approving a pilot 311 call center; an RFP had been prepared for the pilot and would be issued over the coming month. In later discussions, however, we learned that the planned pilot call center would be initially used as an internal announcement system for municipal employees and other public servants, and that the project would be managed by the Civil Protection Directorate of the Municipality, which would indicate that there is some confusion within the Municipality as to the exact nature and purpose of a 311 non-emergency call center.

At this time, no one within the Municipality is clearly behind the project, and it does not appear to be a high priority. More importantly, due to the lack of connectivity between the central and district municipal offices, as well as the disparity among various legacy systems in place, it would be very difficult to deploy the system on a city-wide basis in the short term. Deployment of a 311 call center requires a high level of back-office integration and a substantial commitment of human resources, both of which are lacking at present. Prior to deploying a non-emergency call center on a wide-scale, Sofia would first need to address more pressing ICT infrastructure needs. For these reasons, we do not recommend immediate USTDA support for the project.

On the other hand, Mayor Borissov has clearly expressed an interest in the 311 call center in the past, and Deputy Mayor Guerdjikov, in the discussions we held with him, expressed a general interest and a desire to learn more about the benefits of such a system. The 311 non-emergency call center clearly falls within Sofia's 'digital city' strategic objectives, would be replicable in other Bulgarian cities, and represents an important potential for U.S. exports. Therefore, Pythia recommends that USTDA commission a Desk Study

within 6 to 9 months, to evaluate the project's viability and to assess Sofia Municipality's readiness to pursue it in a thorough and coordinated manner. In Section VI below, we provide a general description of the project and some initial considerations. Most of this content has been provided by Winbourne & Costas, a US specialist in 311 call center technology, which has been the main catalyst behind the initiative at Sofia Municipality.

#### Sofia Municipality ICT Network Enhancement Project

Enhancement of Sofia Municipality's ICT network is considered by Mayor Borissov and the local council to be a key strategic priority for the city. Development of a fully integrated and inter-connected network will fill a pressing and immediate need of Sofia Municipality, and will lay the groundwork for the development of e-government in the city. EU structural funds, local budget, U.S. Ex-Im Bank, and other financing sources are readily available for Sofia's planned ICT network enhancement.

The ICT network enhancement project will have a major developmental impact on the Municipality of Sofia as it will provide ICT network infrastructure to all areas of the city, leading to more efficient municipal government and better services to citizens and businesses. This will improve the business climate, leading to increased investment in the city. The project will directly lead to the creation of new jobs at the Municipality of Sofia and will require additional training for a number of existing employees. The proposed ICT network project for Sofia Municipality will also be a major generator of U.S. technology exports; initial estimates of U.S. exports resulting directly from the project are at \$30 million. USTDA support for the municipal network deployment will be beneficial to a number of U.S. vendors, several of whom have already expressed strong interest in the project.

Pythia International recommends that USTDA fund a technical assistance project for the Municipality of Sofia that will: assess existing IT infrastructure at the central and district municipalities; evaluate services currently being provided over the network and review plans for future services and projects; determine the new IT infrastructure and network upgrade requirements; perform a connectivity assessment for the enhanced network; define the implementation planning process considering alternate scenarios for phased deployment; and assist the Municipality in preparing procurement documents. The proposed budget for the TA project is \$363,600.

Project Review Summary

Project Description	Total Cost	U.S. Export Potential	Project Grantee	Recommendation; Level of USDA funding
National ICT Network Deployment	\$69 million	\$62 million	State Agency for IT and Communications (SAITC)	Immediate TA grant; Budget: \$390,180
311 Non-Emergency Call Center	\$3.8 million for Sofia; strong possibility for replication in other cities	\$3 million	Municipality of Sofia	Follow-on Desk Study in 6- 9 months
ICT Network Enhancement	\$33 million	\$30 million	Municipality of Sofia	Immediate TA grant; Budget: \$363,600

## II. MISSION OVERVIEW AND OBJECTIVES

### A. Definitional Mission Background

The Government of Bulgaria (GOB) has made significant progress in its efforts to improve the country's public administration and services through the effective use of information and communications technologies. E-government is gaining momentum in Bulgaria, and a number of specific initiatives, including the National State Network (NSN), the new competitive science and innovation system, and the ICT Broadband Platform, combine to create a favorable environment for the successful outcome of the projects proposed for USTDA support.

Over the past six years, USTDA has played an active role in supporting Bulgaria's efforts in the ICT domain. An orientation visit (OV) held this past February brought senior Bulgarian ICT officials and city governments to the U.S. to showcase e-government and emergency management technologies. The Bulgarian delegation met with U.S. technology providers including Cisco, HP, Infinera, Oracle, Lockheed Martin, Motorola, Raytheon, ESRI, and IBM. The delegation also met with officials and ICT specialists from New York City, the E-Government Division of the Office of Management and Budget (OMB), and many other organizations. The OV helped in identifying and/or clarifying the opportunities being evaluated under the current DM.

In previous years, USTDA has supported a number of other ICT initiatives in Bulgaria including the following:

- A feasibility study for the Council of Ministers to assess the build-out of a national voice and data IT network, based on fiber optics and high speed computers, to be used by the entire public sector.
- A feasibility study for the Bulgarian Ministry of Disaster Management Policy to assess an integrated emergency management system (IEMS) in Plovdiv.
- Technical assistance to the Ministry of Finance in the development of the IT components of a Unified Revenue Agency (URA), to collect all taxes and social contributions, transfer funds and information to other organizations, and administer tax revenues.
- A feasibility study for Cable Bulgaria to support expansion of its fiber optic trunk lines, VoIP network, and HFC architecture in order to support high-speed access, video-on-demand and other advanced two-way services.

Building on past USTDA initiatives in the country, the primary objective of the Bulgaria ICT DM was to evaluate three initiatives that the GOB and the Municipality of Sofia had asked USTDA to consider funding and, for those deemed viable according to USTDA standard criteria, develop Terms of Reference for feasibility studies. The proposed projects included:

- A feasibility study for the Council of Ministers to assess the development of a national ICT network connecting all local and national government entities, which is a key priority for Bulgaria under its e-government program.
- Technical assistance to the Municipality of Sofia to examine the economic and technical feasibility of expanding and upgrading the city's 311 non-emergency call center, and possibly expanding the system to cover all major Bulgarian cities.
- A feasibility study to establish an outline and action plan for the Digital City of Sofia project, which would include evaluating the existing municipal ICT infrastructure, identifying key systems integration and interoperability issues, proposing models for network management and ownership, and developing systems and applications to optimize public administration processes and citizen services

## B. Overview of DM Planning and Events

An overview of the manner in which the definitional mission was carried out and a summary of the key meetings are provided below:

- Shortly after contract award, DM consultant Holt Evans held discussions with USDA Country Manager, Jamie Merriman, who provided background materials on all three projects, as well as other relevant project details and points of contact.
- After reviewing the materials, Mr. Evans contacted the U.S. Embassy in Sofia, spoke briefly to the Commercial Officer, Jim Rigassio, and held more detailed discussions with Stanislava Dimitrova, the ICT Sector Coordinator, U.S. Commercial Service, who provided assistance to Pythia in establishing contacts with government officials.
- Prior to traveling to Bulgaria, Pythia held initial discussions with Roumen Trifonov from the Council of Ministers regarding the National ICT Network, and with Valentine Lazarov and Teodora Zafirova from the Municipality of Sofia regarding the 311 Call Center and Digital City of Sofia projects. Initial discussions and/or teleconferences were also held with U.S. companies Cisco, Megatech, and Winboun & Costas, which were all involved with development of the projects.
- As summary of the in-country meeting itinerary during the week of 16 June is presented below:

### Monday, 16 June

- Initial session with Valentin Lazarov, Head of Administrative Coordination, Municipality of Sofia
- Cisco account representative, Municipality of Sofia



Tuesday, 17 June

- Initial session with SAITC officials (attended by Chairman Vatchov and by Jamie Merriman, USTDA)
- Lunch session with Cisco management
- Meeting with Sofia Municipality, Deputy Mayor & EU Programs Director

Wednesday, 18 June

- Briefing session, Cisco offices (Nt'l. Network & Sofia ICT projects)
- Bulgarian Academy of Sciences (emergency mgmt. & 311 projects)
- Session with Sofia Municipality IT specialists
- IBM, Bulgaria, Public Sector Manager

Thursday, 19 June

- Follow-on sessions with Sofia Municipality IT specialists
- Project review with Lazarov, Admin. Coordination, Sofia Municipality
- SAITC, Network Integration & Design Director
- Presentation to Deputy Mayor (attended by EU Programs Dir., Cisco, representatives from IT Dept.)

Friday, 20 June

- Coordination Center for Information, Communications, and Management Technologies (National ICT Network Project)
  - SAITC, Deputy Chairman
  - Session with US Commercial Dept. and Political Section, US Embassy
- Over the three week period following the first in-country visit, Pythia conducted additional research on the projects and held meetings in the US with Cisco, Megatech, Winbourne & Costas, and Hyperion on the projects.
  - During the week of 3 September, Mr. Evans returned to Sofia where he held wrap-up sessions with the grantee organizations, interested US companies, and the US Embassy Commercial Service:

Wednesday, 3 September

- Follow-up meeting with Cisco (Nt'l. Network & Municipality projects)
- Wrap-up session with CoM and SAITC officials on Nt'l. ICT Network project (attended by R. Trifonov, Secretary for Info. Society, CoM)
- Follow-up meeting with Winbourne & Costas (311 Call Center project)

Thursday, 4 September

- Various sessions with officials from Sofia Municipality
- Meeting with ESRI, Bulgaria
- De-briefing session with US Commercial Section (attended by new Commercial Officer Scott Pozil and ICT specialist Stanislava Dimitrova)



### C. Mission Tasks and Objectives

To support its decision-making relative to the above requests for project funding, USTDA established the following tasks and objectives for Pythia International prior to travelling to Bulgaria:

- Hold discussions with appropriate in-country contacts to determine and gauge the interest of potential project financiers and potential U.S. suppliers.
- Assess whether the proposed projects are economically, financially, and technically viable.
- Analyze the potential procurement of U.S. goods and services for project implementation by categories and dollar values.
- Assess the priority of the projects, their political/social/organizational support, potential sources of financing, and the capability and experience of the Project Sponsor.
- Assess the social and economic development impacts of the proposed projects.
- Assess and justify whether or not USTDA should provide funding for the proposed studies, technical assistance projects, or other trade capacity building activities.
- Assess any alternative studies or activities which could be viable options for USTDA consideration;
- Develop scopes of work and budgets for at least two studies for USTDA funding consideration;
- Demonstrate meaningful discussions with current and previous host country Project Sponsors/Grantees to evaluate the status of implementation for USTDA projects that are sector-relevant to the Definitional Mission;
- Provide supporting analysis and recommendations on the above information and all the relevant issues.

Given the mitigated success of the previous USTDA-supported feasibility study for the Bulgarian Council of Ministers in the development of a national network for interconnection of ministries (NAMDA project), it was considered to be of particular importance in the context of the DM, to carefully assess the mandate of the Grantee, and the level of political support for the proposed national ICT network project.

### III. DM BACKGROUND ISSUES AND DEVELOPMENTS

The ICT projects which Pythia has evaluated for possible USTDA support, have been proposed by the Bulgarian Government within the context of its broader e-government strategy, and would be undertaken in coordination with a number of other ICT initiatives currently underway. Financing for the implementation of these projects will be greatly facilitated by the EU structural funds. A brief outline of the e-government strategy, a discussion of some of the more relevant ICT/e-government developments and initiatives, and a discussion of EU and other financing possibilities, as well as general US export opportunities, is provided below:

#### A. E-Government Strategy

A summary of the key elements of Bulgaria's official **E-Government Strategy** - with a particular emphasis on aspects relevant to the ICT projects proposed for USTDA support - is provided below. The main objective of the strategy is to organize and support, at the highest level of Government, a long-term process of e-government implementation. The strategy outlines the nature of e-government and its significance for Bulgarian society, and identifies the strategic goals of e-government, as well as the organization and management of the related processes. The E-Government Strategy has been drawn up as a major element in the overall reform of the Bulgarian public administration, including regional and municipal administrations. To assure continuity and a comprehensive overall reform process, the existing major strategic documents of the Bulgarian Government were reviewed and used in the research process. EU and other sources of information, experience, and best practices were consulted in developing the strategy. The strategy will be continually updated to reflect the strategic vision for the establishment of e-government in accordance with the current assessment of realities in the country.

#### I. REALITIES

A prerequisite for e-government development and formulation of specific strategy goals are the realities in the country. The implementation of information technologies is a priority at the government and policy level, which has brought about a series of decisions and actions for the improvement of the technological environment and public attitude. Based on existing research and surveys of Bulgaria's readiness to meet the challenges and opportunities of new information technologies, some of the findings and issues have been summarized in the following three main areas:

##### *Political Will and Legal Framework*

A number of strategic documents have been developed and adopted to guide the public administration's activities in relation to e-government. The legal framework in the

country has been largely harmonized with the *acquis communautaire* of the European Union and can rather quickly be developed further for the purposes of e-government. The access to information and the protection of citizens' rights has been provided for by a law. There are legal provisions for the protection of rights to software products and databases and criminal liability has been stipulated for computer offences. However, the existing strategic and statutory documents do not reflect all institutional, national and international requirements. The overall legal framework and standards for the use of IT for public services have not been fully developed yet. The responsibility for providing true and complete information, stored and processed electronically, has not been clarified.

#### *Information, Communication and Management Environment*

The substantial investments made, either through the local budget or by foreign donors, to upgrade the information technologies in the public administration have brought about considerable improvements in the national and institutional information and communication infrastructure. A National Asynchronous Transfer Mode (ATM) Network is in the process of development. An integrated optical communication network linking ministries and other state agencies in Sofia is already in operation. The extension of this network to the regional centers of Bulgaria is currently underway. A number of institutions have effectively implemented modern information technologies and systems. The acquisition of computer equipment is a priority for the public administration but the level of its utilisation is still lagging behind. There is no integrated information environment in the public administration yet. The technological level of the information environment differs from one institution to another. Institutions do not coordinate their decisions in the IT field which leads to incompatibility of systems. There is lack of coordination in regard to the terminology, registers and classifiers used. Over 70 national registers and information systems have been developed and implemented. Some of them are electronically accessible but the major drawback of the national information resources is the lack of integration among them. The existing information environment does not provide sufficient resources to counteract corruption practices in the public administration. The functions of administrative structures have been defined but they do not conform to the specific requirements of e-government. The existing vertical structure of the government model creates difficulties in the relationship between the administration and citizens or businesses. There is a need to develop uniform standards and implement statutory regulations in all administrative structures which will regulate administrative services.

#### *Human Resources*

The implementation of new technologies requires constant knowledge acquisition. The education level of the public administration employees is comparatively high, but their training in the use of IT does not comply with the requirements of e-government. It is difficult to attract and keep highly qualified IT and management specialists in the state administration because of the more attractive remuneration terms and clearer career perspectives in the private sector.

### *Critical Factors*

Based on the realities mentioned, the following critical factors for successful e-government have been defined:

- Presence of political will;
- Provision of necessary financial resources;
- Awareness in the society of the need for e-government development;
- Education and training, practical skills of the human resource pool for participation in e-government;
- Provision of employment for highly qualified IT professionals;
- Effective feedback.

## 2. VISION AND STRATEGIC OBJECTIVES

E-government in Bulgaria is an element of the transition from an industrial to an information society, and serves to accelerate the European integration process. It is a process of change that helps expand the means of citizens and businesses to participate in a new knowledge-based economy. In order to have the full potential of e-government enforced, it is necessary to reform the administration and the management of business processes and information. It is also necessary to change the mindset and line of action of the people in the public administration, as well as their work attitude and their way of communication with citizens and businesses.

The main role of e-government is to meet the general public needs for high-quality and accessible public services. The development of e-government is also needed in order to increase transparency and minimize corruption practices in the state administration.

Services will be provided in a way, at places and times that are most convenient for citizens and business through integrated and continuous electronic services. Apart from the traditional communication channels, new types of communication platforms and devices will be used, where the service will be provided on a “one-stop-shop” principle. Customers of e-government services are citizens and businesses, as well as the public administration itself. Services will be grouped into general topics or life events and will be provided using the everyday language of citizens.

**The vision for e-government in Bulgaria is:**

- *To provide modern and efficient governance, while using the means of contemporary information technologies in order to meet the real needs of citizens and businesses at any time and place.*
- *To develop the necessary organizational, communication and information environment for the efficient operation of the public administration in accordance with internationally accepted principles, standards and best practices.*

The development of e-government in Bulgaria is determined by the need to:

- Cut expenditures and enhance government efficiency;



- Meet expectations of citizens and improve the interaction environment;
- Improve the business climate.

E-government covers four major aspects of communication and services:

- *Administration – Citizens.* Modern Internet and Intranet web-based solutions coupled with conventional means for ensuring broad access, which will lead to qualitative changes in communications with, and provision of services for, citizens;
- *Administration – Businesses.* Modern solutions for optimization of processes and business relationships between the public administration and various business entities;
- *Administration – Administration.* IT development at the national and interstate levels with a view to ensuring effective interaction of various administrative structures;
- *Internal Institutional Efficiency and Effectiveness.* Organization and optimization of business processes, administration-employee relations and communication processes within the administrative structures.

The Bulgarian Government has formulated the following **strategic objectives** with regard to e-government:

- *To provide, through electronic means, high-quality, efficient and accessible public services to citizens and businesses;*
- *To expand the technological capabilities of citizens and businesses for participation in the government decision-making process;*
- *To create an organizational, communication and information environment for effective and transparent functioning of the public administration in accordance with the principles, standards and best practices of the European Union.*

The implementation of these strategic objectives will lead to substantial cost reductions in the public administration, to improved service quality, and to decreased corruption. These are important prerequisites for sustainable economic and social development. **The basic guidelines** for the attainment of e-government strategic objectives are:

- Provision of e-services through available information technologies and resources in the institutions.
- Development of a meta-information system, ensuring an information environment for integrated administrative services.
- Implementation of Internet-based technologies for informing, communicating and providing services to citizens and organizations.
- Development of the technical infrastructure.

### 3. GOALS

Contemplating the deployment of its stated vision and the implementation of its strategic goals related to the development of e-government, the Bulgarian Government has outlined the following main targets:

*Orientation towards citizens and businesses:*

- Enable wide public electronic access to information and participation in the democratic process;
- Ensure transparency in the activities of the public administration and opportunities for feedback as prerequisites for public control over government;
- Upgrade the quality of communication between citizens, businesses and government employees through continuous exchange of knowledge and enhancement of the level of competence and the technological and administrative culture;
- Reduce the time, effort and costs needed to search for and access personal and public data through inquiries in the registers and automated information systems of the public administration;
- Reduce the time, effort and costs for the provision of public services through electronic exchange of documents and other information between citizens, businesses and the public administration;
- Reduce the time, effort and costs to citizens and businesses by providing integrated public administrative services electronically.

*Organizational and technological upgrading of the public administration:*

- Ensure better interaction among institutions in the public administration;
- Provide a reliable communication environment for e-government;
- Create and introduce a reliable identification and information security system;
- Establish an integrated information and management environment providing opportunities for rapid, efficient and effective electronic access to services, thus limiting corruption;
- Ensure centralized coordination in the establishment, development and use of the national information resources of the public administration, providing means for modelling, forecasting and utilisation of modern decision making methodologies;
- Provide integrated electronic services meeting the needs of citizens and businesses;
- Create an integrated system of national identifiers;
- Introduce necessary IT standards and protocols;
- Introduce quality control systems in the public administration;
- Analyze and improve the legal framework in order to regulate the business processes of e-government.

*Training and retraining of personnel in the public administration:*

- Provide the necessary human resources for the establishment and operation of e-government;
- Develop a new organizational culture in the public administration, ensuring efficiency and effectiveness of the work done electronically;
- Upgrade the personal, professional, organizational and managerial skills of public officials with regard to the operation of electronic equipment;
- Establish a motivating environment for public administration employees to assure effective participation in e-government development;
- Effectively allocate competencies for the technological development, coordination and management among administrative structures, technological centers and e-government developers;
- Ensure teamwork at the institutional and national levels in order to upgrade the management quality of e-government business processes.

**5. GENERAL PRINCIPLES**

The fundamental principle underlying the success of e-government is the appropriate organization of stakeholders, i.e. administration, non-government organizations, citizens and businesses, at all stages of the implementation process – from the definition of the vision and priorities to the selection and management of specific projects. The general good governance principles set out in the Strategy for Modernization of the Public Administration, as well as these, confirmed in the Declaration of the Ministers of the EU Member States and the Applicant Countries (Brussels, November 29, 2001) will also be applied, depending on the specific national conditions and the nature of projects. The implementation of e-government will be matched with the work done under the National Anti-Corruption Strategy.

**Focusing on citizens and businesses**

- *Equal access opportunities* – services will be easily accessible to all. Particular attention will be paid to people with special needs (senior or disabled people) and socially vulnerable people. Opportunities will be offered for selection among a number of channels for access to information and services.
- *Support of a system for encouragement of citizens and business* to use the opportunities offered by e-government.
- *Provision of public access to and transparency of the public administration acts.*

**Market orientation**

- *Knowledge of consumers* – investigation and comprehension of consumer behaviour; identification of the demand for services and their supply.
- *Partnership with businesses* – use of the experience of businesses in the implementation of new IT to provide services and communicate with citizens. In the case of some specialised technological functions of e-government, it would be

more appropriate to outsource the design, development and support, and even the financing in some cases, to companies that have the necessary potential to fulfil the task.

- *Effectiveness* – comparison of objectives with performance and expected impact through regular control and evaluation, as well as taking adjustment measures.
- *Efficiency* – encouragement of fair competition among companies, technologies and ideas in order to maintain proper balance between input resources and output results.
- *Technological independence* – achievement of a maximum level of independence of e-government platforms, technologies, software and companies.
- *Performance criteria* – use of measurable key indicators for the success of the implementation of individual projects.
- *Specification and stage-by-stage development* of the model outlined in the vision and strategic objectives of e-government, identifying predictable and feasible projects with clear effect for society over the course of time.

#### Identification and security

- *Data identification* – establishment of proprietary data, the responsibility for data authenticity and the data exchange rules.
- *Data security and protection* – provision of maximum protection of the data processed and stored.
- *Integrated approach* – each project should conform to the overall idea of the Strategy and be part of an integrated system to ensure continuity and rule out duplication of projects.
- *Single entry and multiple use of data* – single entry of data by the authorized body and multiple use of such data in accordance with the legal regulations and access authorization.

## 6. ORGANIZATION AND MANAGEMENT

E-government provides for new ways to manage activities in the public sector in general, and in the public administration in particular. It will ensure efficient management of change in all aspects of the public administration, i.e. statutory, organizational, managerial, technological, cultural and other aspects aimed at attaining the objectives and goals set out in the Strategy.

The E-government Strategy is essentially a strategy to manage the transition from the conventional administrative model to the provision of integrated administrative services to citizens and businesses and to rational management through IT.

Following its initial adoption by the Council of Ministers, measures were introduced to further develop and guide the implementation of e-government in Bulgaria. Each draft amendment has been, or will be, widely discussed in public. New versions will be placed at the disposal of interested institutions and organizational structures of the public

administration, businesses and NGOs. E-government is of national significance because its implementation and management implies interaction among the legislative, judicial and executive powers in close cooperation with citizens and businesses. A decisive factor in the successful implementation of Bulgaria's e-government strategy is the will of decision makers and public officials to employ a new approach to the administrative processes. Among the factors considered vital for success of the strategy are the following:

- Active participation of citizens and businesses.
- Political and governmental support at the highest level.
- Teamwork and project-based principle of operational management. Continuous coordination and feedback at all stages of implementation. Strong methodological support.
- Risk analysis and impact on risk factors.
- Implementation of change planning and management.
- Providing for transparency in public administration operations.

### Structures and Functions

#### *The Council of Ministers*

- Adopts the E-government Strategy and a National Program for Implementation of E-government in the Republic of Bulgaria, and provides the necessary financial resources.
- Provides public access to the decisions made in relation to e-government.

#### *Interdepartmental Committee*

An Interdepartmental Committee, composed of representatives of all ministries, has been established under the Council of Ministers. Representatives of interested NGOs have been invited to participate in the committee meetings. The Interdepartmental Committee submits for approval to the Council of Ministers the National Program and the organizational structure for the implementation of e-government as well as its funding, periodically (every 6 months), reviews proposals for updating the Strategy and the National Program, and controls their implementation. The Committee is headed by the *Minister of State Administration* and the *Minister of Finance*.

#### *The Minister of State Administration*

The Minister of State Administration manages the process of implementation of e-government. The Minister of State Administration fulfils the following tasks in cooperation with the public administration, businesses, NGOs, and donors:

- Coordinates donor funding for the implementation tasks;
- Assists in the preparation of private sector companies for implementation of e-government projects;
- Organizes, monitors and reviews feedback from citizens, businesses and donors, providing for transparency and accountability;

- Supervises the absorption of investments by the public sector for e-government projects and their rate of return;
- Develops and adapts methodological materials; provides methodological and technical support to the administrative structures in the implementation of projects and tasks set out in the plan.

In the course of these activities, the Minister is supported by relevant structures of the public administration, the Coordination Center for Information, Communication and Management Technologies, and various other donor programs.

### *Project Organization*

For the organization and management of the process of e-government implementation a *National Program for Implementation of E-government in the Republic of Bulgaria* has been adopted. The Minister of State Administration appoints the Head of the National Program, nominated by the Interdepartmental Committee. Assessing proposals approved by the Interdepartmental Committee, the Council of Ministers identifies projects of national importance. *National project teams* will be formed for the operational management of these projects involving experts from various branches of the public administration, outside experts and representatives of the funding organizations. These projects will enjoy special institutional support from the administrative structures. The Council of Ministers will monitor project results. *Institutional project teams* will be established for the operational management of institutional projects. The individual branches of the public administration will set up *methodological teams* to support the implementation of e-government services. They will carry out the following e-government-related activities:

- Draft concepts, strategies and action plans for the development of institutional information systems and human resources in accordance with the E-government Strategy, the Action Plan and other related documents;
- Perform current review and maintain information related to the status of institutional information systems and the organization of business processes in order to attaining the e-government objectives;
- Assist in implementing e-government projects.

### Basic criteria for selection of priority projects:

- *Significance for the economic and social development of the country.* Priority will be given to the introduction of services, which will save time and resources to citizens and businesses, thus eliminating administrative barriers and accelerating economic and social development.
- *Economic efficiency.* Priority will be given to projects with high return on investment, achieved as a result of decreased costs of services and/or increased level of collection. All projects will be assessed in terms of cost-efficiency with regard to investments made and the operational costs needed for the maintenance of the systems during their useful life.

- *Substantial demand for integrated public services.* When developing projects, the target group of potential customers for the respective services will be assessed, considering the rate of readiness to use these services. Priority will be given to projects meeting the needs of as many potential users as possible. Initially, priority will be given to projects that do not require any special conditions for the use of data and provision of services.
- *Compliance with EU priorities.* In light of the harmonization of Bulgaria's administrative practices with those of EU, priority will be given to the automation of services, which have been selected as indicators for the evaluation of e-government in the e-Europe Action plan.
- *Anti-corruption effort.* Priority will be given to projects, leading to increased transparency in the state administration and decreased corruption risk.

An action plan has been developed to plan the implementation of high priority projects, deemed essential for development of e-government in Bulgaria. These projects fall into two broad areas:

*Systems and Networks:*

- Design and development of an integrated electronic services system using institutional, inter-institutional and national information systems.
- Support and development of communication and information infrastructure for the public administration and a National ATM Network for the state administration.
- Development of a network of general access locations for complex citizen services with or without an operator.
- Development of systems for local e-management.
- Development of a Unified Crime Prevention Informational System.
- Re-engineering of business processes of public services.
- Development of a system for electronic procurement.

*Platforms and Applications:*

- Re-engineering of the government portal "Official page of Bulgarian State Institutions".
- Analysis of the technical equipment used in public administration activities.
- PKI infrastructure of the state administration.
- Identification and prioritization of the administrative services, which will be provided electronically through the government portal.
- Submission of forms to the National Insurance Institute electronically.
- Submission of internal revenue forms electronically.
- Submission of customs forms electronically.
- Issue of certificates for current company status.
- Issue of certificates for company litigation and registration.
- Issue of certificates from the real estate register.
- Issue of personal legal certificates.

## B. Recent ICT/E-Government Developments and Initiatives

Progress has also been made in developing the regulatory framework necessary to adapt effective e-government and to promote ICT sector development. During 2006, the Bulgarian National Assembly ratified the Law on Electronic Trade, and the Council of Ministers adopted the Bulgarian National Interoperability Framework for the information systems in the state administration. In 2007, the National Assembly adopted a new Law on E-Governance, which entered into force in July 2008. Among the main principles introduced under the new e-governance law is *Single Collection and Multiple Data Use*, which stipulates that administrative institutions have the obligation to request data from citizens and organizations only once, and that they must collect it officially from the primary administrator of the data. The primary data administrators are required to send the relevant data directly to those administrative authorities who have the legal right to maintain it.

Utilizing a combination of local budget and EU funds, the Government of Bulgaria (GOB), during 2006 and 2007, has considerably revamped its IT systems. Over 5,500 computers were installed in regional and local administrations. Licensed software is now in place on about 60,000 computers and 2,000 server systems in all administrations. Antivirus/spam/adware protection software has been installed on 20,000 computers and 1,500 server systems in the local and regional administrations. Over the same period, the GOB procured 2,150 e-signatures.

Also during 2006 and 2007, approximately \$20 million has been spent on developing an integrated e-Government platform. The primary focus has been on development of a government service portal ([www.egov.bg](http://www.egov.bg)), implementing document exchange systems, and supporting interoperability registers. Under the *e-Region* pilot project currently underway, regional and local administration are developing integrated, standardized service portals, and regional/local information systems are being integrated into a unified national network.

In late 2008 or early 2009, the GOB plans to implement an E-Government Action Plan, based on the recently adopted E-Government Strategy (described above). Other short term objectives include:

- Deployment of the Unified Environment for Document Exchange (the only authorized tool for document exchange, in accordance with Law on e-Governance)
- Integration of the back-office systems with the Unified Environment for Document Exchange

Medium term priorities include increasing the effectiveness of government information systems by re-engineering of the front/back-office processes, improving delivery of administrative services, and increasing the transparency of administrative procedures.

The Bulgarian State Agency of Information Technologies and Communications (SAITC) is currently leading Bulgaria's efforts to develop a *National State Network (NSN)* for communications between ministries, regional authorities, municipalities, etc.. The high-speed fiber-optic ring will have an initial transmission capacity of about 2.5 Gbps with the possibility to increase to 10 Gbps. The fiber-optic ring will initially connect 27 regional centers and the capital. In a second phase it will provide national connectivity and integration of the NSN with other networks of the state institutions. The SAITC also intends, during 2008, to develop and implement a *new competitive science and innovation system* with the goal of achieving R&D spending of 1.5% of the country's GDP by 2012. Other indirect benefits of the new innovation system are expected to be increased Internet penetration and broadband usage, especially within the government and educational sectors, and an increase in the number of trained ICT professionals in the country.

Beginning in 2006 the Government of Bulgaria (GOB) launched the *ICT Broadband Platform for Bulgaria Project*, inspired by a similar initiative in Austria, which was undertaken during 2004-2005. The main goal of the project is the development of a national ICT strategy, which will contribute significantly to overcoming Bulgaria's technological lag and transforming it into an ICT leader in Eastern Europe. U.S. consultancy, Arthur D. Little has consulted the GOB on the initiative, and the active support of technology providers, including Alcatel, Ericsson, HP, Mobilitel, and Siemens has been solicited. A number of Bulgarian government agencies including the Ministry of State Administration and Administrative Reform, the Ministry of Finance, the State Agency for Information Technology and Communications, and the Communications Regulation Commission have also been involved in the effort.

The *ICT Cluster Society*, initially established in 2004, is a forum for constructive dialogue and cooperation among government entities and other ICT organizations in Bulgaria. It provides support for the effective implementation of ICT-related tasks, projects and strategies, and acts as a constructive corrective for the formulation of the ICT policies. In particular, the ICT Cluster was a key contributor to the National ICT Competitiveness Strategy of Bulgaria. Its members, which comprise government agencies, IT associations, and private companies, also share information about ongoing initiatives and opportunities for collaboration on common projects. The ICT Cluster represents a substantial part of the Bulgarian ICT industry and works towards forming a single point of contact in the Bulgarian government for a better dialogue on ICT issues.

The *Information Society Promotion Office (ISPO)*, which was originally set-up in 2001, has been given a considerably enhanced mandate under the new e-government strategy. The ISPO's mission is to support the development of an information society in Bulgaria by raising IT awareness amongst the general public, in industry, public administration, NGOs and academic institutions, and by creating incentives to the spread of innovative business practices and IT applications among small and medium-sized enterprises (SMEs). It operates as a public-private partnership between the Ministry of Transport and Communications and ARC Fund.

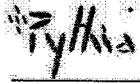
The ISPO performs a wide range of services:

- disseminates information about the European Union and national policies, programs, and legislative initiatives associated with information society development and innovation;
- maintains an online inventory of information society policies, projects and activities implemented in Bulgaria;
- follows the latest trends in information society development in various sectors of the Bulgarian society, and the level of public awareness on these issues in the country;
- publishes an Information Society Newsletter and other specialized publications on key aspects of the information society;
- provides information on European, national and regional programs and projects in the fields of innovation and information society;
- assists Bulgarian companies and other organizations in identifying appropriate European Union programs, developing project proposals, and finding EU partners;
- advises local companies on existing opportunities for technology transfer projects with European partners;
- organizes seminars and conferences on topics related to the development of the information society in Bulgaria;
- implements educational programs and information campaigns on the importance of ICTs and their impact on the economic and social development of the country.

### C. U.S. Export Potential and Investment Opportunities

The GOB, according to the Lisbon Strategy, is required to make major ICT investments over the coming years in order to comply with EU directives and legislation on various aspects of the digital economy. This will lead to numerous tenders for the provision of IT systems, computers, peripherals and servers on the part of government agencies. U.S. technology providers will be well placed to compete in this space. In a recent success story, HP won the tender to develop an Integrated Public Health Software System for the GOB. At the same time, Bulgarian companies in a wide range of industries are attempting to upgrade their legacy systems and adapt modern ERP, CRM, and other technologies in order to increase their competitiveness in the EU, which also represents a major opportunity for U.S. IT systems vendors.

Both fixed and mobile segments of the Bulgarian ICT market still have high growth potential with large investments expected in both segments. In 2007, the telecoms market alone amounted to about \$2.5 billion, an increase of 6% over 2006. According to IDC, the overall Bulgarian ICT market will grow by average yearly rate of over 13% between 2008 and 2012. Bulgaria's favourable fiscal regime, low costs, and skilled workforce have been a major attraction to international ICT companies, a number of whom have recently opened software development operations and call centers in the country.



According to the U.S. Foreign Commercial Service's Country Commercial Guide, ICT is one of the leading sectors for U.S. export and investment in Bulgaria. U.S. providers of advanced telephone service solutions, as well as value-added telecommunications services are in demand. Other interesting areas include Internet services, wireless and broadband Internet access technologies, cable television, and voice-over-Internet, routers, switches, access servers, equipment for mobile telephony, including WiMAX technologies, cable operators' equipment and fixed wireless equipment.

A number of U.S. ICT sector companies have established successful operations in Bulgaria. Some examples include:

- HP's Global Delivery Support Center for the EMEA region, employing 1,200 people.
- Outsource Partner International's (OPI) finance and accounting support center
- Microsoft's establishment of a Technical Support Center for Eastern Europe
- Tumbleweed Communications' secure internet messaging software development center
- Private equity group, Viva Ventures/Advent International's acquisition of a stake in the Bulgarian Telecommunications Company
- Google's establishment of an R&D center for Europe

#### D. Sources of Project Financing

##### *European Union Structural Instruments*

As a European Union member, Bulgaria now benefits from the EU Structural Instruments, which are significantly larger than the pre-accession funds. The total amount of Structural and Cohesion Funds allocated for Bulgaria for the period 2007-2013 is just under €6.9 billion as indicated below. The two structural components of the Cohesion Fund are the European Regional Development Fund (ERDF) and the European Social Fund (ESF).

##### *EU Structural Instrument allocations for Bulgaria 2007-2013*

<u>Objective/Fund</u>	<u>Budget (€)</u>	<u>Share</u>
Convergence	4,391 mn.	65.7 %
ERDF	3,205 mn.	72.9 %
ESF	1,186 mn.	27.1 %
Cohesion Fund	2,283 mn.	34.3 %
Total	6,674 mn.	97.4 %
European Territorial Cooperation		
ERDF	179 mn.	2.6 %
<b>TOTAL</b>	<b>6,853 mn.</b>	<b>100.0 %</b>

As all Bulgarian regions have a per capita Gross Domestic Product (GDP) of less than 75% of the Community average, the entire territory of Bulgaria is eligible for funding from the Structural Funds, under the 'Convergence' objective. Bulgaria will also receive financing under the 'European Territorial Co-operation' objective, for actions of cross-border, trans-national and inter-regional cooperation.

As a Member State which has a per capita Gross National Income (GNI) of less than 90% of the EU-25 average, Bulgaria benefits from the Cohesion Fund. In order to reflect the significant needs of new Member States in terms of transport, infrastructure, and environment, the share of the Cohesion Fund has been set at one third of the total financial allocation (Structural Funds plus Cohesion Fund) for the new Member States on average over the period 2007-2013.

Allocation and management of the Structural and Cohesion Funds in each Member State is determined by the National Strategic Reference Framework (NSRF). Among the stated priorities in Bulgaria are getting basic infrastructure in line with EU standards and building more effective administrative capacity. EU Structural Instruments are administered by seven Operational Programs (OPs). The proposed ICT infrastructure development projects for the SAITC and Sofia Municipality clearly qualify for funding under the Structural Funds. The projects, or specific components of them, could potentially fall into three separate Operational Programs:

- OP Administrative Capacity (ESF) - €154 million
- OP Competitiveness (ERDF) - €988 million
- OP Regional Development (ERDF) - €1.4 billion

The Convergence Fund objectives are to increase market competition, improve transportation and environmental infrastructure, strengthen regional development, foster development of an information society, improve the quality of investment in physical and human capital, and strengthen administrative capacity in order to speed up economic convergence throughout the EU.

It is important to note that projects financed through Structural and Cohesion Funds require co-financing from national sources. Therefore, along with the €6.9 billion in Structural and Cohesion Funds from the EU, Bulgarian sources will have to provide approximately €1.3 billion in co-financing. All projects developed with Structural and Cohesion Funds will require a 15-20% contribution from Bulgarian national sources. It is the responsibility of the project sponsor to secure matching funds from public or private sources in the host country.

The rate of absorption of EU funding in Bulgaria is currently under 30%. One of the main impediments to higher absorption is the lack of qualifying and well developed projects. The feasibility studies proposed for USTDA support will provide Grantee organizations SAITC and Sofia Municipality with the necessary technical documentation to prepare qualifying project proposals and apply for funding.

While eligibility to receive funding for projects is theoretically restricted to European-based firms, there are no prohibitions against the participation of European-based companies of U.S. parentage, either as developers of or suppliers to projects supported by EU Structural Funds, or as bidders on subsequent public tenders related to such projects. Therefore, U.S. companies may participate directly in projects receiving EU funding by having a subsidiary in any of the 25 EU countries. (Legally registered subsidiaries of U.S. firms are considered to be 'European Firms'). U.S. companies who do not have a European presence may also participate in EU funded projects by entering into a consortium with a European firm(s). Most, if not all, of the U.S. companies that have either expressed a direct interest in, or are potential suppliers to, the National ICT Network, or Sofia ICT Network Enhancement projects have subsidiaries in the EU and are thus considered 'European Firms' by the above definition.

### *Other Funding Sources*

U.S. Ex-Im Bank provides export financing and insurance for U.S. transactions in Bulgaria. Since 2006, Ex-Im Bank has had a Master Guarantee Agreement in place with the Bulgarian banks UBB and Postbank. OPIC's loan guarantee, direct loan, and political risk insurance programs are also available in Bulgaria.

The EBRD remains one of the largest investors in Bulgaria, focusing its funding efforts on projects which support national infrastructure, regional development, and SMEs. By January 2007, the EBRD had signed 105 projects in Bulgaria, totalling over \$2.2 billion. This has helped to generate an additional \$6.4 billion from other sources. A total of 80 per cent of investments are in the private sector. A recently funded project was a loan to local mobile network provider and IT services company Teletink, a leading provider of fixed and wireless telecommunications and communication solutions to the government and corporate sector.

Since 1990, when Bulgaria joined the World Bank, the Bank has helped to foster economic growth in the country and supported reforms in areas such as public administration, banking, health, and social welfare. A series of measures were also undertaken to improve the country's business climate, which has helped to increase the annual inflows of foreign direct investment from less than \$100 million before 1997 to \$1.7 billion per year in 2000-2005. As of January 2008, the active Bulgaria portfolio of Bank financed projects consists of nine investment projects for the original amount of \$423.8 million, including two Global Environmental Fund (GEF) Grants. Recently funded and pipeline projects have included Public Sector Administration Reform, Municipal Infrastructure, and Regional Development, all of which include ICT components.

The UNDP is also actively supporting the Bulgarian ICT sector, funding an *e-Government Project* to develop a Coordination Center on Information, Communication and Management Technologies (CCICMT) under the auspices of the Council of Ministers. The CCICMT mission is to provide operational, analytical and methodological support to the Coordination Council for Information Society (CCIS) at the Council of Ministers. Among the roles of the CCICMT will be exploring possibilities to establish public-private partnerships and innovative financing mechanisms in the ICT sector.

## IV. NATIONAL ICT NETWORK PROJECT

### A. Project Description and Background

The Government of Bulgaria (GOB) has requested USTDA assistance with a feasibility study that would examine the economic and technical feasibility of developing a single national ICT network that would ultimately connect all local and national government entities. Despite previous efforts to create such a network, many government entities in Bulgaria remain largely disconnected from one another. The lack of interoperability hinders cooperation between government entities, thus reducing the quality of public services and increasing their cost. As a result, the GOB has identified the creation of a national network as one of its top priorities under the e-government program. Adding to the urgency of this initiative, a new e-governance law, approved by the Bulgarian Parliament this past June, introduces strong requirements for interoperability among administrative information systems as well as for network and information security.

The current initiative follows on a previous feasibility study, which was funded by USTDA in 2002, and performed by U.S. consultancy Megatech. The initial Feasibility Study (FS) study was quite similar in scope to what is currently being proposed. The study was designed to assist the Government of Bulgaria accelerate and rationalize their ability to use high technology telecommunications and IT equipment to interconnect various government agencies at the central and local government levels. Bulgaria had already begun a program in 1997 to utilize an optic fiber cable network to interconnect such agencies. However, the program was only partially successful with many of the government ministries largely outside the system. Moreover, the capability of integrating central and local government entities was largely restricted to a few of the more centralized agencies (e.g. Ministry of Finance).

The Megatech FS was designed as a two phase study. The basic analysis and recommendations were to take place in Phase I. Then, the goal was to move to a second phase, in which the USTDA contractor would assist Bulgaria in developing technical specifications and bidding documents for the unified system.

The primary conclusions of the FS confirmed that Bulgaria's current system was too disparate and, in many cases, did not even reach many of the desired agencies. The executive summary put it this way: "the findings of the requirements analysis revealed a common thread among the ministries – the need for a common, high speed, secure, reliable ubiquitous network to enable the delivery of E-government services". Thus, the report provided a number of technical recommendations about the design of such a system. One of Megatech's key recommendations was that Bulgarian Government agencies should unify their system (the National Network for Interconnection of



Government Ministries, termed NAMDA) around an “MPLS Switching Backbone”. The case was made as follows:

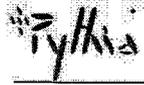
“To reduce operating costs, NAMDA can evolve their current networks to provide both differentiated IP and ATM data services on one infrastructure. But with limited capital expenditure budgets, nothing is more important than leveraging existing investments in equipment, such as the existing ATM switches being used in Sofia. The protocol-independent architecture of the MPLS multi-service switch efficiently handles all forms of traffic and can use different control methods such as MPLS or ATM. NAMDA should convert to an MPLS-enabled core switching solution with large-scale MPLS Core Switches in Sofia and all the regional cities. It should also invest in MPLS enabled AIP routers to inter-work with the AMPLS Core switches to achieve the full MPLS capabilities”.

Upon completion of the first phase of the study, Megatech and USTDA terminated the project without proceeding to the second phase (detailed technical specifications and bidding documents). The underlying problem was that there were clearly difficulties in obtaining agreement among Bulgarian entities as to the right way to unify the government’s IT infrastructure. Megatech had great difficulty completing the first phase of the study because of the reluctance of some government entities to support the effort. There were, in addition, strong competitive pressures among the Bulgarian entities that undermined a unified consensus on how such a program should proceed.

Given the pitfalls encountered in the previous USTDA feasibility study, it is extremely important to ensure that all relevant agencies are fully on board with the current national ICT network initiative, are in agreement as to how the Government should proceed, and are clear on their respective roles and responsibilities.

Based on the discussion sessions Pythia held in-country, our perception is that there is now strong support among leading officials for a fully unified, high-speed, secure, reliable government network to enable delivery of e-government services in Bulgaria. There also appears to be consensus that the State Agency for IT and Communications (SAITC) is the proper authority to manage the national ICT network and to lead e-government strategy from a technical perspective\*. In this regard, SAITC’s position has been significantly enhanced by the recently passed, post-EU accession, e-communications and e-governance laws, which specifically name the SAITC as the only government body legally entitled to run telecommunications networks, including the National Security and Defense Network serving the Ministry of Defense and the Ministry of Interior.

(\*Note: The Coordination Council for Information Society within the Council of Ministers is responsible for defining national information society policies, while the Ministry of Administration and Administrative reform is responsible for the provision of electronic administrative services to citizens and businesses.)



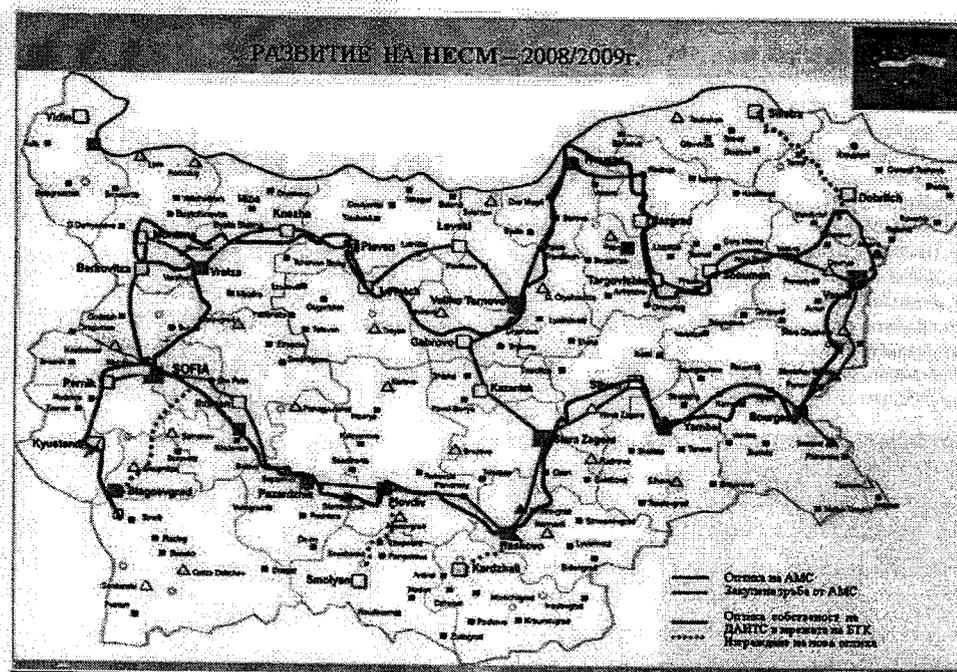
Pressure being applied by the European Commission is an additional incentive for the main government bodies to converge their disparate networks and have them managed by a specialized ICT agency (such as SAITC), which is in accordance with established EU best practice. Ordinances covering a Unified Environment for Electronic Document Exchange, and Interoperability and Information Security, which depend on a unified ICT network infrastructure, must urgently be adapted or Bulgaria could face major delays in the release of EU funds as well as possible fines.

### **B. Project Sponsors Capabilities and Commitment**

The Grantee, the State Agency for IT and Communications (SAITC), was initially established by the Bulgarian Government in 2005. The following activities are included within SAITC's mandate:

- Manage government activities and implement state policies in the fields of IT, communications and Information Society in Bulgaria
- Synchronize and actively participate in ICT development in the public sector
- Coordinate Information Society activities
- Support the development of networks for national security and defence
- Facilitate the establishment of partnerships and encourage the development of business relationships between Bulgarian and foreign companies in the ICT sector
- Coordinate the promotion and marketing of the Bulgarian ICT brand

The backbone of the current SAITC network was carved out of the BTC (Bulgarian national telecoms operator) prior to its privatization. BTC allocated to the Bulgarian Government (via the SAITC) two pairs of dark fiber linking 20 major Bulgarian cities. One pair of fibers is based on SDH technology and is dedicated to security and defense, while the other is based on Level 3 IP/MPLS. SAITC is currently in the process of deploying Dense Wavelength Division Multiplexing (DWDM) across the network in order to meet its growing bandwidth needs.

National (SAITC) ICT NetworkExplanation:

- Red line: optical rings inherited by SAITC from incumbent operator BTC
- Green line: conduit purchased by SAITC to increase capacity.
- Purple line: DWDM 10G network owned by Council of Ministers

At the same time, the Council of Ministers (CoM) operates its own ATM-based metropolitan network in Bulgaria's major cities, covering the local loop. In Sofia, the CoM operates 4 rings, while the network in most other cities consists of a single ring. Overall, the CoM network comprises 900 end points (CPE switches) and over 1,000 pieces of equipment. However, the municipal rings are, for the most part, 'islands' linked to each other by SAITC's national backbone. While the CoM and SAITC networks are complementary (one provides national coverage while the other provides the local loop) and interlinked, separate management leads to inefficiency and duplication. Therefore, a key issue to be resolved as part of the feasibility study is the unification of these two core networks into a single, centrally managed infrastructure under the SAITC umbrella. Separate networks run by the Ministry of Finance, the Ministry of Labor, the National Statistics Institute, and other government networks would also need to converge into the unified national infrastructure.



In a preliminary move to unify these networks, the SAITC has officially been mandated by the Government of Bulgaria to expand its present network and to evolve it into a National State Network (NSN) for communications between ministries, regional authorities, municipalities, etc. This network would also provide the core ICT infrastructure for broad public access to electronic services (e-government platform). In the immediate future SAITC has been charged with:

- Building a high-speed fiber-optic ring with an initial transmission capacity of about 2.5 Gbps and with an option for a further increase to 10 Gbps
- Connecting 28 regional centers and the capital within the fiber-optic ring by the end of 2009
- Providing national connectivity and integration of NSN with the other more or less developed networks of the state institutions after 2010

As part of the asset transfer agreement with BTC, about 900 BTC technical staff members were transferred to SAITC, most of whom have remained with the agency. Since its inception, SAITC has been strongly committed to human resources development, and has created a strong technical and management team. In addition to the build-out, management, and administration of the national ICT network, the SAITC has demonstrated its project management capabilities in a number of other domains. For example, in the field of education, the following accomplishments have been realized under SAITC leadership in recent years:

- All major universities have been connected to the Internet, and over 80% of university students have internet access
- The National High-speed Research Network has been connected to the European Research and Educational Network (GEANT)
- The majority of the universities have deployed wireless networks, providing expanded Internet access to their professors and students
- All schools have been computerised and more than 80% of their students use Internet
- An Inter-School Network has been developed, which provides internet access to more than 3,000 Bulgarian schools.
- PC density in elementary and high schools has reached 1 PC per 12 pupils.

The SAITC is clearly committed to development of the national ICT network and its Chairman, Dr. Plamen Vatchkov, who participated in the USTDA orientation visit to the U.S. in February, has actively sought USTDA involvement in the project. Dr. Roumen Trifonov, Secretary of the Coordination Council for Information Society (Council of Ministers) and other key officials from the Council of Ministers strongly support the SAITC in this endeavor.

### C. Implementation Financing

The overall budget for implementation of the proposed national ICT network project is estimated at approximately €55 million (+/- \$69 million), broken down roughly as follows:

- a. €30 million: core national backbone infrastructure (covering all 28 regional centers) with full redundancy and back-up
- b. €15 million: network extension to cover all major municipal authorities; integration of middleware, platforms, and service applications
- c. €10 million: network expansion to smaller municipalities and regional access points, integration of additional e-services and applications.

Approximately €10 million from the 2009 national budget has already been earmarked for the national ICT network. The bulk of this funding will be directed towards expanding the network from the current 19 regional access points to cover all 28 regional centers by end-2009 via a two ring structure. (The precise topology of the network structure will be defined as part of the feasibility study.)

From 2010 to 2013, Bulgaria will be able to access €15 million in funding under the European Structural Funds 'Operational Program for Regional Development', which has a specific component for enlargement of national ICT infrastructure to reach the municipal level. The SAITC has already been specifically mentioned as the beneficiary of this program. From 2011, the municipal and regional authorities can begin applying for Structural Funds themselves, on a case by case basis, in order to link their networks into the national system.

Also during this period, additional funds will be made available from the national budget for enhancing core infrastructure and strategic e-service applications.

- An important initiative of the SAITC is to introduce Next Generation Network (NGN) softswitch technology (programmable devices that control VoIP traffic) in order to integrate the existing network PBXs, therefore allowing the SAITC to bypass the national telecoms operator and other providers, potentially leading to savings of €50 million per year in telecommunications costs paid to third parties. This savings potential will be strong argument for releasing funds from the national budget, as the cost savings realized on telecoms services will represent a measurable 'return on investment' of public funds.

To fill any eventual funding gaps, the SAITC also intends to utilize other possible sources of financing, including loans from the World Bank, EBRD, and other organizations, vendor financing, and, possibly, public private partnerships for specific applications and/or services running over the network.

#### D. U.S. Export Potential

The Bulgarian national government ICT network infrastructure project will be a major generator of U.S. exports. SAITC expects that close to 90% of the fiber optic cable plant, transmission and switching, processing, IP telephony, WAN gear, soft switches and CPE equipment deployed on the network could be supplied by U.S. vendors, which represents an export potential of approximately \$62 million, broken down roughly as follows:

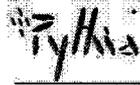
- 45% - IP & optical switching equipment; backbone & edge routers; fiber optic plant
- 35% - server & computer equipment; CPE devices; network management & inventory software
- 20% - encryption devices/software & firewalls; provisioning systems & engineering services

Some of the potential suppliers to the SAITC and other government agencies on the proposed national network rollout could include:

- Switches and routers: Cisco, Foundry, Juniper, Alcatel/Lucent, Nortel, Qualcomm.
- Transmission/Distribution equipment: Alcatel/Lucent, Harris, Nortel, Motorola, 3Com.
- Fiber Optic plant: AMP, Inc., Corning, GTE Communications Systems, Siecor, Harris.
- WAN & LAN gear, IP telephony, VoIP, NGN softswitches & related equipment: ADC, Avaya, Nuera, Cisco, Datatek, Franklin Telecom, Shoreline Communications.
- Modems & protocol converters: Codex, Digital, Daec, Alcatel/Lucent, RCA, Micom.
- Packet switching equipment: Digital, Dynatech, Hewlett Packard, Hughes, Micom
- Communications processors: Amdahl, Digital, Harris, IBM, Unisys

Among these companies, Cisco, Datatek, HP, IBM, and 3Com have been specifically informed on the project, and have expressed strong interest in participating in the implementation phase. In addition, Tumbleweed, a leading U.S. provider of information security applications, which has recently set-up a regional development center in Bulgaria, would be well placed to provide network security and back-up components.

(U.S. content note: While the manufacturing of telecoms/electronic components is a global business, with parts and sub-assemblies sourced from all over the world, most U.S. telecoms equipment vendors continue to operate major assembly operations in the U.S.; the bulk of R&D activity is also centered in the U.S. Factoring in product concept and design, software components and licensing, and other intellectual property, the percentage of overall U.S. content is usually above 70%.)



### **E. Foreign Competition and Market Entry Issues**

While U.S. companies are strong players on the telecommunications market, they face fierce competition, primarily from major European equipment manufacturers. Alcatel, Ericsson, and Siemens have a strong presence in Bulgaria and have recently won a number of public procurements. Often, European vendors have a comparative advantage in Eastern Europe due to lower shipping costs, preferential customs duties treatment, and ready availability of grant funding and mixed credits. USTDA's funding of the proposed feasibility study for the SAITC will help U.S. suppliers get in at an early stage of Bulgaria's planned national ICT government network development and establish commercial relationships with the grantee, its partners, and other government agencies.

### **F. Developmental Impact**

The proposed national ICT network for the Government of Bulgaria will provide substantial development benefits in the areas of public infrastructure, human capacity building, technology transfer and productivity enhancement, and market oriented reforms. It will also significantly enhance the Bulgarian Government's ability to provide a wide range of electronic services for citizens and businesses. A strengthened national ICT infrastructure, combined with planned e-government platforms and services, is an essential pre-condition for further development in other areas of the economy, and will act as a catalyst for economic growth.

Among the more important developmental benefits that the project will provide for Bulgaria are the following:

#### Infrastructure

The national ICT network project will establish regional, national, and international ultra-high speed ICT infrastructure. The ICT network, and the e-government enterprise architecture that will result, will enable the Bulgarian Government to leverage the substantial investments it has already made in IT infrastructure in order to provide enhanced services to citizens and businesses throughout the country. An integrated national network and unified system will also greatly facilitate the upgrade and maintenance of non-IT infrastructure as services provided to cities and regions by public service providers are moved on-line.

#### Human Capacity Building

The ICT backbone will enable the wide scale introduction of e-government services in Bulgaria and will provide important benefits in human capacity building. Individuals will be trained to use the technologies, resulting in an education about the use of advanced technologies but also in how integrated voice, data and information systems work. Once implemented, the integrated national government network and e-service applications, combined with ongoing efforts to expand IT systems within the Ministries, are expected



to lead to several hundred new jobs within the central government administration, and will require extensive training of both technical and general administrative staff. Furthermore, the system will lead to fuller employment and enhanced skill sets for currently employed government clerks and technicians.

#### Technology Transfer and Productivity Improvement:

The expanded national ICT network, combined with the planned e-government applications will dramatically increase Internet usage and literacy among the population of Bulgaria. Successful network and applications implementation will bring state-of-the-art communications networking technologies to both national and regional authorities. The introduction of advanced networking technologies will lead to more effective institutions and will improve the government's processes and systems. Applications running over the national ICT network will also sharply increase the productivity of public administration staff, streamline work procedures, and decrease the administrative time burden on citizens and businesses. As an added benefit, the new systems and applications will encourage the use of 'next generation' communications and internet services (e-commerce, video conferencing, multi-media messaging), which are only now becoming available in Sofia and some of the other larger cities.

#### Market Oriented Reforms

The proposed national ICT network and e-government platform will create a more fluid and transparent market in the technology sector as well as in other sectors of the economy including real estate, agriculture, energy, and tourism. Platforms and e-government portals that will run over the network will have a highly positive impact on business-friendliness and will reduce the complexity and difficulty of permitting and licensing, including business licensing. When public service provision is transparent, streamlined, and impartial, there are numerous benefits, most notably, a decrease in corruption. In particular, individuals are more willing to invest and launch new ventures/businesses that can result in increases in financial productivity and provide financial, economic and social development benefits to the country. These investments create jobs, increase trade, and also provide numerous economic and social benefits as the businesses, as well as the individuals and suppliers associated with them, play broader and greater roles in the global market and trading system.

### **G. Impact on the Environment**

The proposed project will have no discernable impact on the environment. To the contrary, this project, like many ICT initiatives, will have a beneficial impact on the environment by providing a network that will enable the transfer of voice, data and images electronically, thereby serving as a substitute for the human movement of information, and reducing the need for paper-based storage of information. The required MPLS core and access networks, including switching, routing, and aggregation will be primarily deployed over the existing SAITC backbone infrastructure. Networking equipment will be placed on existing switching/aggregation sites, towers and conduits



situated along SAITC's rights-of-way. Furthermore, the project will have no discernable detrimental effect on waterways, ground cover, or vegetation. Moreover, the unified ICT infrastructure that will result from the project will enable the Government of Bulgaria to more effectively manage emergency situations and disaster response as well as to provide e-service tools to more effectively coordinate and/or manage routine activities such trash collection, waste-water control, road repairs, etc.

#### **H. Impact on U.S. Labor**

Funding for the proposed project will result in the creation of U.S. jobs if major telecommunications equipment items such as switching, transmission, and distribution equipment, multiplexers, modems, packet switching equipment, processors and converters, CPE equipment, as well as systems integration and computer hardware and software are purchased from U.S. manufacturers and engineering firms, which appears quite likely to be the case if USTDA funding is utilized.

In the proposed feasibility study for a national ICT network project on behalf of the SAITC, the selected contractor will be providing assistance in network design and equipment specifications. Moreover, funding for the project will not result in the transfer of U.S. jobs to Bulgaria, nor will USTDA funding be utilized to assist in the development of an export-processing zone that could have an indirect negative impact on U.S. jobs.

#### **I. Justification**

The Government of Bulgaria is clearly committed to the development of a national ICT network. The project is one of the main priorities under the new e-government program, and is in full conformity with Bulgaria's strategic objectives under the EU Lisbon Agenda. Initial planning and securing of rights of way for expansion of the core national backbone infrastructure are already underway. Unlike the situation that was encountered by Megatech while carrying out a previous USTDA supported feasibility study in 2003 and 2004, there now appears to be broad consensus as to how the national network should be implemented and managed. The potential grantee, the State Agency for IT and Communications (SAITC) now has a sufficient mandate, legal rights, and political support to be the implementing and ongoing management authority for the government network.

The extended and upgraded national ICT network will significantly enhance the capabilities and efficiency of the Bulgarian Government, will have a positive impact on the country's economic development, and will lead to increased inward investment. The network will be the backbone and enabler for a wide range of e-government services for citizens and businesses. The unified national system will also facilitate the upgrade and maintenance of non-IT infrastructure as a greater number of services provided by utilities and other public service providers are moved on-line.



If implemented, the national network project in Bulgaria project has the potential to generate substantial US exports of telecommunications networking equipment, hardware, software, and services. USTDA involvement at the feasibility study stage will also provide US technology providers with a level playing field in an increasingly competitive environment.

## **J. Terms of Reference**

### Scope of Work

- Assess the status of the current government ICT networks, develop a plan and timetable for integrating existing networks into a unified system taking into account the GOB's expansion plans; assess suitability of current technology and equipment to support the expansion plans and upgrading to a high-bandwidth, high-traffic capacity system.
- Assess the current level of connectivity and interoperability among the ministry networks and determine needs for upgrading and enhancement; assess the impact of organizational relationships on ICT network development and management; assess quality of service (QoS) and security requirements and propose solutions.
- Develop a framework for the creation of a government-wide enterprise architecture to assure a well coordinated and effective implementation that is consistent with national e-government initiatives.
- Conduct an economic analysis of the project; develop cost estimates for the systematic roll-out of an integrated national network; and assess available sources of financing for the various network components.
- Conduct an assessment of the developmental impacts that will result from the national network project in terms of infrastructure, human capacity building, technology transfer, productivity enhancements, and market oriented reforms. Conduct a regulatory review and a preliminary environmental analysis.
- Develop a high-level implementation plan for the national ICT network, including an action plan, network technical specifications, and a procurement plan for the grantee; assist the grantee in developing procurement documents.

### Qualifications and Evaluation Criteria

The selected management and telecommunications consulting company for this technical assistance contract should have a proven track record in the following areas:



- Experience in the evaluation of complex telecoms and IT projects with emphasis on the following systems/technologies: IP/MPLS, DWDM, SDH, ATM, PBX, NGN softswitch; experience in fiber optic infrastructure support and systems integration  
[25 points]
- Experience in planning and/or managing large-scale public sector telecoms network procurements, including vendor neutral specifications development:  
[25 points]
- Experience in the establishment of enterprise architecture governance models (including organizational framework, processes, rolls, and responsibilities):  
[20 points]
- Experience in project management, implementation planning, and project financing:  
[15 points]
- Experience in conducting developmental impact, legal/regulatory, and environmental assessments of ICT projects:  
[5 points]
- Experience in conducting similar ICT projects in the country and/or region:  
[10 points]



### Description of Tasks

#### **Task 1: Network Infrastructure Assessment**

- The Contractor shall meet with the Grantee, the State Agency for Information Technology and Communications (SAITC), and with representatives from the Council of Ministers (CoM) in Sofia to launch the TA. During this, and subsequent sessions, the Contractor shall determine the status of the current networks of the two organizations, including existing coverage areas, main users, service types and objectives, data transmission speeds, technologies, equipment types, facility locations, etc.
- Based on inputs from the two organizations, the Contractor will propose a plan and timetable for the full integration of SAITC's national backbone network with CoM's metropolitan networks throughout the country, addressing both technical and organizational issues.
- The Contractor shall gain a clear understanding of the Grantee's expansion plans for the combined network (including traffic volume, coverage areas, equipment under consideration, etc.) as well as possible barriers and constraints to these plans.
  - o Another important area to be examined is the planned integration of PBXs into the network via VoIP-based NGN soft switches, which would allow free calls within State Institutions.
- The Contractor shall assess the suitability of current technology and equipment to support the stated expansion plans of the combined SAITC/CoM network, and to upgrade it to a high-bandwidth, high-traffic capacity network (including future evolution towards NGN technology)

**Deliverable:** The Contractor shall develop a preliminary SAITC/CoM Network Assessment and Integration Plan, including: a definition of services and how they relate to mission and technical objectives; a baseline assessment of the current network infrastructure with respect to network and service capabilities, capacity utilization, infrastructure requirements, operations, and implementation planning requirements; and identification of major gaps in the existing network status and future development plans.

#### **Task 2: Interoperability, Reliability, and Security Assessment**

- The Contractor shall meet with representatives of other key ministries (including the Ministry of Finance, the Ministry of Labor, Ministry of Regional Development, Ministry of Justice, and possibly others) who are currently using, or could use the SAITC/CoM network in the future; assess the current level of connectivity and interoperability of the ministry networks with that of the

SAITC/CoM and how it could be enhanced; determine future interoperability requirements for the planned integrated data networks (including standards, interface specifications, technology trends, multimedia services, etc.)

- The Contractor shall assess the current network and IT infrastructure of the above ministries (and others that may be identified by the Grantee); determine how their networks and technologies meet current needs, and conduct a requirements analysis for planned enhancements and upgrades.
  - o This analysis should assess the digital router-based network infrastructure in place among the ministries, the degree to which ministries are using TCP/IP on their intranets and WANs, and the potential of leveraging existing LAN and WAN infrastructure to maximize investment.
- The Contractor shall assess current institutional and organizational relationships (at the working level) between the Grantee and government ICT customers (ministries, agencies), outside operators/suppliers, and other organizations (including the EU and international donors).
  - o The Contractor shall particularly focus on the organizational, funding, operational, staffing and any and all factors that support or hinder SAITC's potential effectiveness as a government ICT network administrator and possible coordinator/leader for e-Government development.
- The Contractor shall also assess current and future Quality of Service (QoS) requirements and the potential for introducing service level agreements (SLA) between SAITC and its connectivity providers and/or end-users.
- The Contractor shall assess current security systems, develop a top level security architecture for the enhanced network (including, but not limited to, encryption, access control, hash & digital signature), and develop a set of policy, organization and implementation recommendations for the security system

**Deliverables:** The Contractor shall develop a Network Integration and Connectivity/Interoperability Report (including alternative scenarios where relevant); a Functional Requirements Analysis of Selected Ministries; an Institutional/Organizational Relationship Report, and a Security Assessment.

### **Task 3: Enterprise Architecture Development**

- Based on the technical conclusions from tasks 1 and 2, and on detailed discussions with the SAITC, the CoM, and other ministries/agencies, the Contractor shall develop the framework for the creation of a Government-wide Enterprise Architecture. This will be in the form of a set of processes and structures that will govern the development, coordination, implementation, and ongoing management of the national ICT network. The enterprise architecture should assure a well coordinated and effective implementation. It should also ensure that performance of the network and related initiatives align with national

e-government initiatives, that ICT resources are used effectively and responsibly, and that technology related risks are managed appropriately.

- This framework should include a guide for development of the overall direction, strategy, and management that will be necessary to evaluate, adopt, and implement an architecture strategy for a fully integrated government ICT network.
- The Contractor shall propose concrete measures to ensure that all involved entities buy into a shared organizational framework with clearly established processes, roles, and responsibilities, and that all initiatives are mutually supporting, compatible, and cost effective.
- The Contractor shall also propose the organizational structure (ideally a cross-ministerial body under SAITC leadership) that will manage the network and services implementation, e-government processes, citizen accessibility, and future requirements.

**Deliverable:** The Contractor shall provide an Enterprise Architecture Governance Model and Institutional Framework Guide for the Bulgarian National ICT Network. This report should integrate key technical/network elements and connectivity, interoperability, and capacity issues from tasks 1 and 2, into a broader management, institutional capacity, services organization and planning document.

#### **Task 4: Economic and Financial Analysis**

- The Contractor shall conduct an economic analysis of the project, which should provide information regarding economic contingencies, market conditions for technologies and network services, supply and sourcing agreements, alternative methods of achieving desired network functionality, or any other economic parameters that could impact on the potential successful implementation of the national ICT network.
- Based on data from the technical assessment and specifications, the Contractor shall develop overall cost estimates (broken down by main core infrastructure, equipment, and service categories) for the systematic roll-out implementation of the proposed integrated national ICT network.
- The Contractor shall assess the available sources of financing for the implementation of the nationwide ICT network, including platforms, applications, training and other aspects. This assessment should include, but not be limited to Bulgarian Government resources, EU Structural Funds, U.S. Ex-Im Bank, the World Bank, public-private partnerships, etc. The most likely sources of implementation financing for the project should be developed in more detail, covering modalities and eligible aspects of the network that could be financed by the respective source.



**Deliverable:** The Contractor shall produce an Economic and Financial Report. Both the economic and financial analysis prepared for the Grantee shall satisfy the requirements for prospective public, private and EU funding sources.

**Task 5: Developmental Impact Assessment**

- The contractor shall evaluate the development impacts (Infrastructure, Human Capacity Building, Technology Transfer and Productivity Improvement, Market-Oriented Reforms, and others) that would result should the project be implemented in accordance with the TA recommendations. The Contract shall also develop a preliminary methodology for assessing these impacts. These factors are intended to provide the Project's decision-makers and interested parties with a broader view of the Project's potential effects on Bulgaria.
- The Contractor shall specifically address each of the following categories:
  - **Infrastructure**  
The Contractor shall evaluate how the planned national ICT network will support and enhance local and national government services, including emergency services, and will improve the efficiency and security of the physical, financial and social infrastructure of the Host Country.
  - **Human Capacity Building**  
The Contractor shall assess the number and types of local positions that will be needed to develop the ICT network and, more generally, how implementation of the project will lead to new job opportunities, sustained employment, or advanced training to upgrade the capability of the workforce.
  - **Technology Transfer and Productivity Enhancement**  
The Contractor shall provide a brief description of the advanced technologies and licenses that will be utilized in the enhanced network as well as how the network might improve processes and/or systems which will stimulate greater economic productivity or allow more efficient use of resources.
  - **Market Oriented Reforms and Others**  
The Contractor shall assess the potential of the network to encourage more transparent regulatory systems and institutions, privatization of state-owned economic entities, promotion of greater competition in non-competitive economic sectors, lowering of non-tariff barriers to trade, etc. The Contractor shall also assess any additional benefits that may result from project implementation such as spin-off or replication projects, trends toward safer workplaces, enhanced good governance, and establishment of industry-related businesses.

**Task 6: Regulatory Review and Preliminary Environmental Analysis**

- The Contractor shall assess current Bulgarian law and EU regulations as they apply to the Grantee's current ICT, and future government-wide, network. The regulatory analysis shall include a review of the Bulgarian e-Government Program and recently passed E-Governance Law, and a discussion of how the program and Law, as well as other relevant policies and legislation (e.g. Law on Electronic Communications, Telecommunications Sector Policy), will impact the ICT network's viability or prognosis to move forward.
- The Contractor shall discuss any legal implications and/or constraints to development of a fully integrated national ICT government network, as well as any issues or barriers to the Grantee's role in the administration and management of the network.
  - o The analysis should also identify laws, regulations, or government decisions that might have to be implemented or modified in order to enable the broader, cross-government ICT network functionality or further empower the Grantee.
- The Contractor shall conduct a preliminary environmental analysis of the proposed national ICT network to ensure its consistency with applicable laws, regulations and standards in Bulgaria, and the EU, as well as with financing institutions such as the World Bank. The analysis shall identify potential negative environmental impacts, discuss the extent to which they can be mitigated, and develop plans for a full environmental impact assessment should the project move forward to the implementation stage.

**Task 7: Implementation and Procurement Plan**

- Based on the conclusions of Tasks 1 – 3, as well as relevant factors and/or constraints resulting from Tasks 4 – 6, the Contractor shall develop a high-level implementation plan for the National ICT Network, including an action plan of next steps that need to be taken by the Grantee and other government agencies that will interconnect with the network.
- The Contractor shall develop technical specifications and a high-level procurement plan of the core infrastructure and main equipment and services (e.g. IP routers, MPLS switches, optical core, Ethernet/metro optical switches, wired and wireless LAN equipment, network management and security systems, application servers, training, etc.) that would need to be acquired by the SAITC and participating agencies.
- The Contractor shall assist the Grantee in developing procurement documents. Specifically, the team will develop a format, conceptual framework, and guidelines for structuring requests for proposals (RFPs) from which the SAITC



can develop one or more RFPs suitable for the procurement of core ICT network components.

**Deliverables:** The Contractor shall develop the following: a High-level Implementation Plan; a Network Technical Specifications Document; and a High-level Procurement Plan in a sufficient level of detail for SAITC to develop one or more RFPs.

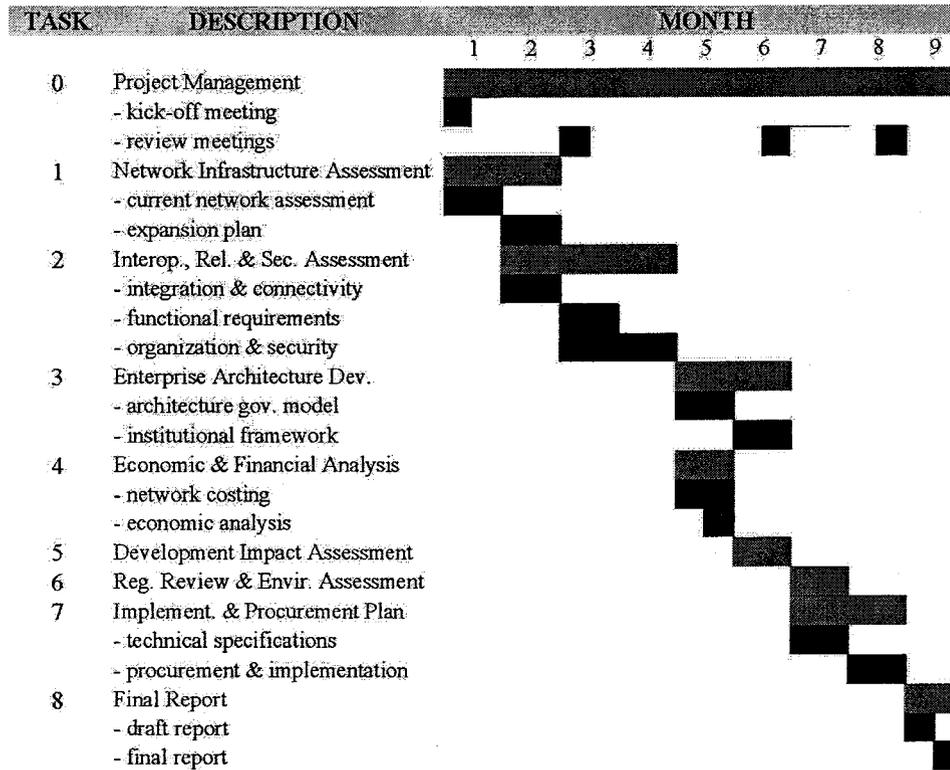
**Task 8: Final Report**

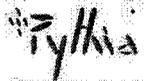
- The Contractor shall prepare and deliver to the Grantee and USTDA a substantive and comprehensive Final Report of all work performed under these Terms of Reference. The Final Report shall be organized according to the above tasks, and shall include all deliverables and documents that have been provided to the Grantee in connection with the performance of these tasks. The report shall incorporate all findings, recommendations, and conclusions of the TA.
- Within the Final Report, the Contractor shall identify prospective U.S. sources of supply, assess their capabilities, and include their business names, points of contact, addresses, and telephone and fax numbers.
- The Contractor shall ensure that the Final Report is prepared in accordance with Annex II, Clause I of the Grant Agreement.

Notes:

- (1) The Contractor is responsible for compliance with U.S. export licensing requirements, if applicable, in the performance of the Terms of Reference.
- (2) The Contractor and the Grantee shall be careful to ensure that the public version of the Final Report contains no security or confidential information.
- (3) The Grantee and USTDA shall have an irrevocable, worldwide, royalty-free, non-exclusive right to use and distribute the Final Report and all work product that is developed under these Terms of Reference.

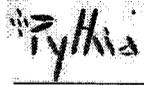
Task Completion Schedule



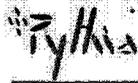


### K. Project Budget

Bulgaria National ICT Network Project Budget			
I. Labor	No. of Days	Daily Rate	Total
<b>Task 1 – Network Infrastructure Assessment</b>			
• Project Manager	10	1,600	16,000
• Network Engineer(s)	20	1,400	28,000
• Reliability, Interoperability & Security Engineer	4	1,300	5,200
• Enterprise Architecture Specialist	4	1,400	5,600
• Financial/Business Case Analyst	1	1,300	1,300
• Local Expert(s)	17	600	10,200
• Support Services	7	400	2,800
- Subtotal			\$69,100
<b>Task 2 – Interoperability, Reliability &amp; Security Assessment</b>			
• Project Manager	9	1,600	14,400
• Network Engineer(s)	10	1,400	14,000
• Reliability, Interoperability & Security Engineer	23	1,300	29,900
• Enterprise Architecture Specialist	5	1,400	7,000
• Financial/Business Case Analyst	1	1,300	1,300
• Local Expert(s)	10	600	6,000
• Support Services	8	400	3,200
- Subtotal			\$75,800
<b>Task 3 – Enterprise Architecture Development</b>			
• Project Manager	5	1,600	8,000
• Network Engineer(s)	4	1,400	5,600
• Reliability, Interoperability & Security Engineer	4	1,300	5,200
• Enterprise Architecture Specialist	22	1,400	30,800
• Financial/Business Case Analyst	2	1,300	2,600
• Local Expert(s)	10	600	6,000
• Support Services	3	400	1,200
- Subtotal			\$59,400
<b>Task 4 – Economic and Financial Analysis</b>			
• Project Manager	2	1,600	3,200
• Network Engineer(s)	2	1,400	2,800
• Reliability, Interoperability & Security Engineer	1	1,300	1,300
• Enterprise Architecture Specialist	2	1,400	2,800
• Financial/Business Case Analyst	11	1,300	14,300
• Local Expert(s)	3	600	1,800
• Support Services	2	400	800
- Subtotal			\$27,000
<b>Task 5 – Developmental Impact Assessment</b>			
• Project Manager	1	1,600	1,600
• Network Engineer(s)			
• Reliability, Interoperability & Security Engineer			
• Enterprise Architecture Specialist	1	1,400	1,400
• Financial/Business Case Analyst	8	1,300	10,400



Bulgaria National ICT Network Project Budget				
• Local Expert(s)	4	600	2,400	
• Support Services	2	400	800	
- Subtotal			\$16,600	
Task 6 – Regulatory Review and Preliminary Environmental Analysis				
• Project Manager	3	1,600	4,800	
• Network Engineer(s)	2	1,400	2,800	
• Reliability, Interoperability & Security Engineer	1	1,300	1,300	
• Enterprise Architecture Specialist	2	1,400	2,800	
• Financial/Business Case Analyst	5	1,300	6,500	
• Local Expert(s)	5	600	3,000	
• Support Services	2	400	800	
- Subtotal			\$22,000	
Task 7 – Implementation and Procurement Plan				
• Project Manager	7	1,600	11,200	
• Network Engineer(s)	6	1,400	8,400	
• Reliability, Interoperability & Security Engineer	5	1,300	6,500	
• Enterprise Architecture Specialist	5	1,400	7,000	
• Financial/Business Case Analyst	5	1,300	6,500	
• Local Expert(s)	8	600	4,800	
• Support Services	4	400	1,600	
- Subtotal			\$46,000	
Task 8 – Final Report				
• Project Manager	1	1,600	1,600	
• Network Engineer(s)	1	1,400	1,400	
• Reliability, Interoperability & Security Engineer	1	1,300	1,300	
• Enterprise Architecture Specialist	2	1,400	2,800	
• Financial/Business Case Analyst	3	1,300	3,900	
• Local Expert(s)	2	600	1,200	
• Support Services	8	400	3,200	
- Subtotal			\$15,400	
<b>Total I. Labor</b>			<b>\$331,300</b>	
II. Project Expenses		Per Unit Cost	Units	Total
• Travel Related Costs:				
- Airfare		2,200	10	22,000
- Local Travel & incidental				4,000
- Lodging and M&IE in Bulgaria		240	122	29,280
• Communications (tel., fax, internet)				2,000
• Miscellaneous (report production, photocopies, courier, etc.)				1,600
<b>Total II. Project Expenses</b>				<b>\$58,880</b>
<b>TOTAL PROJECT BUDGET</b>				<b>\$390,180</b>



### Budget Narrative

#### **Direct Labor**

*Project Manager* – Responsible for the overall relationship and deliverables on the project; provides technical direction and overall supervision and guidance to ensure successful completion of the terms of reference

- Estimated budget: 38 man-days at daily rate of \$1,600

*Network Engineer(s)* - Provides in-depth analysis on ICT network infrastructure and systems integration; acts as project lead on requirements analysis, expansion planning, implementation & procurement; highly experienced in IT/telecoms network deployment (emphasis on IP/MPLS, DWDM, ATM & SDH networks); one or two experts required, depending on Contractor competencies.

- Estimated budget: 45 man-days at daily rate of \$1,400

*Reliability, Interoperability & Security Engineer* – Conducts the connectivity & interoperability assessment; provides inputs on network expansion, integration & QoS issues; develops network security architecture (physical and cyber).

- Estimated budget: 39 man-days at daily rate of \$1,300

*Enterprise Architecture Specialist* – Develops the enterprise architecture governance model; provides or leads efforts on institutional framework development; supports & advises project team on technical, organizational, regulatory and financial issues; has over 15 years experience in enterprise architecture and e-government.

- Estimated budget: 43 man-days at daily rate of \$1,400

*Financial/Business Case Analyst* – Provides thorough analysis of the financial aspects of network implementation (capital & operational expenses, rate of return, cost models, etc.); acts as project lead on developmental impact assessment, regulatory and environmental analysis; has experience in ICT project environment.

- Estimated budget: 36 man-days at daily rate of \$1,300

*Local Experts* – Provide assistance with data gathering (technical, economic, organizational), network design, and implementation planning under the supervision of the project manager, network engineer(s), enterprise architecture specialist, and/or business case analyst.

- Estimated budget: 59 man-days at daily rate of \$600

*Support Services* – Contractor(s) administrative and project support staff, providing logistics (e.g. travel & meeting arrangements), general research, document preparation, etc.

- Estimated budget: 36 man-days at daily rate of \$400

#### **Project Expenses**

*Travel-related expenses* – International flights from the US to Bulgaria for the project consultants; ten flights at \$2,200. Local travel and incidental expenses: \$4,000. Lodging, meals, etc. in Bulgaria: \$29,280.

*Other expenses* – Communications (tel., fax, internet), report production, photocopies, courier, etc.; total cost: \$3,600.

## V. SOFIA MUNICIPALITY – ICT NETWORK ENHANCEMENT PROJECT

### A. Project Description and Background

The Municipality of Sofia has requested USTDA support in its efforts to upgrade its existing ICT network and to develop interconnectivity between the central and district offices of the Municipality. Specifically, USTDA has been asked to fund a feasibility study (FS) to define the parameters of the ‘Digital City’ project. Among the areas to be covered in the FS are the following:

- evaluate existing ICT infrastructure in Sofia and identify opportunities to integrate current capacity and connectivity (copper, FO cable, conduit, etc.) into an interoperable, city-wide system;
- assess the viability of building a single unified communication and information environment to allow efficient, transparent services to citizens and businesses;
- identify areas in which new technologies can be leveraged to enhance the core ICT network and to help the municipal government meet user needs;
- define the strategic and functional requirements, including costs and benefits, of network implementation and investment in order to achieve the city’s digital goals;
- develop an IT system which optimizes the administrative processes in the city, including inter- and intra-institutional processes, internal and external services, and new value added services.

Based on Pythia’s discussions with municipality officials, it was decided that the emphasis of the feasibility study should be on Sofia’s core ICT infrastructure, which is currently incapable of even connecting the central municipality to its district offices, much less running the city-wide applications and e-services currently being discussed. Once an interoperable ICT network is in place, Sofia Municipality will be much better positioned to outline and prioritize a broad range of services that meaningfully meet the needs of citizens and its strategic e-government goals. At a later stage, Sofia Municipality can also begin to develop alternate models for the establishment, ownership, operation, and management of the future system and/or sub-components, based on its organizational structure, institutional capacity, and relevant laws and regulations.

The USTDA feasibility study would outline the strategy and action plan for developing an integrated information technology and telecommunications infrastructure for the Municipality of Sofia, taking into account the municipality’s operations, dataflow, and security infrastructure. The FS should ensure that initiatives at the level of the municipality can properly integrate and interoperate with systems at the national level. The study would provide the municipality with the key inputs it requires to develop a comprehensive information systems and telecommunications policy. The FS would



define the coverage areas, assess interconnection approaches, and propose the core product service offerings for a metropolitan area telecommunications network - i.e. fiber optic ring to interconnect all municipal institutions, establishing a single, unified information and communication network for data, voice and video. It would propose an internal approach to network management and support, and would also examine approaches to opening the city's infrastructure to outside operators who could compete to provide various services.

The proposed ICT network project is part of Sofia Municipality's broader ambition to exploit new opportunities being opened up by developments in the field of information and communication technologies. In particular, over the past few years, the City's administration has been working actively to introduce concepts of e-government and to implement pilot e-services for its businesses and citizens. The City is undertaking many initiatives for optimizing its administrative processes as well as providing better quality services to its citizens. Based on the lessons learned from these recent implementations, as well as examples taken from other capital cities, Sofia Municipality now understands the need to take a more holistic approach towards organizing its information and communication system. The goal is to develop a single shared infrastructure capable of supporting all services. This approach would lead to substantial cost savings and would provide maximum control over the management of service quality.

As telecommunications are becoming the 5th Utility in the contemporary world, the City of Sofia is attempting to make the most of its existing capacity to implement a solid ICT infrastructure that will not only support the administrative needs of the municipality, but would also be opened to market agents who would compete to provide telecommunications, internet access, and content-based services based on objective criteria. This will ultimately boost the quality of the service offered by private internet providers, telecoms and cable TV operators, and other local service providers.

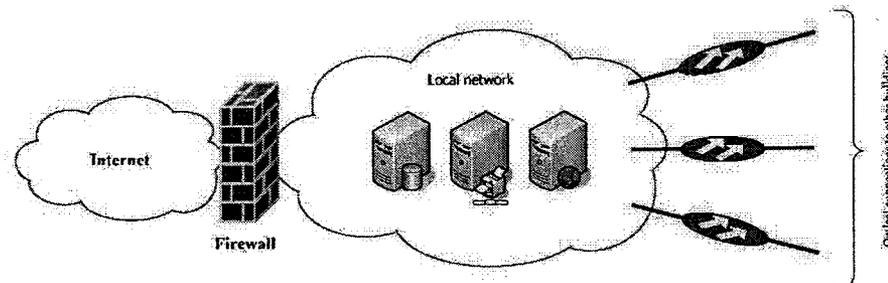
#### Brief Description of Current ICT Infrastructure (Central Sofia Municipality)

The Capital Municipality (CM) network is currently comprised of a number of smaller networks, physically located in different buildings in Sofia. The largest network is the city headquarters at 33 Moskovska Street. Connections between the municipal buildings are primarily via the city's own optical lines; however, one line is rented from BTC. The optic cables from other buildings are terminated on a special 'Horizon' switch with optic interfaces, located in the main building; other cables are connected through media converters. The cable system includes specialized cable rooms and cabinets, cable ducts, sockets, and patch-cables, all fully compliant with the TIA/EIA-568-B cabling standard; cable sockets and distribution panels are duly numbered, allowing for fast cable tracking.

The physical connections in the local network are provided by a combination of copper (category 5) and optical (single and multi-mode optical cables). The connection speed between buildings is 1 Gbps, and within the buildings 10/100/1000 Mbp. Two important

central municipality buildings are not currently connected with the main network; they have independent internet connectivity via ADSL through BTC, and DHCP addressing from the ADSL-modems. A third central municipality building, also outside the network, has a 2 Mbit/s optical internet connection from Net-IS-SAT.

*General Diagram of the Central Municipality Network*

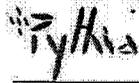


The local computer network of the Central Municipality is based on flat topology, rather than the hierarchical principle employed in most modern networks. While, in the past, use of flat topology enabled the Municipality to quickly and easily add new devices, performance problems will certainly be encountered as the network expands further. Therefore, the feasibility study will need to propose measures to efficiently reconfigure the network.

Currently, the network has no separate VLANs; all devices (servers, work stations, printers, active equipment, etc.) are located on a single, large broadcast domain, which also comprises the networks that are physically located in other buildings. (Developing a technical solution for segmenting the LAN system into separate sub-networks would be one of the tasks of the FS contractor.) The municipal buildings which do not have a direct connection to the main building use separate IP addresses. Orbitel is the main internet provider to the Sofia Municipality, providing a 10 Mbps optical connection.

Most of Sofia Municipality's active network equipment is from 3Com. However, various multiple-port switches from various manufacturers are used to connect workstations and printers. 3Com devices (primarily 3Com 4400 and 4200G) are located in a separate cabinet in the main cable room. A number of smaller switches (mostly 3Com 2024, 3Com2016, and FE DSA48G), which are not centrally controlled, are located in other municipal buildings. The total number of devices with IP addresses is about 420. A Linux server with a protection firewall for internet access is used as a default gateway. There is no separate specialized demilitarized zone (DMZ) comprising Web, Mail, and other services. Spanning tree protocol (a network protocol operating on Layer 2 of the OSI-model) is not in use at Sofia Municipality. Use of this protocol ensures protection against endless looping of local traffic, which, in turn, can lead to total network collapse.

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## B. Project Sponsors Capabilities and Commitment

Founded seven thousand years ago, Sofia, the capital of Bulgaria, is the second oldest city in Europe. Today the population of Sofia is approximately 1.23 million. The capital includes 24 administrative and territorial districts and 34 mayor-led councils. It covers territory of 1310 sq. km. Sofia is the largest city in Bulgaria and the 17th largest city in Europe.

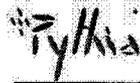
Recent reforms introduced by the local council have resulted in major changes in the structure and working style of the city's administration; a number of departments have been restructured and a more efficient, objectives-based, management approach has been introduced. Improving the efficiency of the local administration, and extending the service portfolio for citizens and businesses to provide timely, transparent services for citizens and business, are among the top priorities of Sofia Municipality. City officials fully understand the crucial role of ICT in accomplishing these goals. The planned unified ICT network is viewed by city officials as a key enabler of the Mayor's program to improve public safety and security, establish a 21st century education environment, and develop a modern healthcare system.

The City of Sofia has developed successful partnerships with several organizations in Bulgaria, most notably the Applied Research and Communications Fund (ARC Fund) - a think-tank and non-governmental organization with whom the city has jointly implemented successful projects in the past, including one funded by the World Bank's infoDev program for the development of a Municipal Government Management Information System. The Municipality of Sofia has successfully implemented a number of ICT initiatives with EU support and is currently in the final pilot phase of a one-stop-shop service delivery project, which entails the building of several customer service centers, where citizens can submit inquiries, requests and complaints and receive all documentation with only one approval, significantly reducing administrative red tape.

Enhancement of Sofia Municipality's ICT infrastructure, and expansion of the network to cover the district offices, is a crucial element in the development of the City's digital strategy. Recognizing this, Mayor Borissov is personally backing the initiative, and has officially requested USTDA assistance (see Annex 2: Letter of Request). The Mayor has also pledged to assure that the necessary financial resources, both internal and external, will be made available to realize this important project.

## C. Implementation Financing

Sofia Municipality has estimated the total cost of the required investment in software, hardware and services required to implement the enhanced ICT network for the city at between \$30 and \$35 million. The City of Sofia plans to undertake this investment by utilizing traditional financing mechanisms as well innovative financial instruments, such as public private partnerships. In particular, financing for the implementation phases of



the initiative will potentially be available from Sofia's municipal budget, European Union structural Funds through the local Operational Programs ("Regional Development" and "Administrative capacity"), the European Investment Bank, EBRD, the World Bank, and other financial institutions.

Sofia Municipality has the capacity to attract the necessary financial resources for the implementation of the proposed ICT network, a core component of the city's broader digital strategy. The annual budget of the Municipality amounts to roughly \$500 million. Sofia has been rated BB+ by Standard & Poors and has taken on borrowings of roughly \$120 million in recent years in order to finance infrastructure projects. The municipality is an eligible beneficiary of European Union structural funding, where the available amount for urban development (excluding road development projects) and administrative capacity optimization exceeds \$200 Million for the next 5 years.

Since 2006, Ex-Im Bank has had a Master Guarantee Agreement in place with the Bulgarian banks UBB and Postbank. Sofia Municipality could qualify for Ex-Im Bank funding under the sub-sovereign loan program. Ex-Im Bank could also facilitate vendor financing for U.S.-sourced networking equipment.

City officials are confident that implementation financing will be available should the feasibility study conclude that the proposed ICT network project is viable.

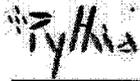
#### D. U.S. Export Potential

USTDA support of the proposed ICT network enhancement project for the Municipality of Sofia is fully justified by the significant export potential it represents for U.S. technology providers. Sofia Municipality and its advisors expect that project investments will total approximately \$33 million, of which over 90%, or about \$30 million, could potentially be supplied by U.S. vendors.

A rough breakdown of the major ICT network categories/components, and their respective potential for U.S. exports, is provided below:

<u>Category</u>	<u>Estimated U.S. Export Potential</u>
- IP & optical switching equipment	\$6,600,000
- Backbone & edge routers	\$3,300,000
- Servers & computing equipment	\$3,000,000
- Network management & inventory software	\$7,500,000
- Encryption devices/software, firewalls, etc.	\$2,100,000
- Provisioning systems & engineering services	<u>\$3,600,000</u>
<b>TOTAL</b>	<b>\$30,000,000</b>

Cisco has been a strong proponent of the ICT network enhancement project. Representatives from the company's Bulgarian office have advised officials at Sofia



Municipality on defining the key project elements, and were especially helpful to Pythia in carrying out the DM. Having provided Sofia Municipality with networking equipment and services in the past, Cisco is aware of the technical issues faced by the Municipality, and is uniquely qualified to participate in the implementation phase of the project. 3Com, which has been a major equipment supplier to the Municipality, has also expressed strong interest in the project.

Other major US equipment and service providers who could potentially contribute to the municipal ICT network include:

- ADVA Optical, Avaya, Avici Systems, Bay Networks, Cienna, Cortina Systems, Dell, HP, IBM, Infinera, IPC/Positron, Juniper, Mindspeed Technologies, Motorola, Polycycom, RAD, SAIC, Telcordia, Telllabs.

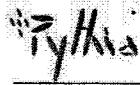
In addition, once the municipal ICT network has been implemented, significant U.S. export opportunities will be created for a wide range of applications and e-government services that will run over the network (e.g. e-taxation, e-procurement, e-permitting, etc.). A number of U.S. platform and software developers, including Microsoft, Oracle, Google, ESRI, Tumbleweed and others, maintain regional offices in Bulgaria and will be well placed to compete for these opportunities.

(U.S. content note: While the manufacturing of telecoms/electronic components is a global business, with parts and sub-assemblies sourced from all over the world, most U.S. telecoms equipment vendors continue to operate major assembly operations in the U.S.; the bulk of R&D activity is also centered in the U.S. Factoring in product concept and design, software components and licensing, and other intellectual property, the percentage of overall U.S. content is usually above 70%.)

### **E. Foreign Competition and Market Entry Issues**

While U.S. companies are strong players on the telecommunications market, they face fierce competition, primarily from major European equipment manufacturers. Alcatel, Ericsson, and Siemens have a strong presence in Bulgaria and have recently won a number of public procurements. Often, European vendors have a comparative advantage in Eastern Europe due to lower shipping costs, preferential customs duties treatment, and ready availability of grant funding and mixed credits. USTDA's funding of the proposed feasibility study for the Municipality of Sofia will help U.S. suppliers get in at an early stage of the city's planned national ICT network enhancement efforts and establish commercial relationships with the grantee, its partners, local private operators, and other local government agencies.

U.S. telecommunications equipment is very well-received on the Bulgarian market and a number of U.S.-based manufacturers, including Avaya, HP, Cisco, and 3Com, maintain a direct presence in the country. However, the Bulgarian market remains dominated by European producers such as Siemens, Ericsson, Nokia, and Alcatel.



## F. Developmental Impact

The proposed ICT network enhancement project for the Municipality of Sofia will provide substantial development benefits in the areas of public infrastructure, human capacity building, technology transfer and productivity enhancement, and market-oriented reforms. It will also significantly enhance the Sofia Municipality's ability to provide services to citizens and businesses.

Among the more important developmental benefits that the project will provide for Bulgaria are the following:

### Infrastructure

The ICT network enhancement project for the Municipality of Sofia will substantially improve the existing network and will allow the central municipality to interconnect with its district offices, resulting in the creation of a seamless, unified ICT infrastructure, accessible to city employees, citizens, and businesses throughout the city. The municipal ICT network will serve as the backbone of, and enabler for, a wide range of e-government services planned for Sofia, many of which will be implemented with the support of EU structural funds. The unified network concept/approach deployed in Sofia could also be replicated in other major cities in Bulgaria and interlinked at a national level.

### Human Capacity Building

The municipal ICT network will provide important benefits in human capacity building. Employees of the Municipality of Sofia will be trained to use the networking systems, resulting in an education about the use of advanced technologies but also in how integrated voice, data and information systems work. The project is expected to lead to at least 20 new jobs at Sofia Municipality, and will require extensive training of both technical and general administrative staff. Furthermore, the system will lead to fuller employment and enhanced skill sets for current IT personnel. At a later stage, the applications and services that will run over the network will require training of municipal clerks and administrative staff. The training and education obtained on networking technologies, applications, and e-services can also apply to other work (and personal use) areas and provide additional synergies.

### Technology Transfer and Productivity Improvement:

The enhanced municipal ICT network will bring state-of-the-art communications networking technologies to the Municipality of Sofia. It will also increase Internet access and usage, particularly in the outer districts, which are poorly served by the existing network. The ICT network will improve the municipal government's processes and systems, resulting in greater economic productivity and streamlined work procedures. Once implemented, the ICT infrastructure will allow employees of the municipality to interact more effectively with one another, as well with city residents. The applications that will later run over the municipal ICT network will also sharply increase the



productivity of Sofia's administrative staff and decrease the administrative time burden on citizens and businesses. The enhanced system will enable the municipality to improve tax collection, and to more efficiently respond to citizen requests for licenses, permits, etc. The system will also enable Sofia Municipality to interconnect with other national and local networks around the country, further expanding the use of these technologies and spreading the productivity enhancements.

#### Market Oriented Reforms

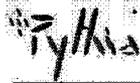
The city-wide ICT network will provide the platform for the launch of a number of planned e-government applications, which, in turn, will lead to more transparent, streamlined, and impartial public services. By opening up the municipal ICT network to outside operators based on objective service level requirements, the project is also expected to boost competition among service and content providers, leading to a more open and dynamic market for telecommunications and related services. Improved services to local businesses that the network will enable, will lead to more investment, an improved environment for trade, and to sustainable economic development.

### **G. Impact on the Environment**

Implementation of the proposed ICT network enhancement for the Municipality of Sofia will have no discernable negative impact on the environment, as it will be primarily deployed over existing city conduits and rights-of-way. To the contrary, the ICT network project is expected to have a positive impact on the environment. One of the project goals is to utilize the modern information and communication technologies that will be deployed in order to reduce pollution, noise and traffic congestion, and increase the safety and security of the citizens of Sofia. By creating a single, unified information system, the Municipality seeks to centralize information flows in order to produce the data necessary for monitoring and reporting on the environment. Sofia Municipality will seek to integrate data from different information systems that monitor environmental phenomena. The goal of such integration will be the ability to support policy in the areas of air and water pollution, carbon emissions, traffic, noise, etc. Moreover, the unified ICT infrastructure that will result from the project will enable the Municipality of Sofia to more effectively manage emergency situations and disaster response as well as to provide e-service tools to more effectively coordinate and/or manage routine activities such trash collection, waste-water control, road repairs, etc.

### **H. Impact on U.S. Labor**

Funding for the proposed municipal ICT project will result in the creation of U.S. jobs if major telecommunications equipment items such as switching, transmission, and distribution equipment, multiplexers, modems, packet switching equipment, processors and converters, CPE equipment, as well as systems integration and computer hardware



and software are purchased from U.S. manufacturers and engineering firms, which appears quite likely to be the case if USTDA funding is utilized.

In the proposed feasibility study for the enhanced ICT network project on behalf of the Sofia Municipality, the selected contractor will be providing assistance in network design and equipment specifications. Moreover, funding for the project will not result in the transfer of U.S. jobs to Bulgaria, nor will USTDA funding be utilized to assist in the development of an export-processing zone that could have an indirect negative impact on U.S. jobs.

### **I. Justification**

USTDA support for the proposed ICT network enhancement project is fully justified as it will fill a pressing and immediate need of Sofia Municipality, and will lay the groundwork for the development of e-government in the city. Development of this network is considered by Mayor Borissov and the local council to be a key strategic priority for the city, and the Mayor has personally requested USTDA assistance in this endeavour.

EU structural funds and other financing sources are readily available for Sofia's planned ICT network enhancement; however, before approaching these funds, the city must build a solid strategy and development plan. In order to access these funds for the network project, Sofia Municipality needs USTDA support for a feasibility study that will analyze the required investments and outline the implementation roadmap.

Within the EU operational program for 'administrative capacity', a significant amount of additional funding will be available to Sofia Municipality for e-government development and specific e-service applications. However, these funds generally do not cover infrastructure and hardware. The USTDA-funded project in support of the city's core ICT network, which will be the key enabler of these applications, will thus fill a major gap in Sofia's digital development.

The ICT network enhancement project will have a major developmental impact on the Municipality of Sofia as it will provide ICT network infrastructure to all areas of the city, leading to more efficient municipal government and better services to citizens and businesses. This will improve the business climate, leading to increased investment in the city. The project will directly lead to the creation of new jobs at the Municipality of Sofia and will require additional training for a number of existing employees.

The proposed ICT network project for Sofia Municipality will also be a major generator of U.S. technology exports. U.S. exports resulting directly from the project are estimated at \$30 million. USTDA support for the municipal network deployment will also create a level playing field for a number of U.S. vendors such as Cisco, 3Com, HP, and Tumbleweed, which have all shown a strong interest in the project.

## J. Terms of Reference

### Scope of Work

- Conduct a detailed assessment of the existing IT infrastructure for the Central and Regional Municipalities as well as other institutions of relevance to the project.
- Evaluate the services that are currently being provided over the network and review plans for future services and projects that need to be taken into consideration when planning the enhanced IT infrastructure.
- Determine the new IT infrastructure and network upgrade requirements – capacity, security, prioritization, etc. - that will be necessary to carry the current and newly planned services, taking into account the Municipality's short to medium term plans and budgets.
- Perform a connectivity assessment for the enhanced network, and recommend possible additional telecommunications infrastructure requirements to support the IT system and, possibly, to allow it to interconnect with other networks.
- Conduct an Economic and Financial analysis of the project, assess its developmental impacts, and perform a preliminary environmental analysis.
- Define the implementation planning process considering alternate scenarios for phased deployment, ensuring compatibility between legacy and/or newly proposed systems; identify constraints and limitations to be considered prior to deployment.
- Assist the Municipality of Sofia in preparing the procurement documents, and developing the evaluation methodology.

### Qualifications and Evaluation Criteria

The selected IT consulting company for this technical assistance contract should have a proven track record in the following areas:

- Experience in the analysis and evaluation of complex ICT networks, including systems migration, connectivity, interoperability, and security issues.  
[20 points]
- Experience in the design and integration of public sector ICT systems of a similar scope and complexity, with an emphasis on single unified network infrastructure.  
[20 points]
- Experience in infrastructure support, i.e. fiber optic networks, broadband, WANs, VPNs, IP telephony, wireless networking, video surveillance, multimedia, etc.  
[15 points]



- Experience in ICT project management, implementation planning, and project financing.  
[15 points]
- Experience in the procurement of municipal or state ICT networks and/or sub-systems, including RFP development and vendor evaluation.  
[15 points]
- Experience in conducting developmental impact, regulatory, and environmental assessments of ICT projects.  
[5 points]
- Experience in conducting similar ICT projects in the country and/or region.  
[10 points]

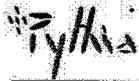


Description of Tasks

**Task 1: ICT Infrastructure, Services and Applications Assessment**

- The Contractor shall analyze the current network infrastructure, topology and approach being applied by the Municipality of Sofia, including network capabilities, service applications, current capacity and utilization. The analysis shall include both the logical and physical infrastructure.
  - o As part of the analysis, the Contractor shall seek to identify signs of duplication of infrastructure due to lack of centralized resource management.
- The Contractor shall conduct an assessment of the main software, applications, and network services that currently run on the municipal networks, and the infrastructure required to run them.
- The Contractor shall conduct an interoperability assessment of the systems in operation by the central and district/sector municipalities.
- The Contractor shall perform an analysis of Sofia Municipality's information security policy, types of data and resources, and respective expectations for protection of confidential data.
- The above analysis and assessment should be oriented towards Sofia Municipality's goal of building a Single Unified ICT Infrastructure that carries data, voice and video and allows for:
  - Centralized IT topology, enabling:
    - o centralized management and support of the network; central network monitoring and reporting system; centralized access to municipal resources and services; interoperability of all municipal resources; unified services such as e-mail, telephony, video conferencing, wireless and VPN access to network resources, etc.
  - Security requirements:
    - o Personal Data handling; Sensitive data handling; Internal rules for access and use of information

[Deliverables: The Contractor shall provide a report on the current state vs. desired state of municipal ICT infrastructure, focusing primarily on network services, information security, interoperability, network management and reporting, and availability and visibility aspects.]



**Task 2: Connectivity Assessment and Recommendations**

- The Contractor shall assess the connectivity needs of the central and district municipal offices based on network services and application requirements. Based on this assessment, the Contractor shall determine which type(s) of connectivity would be optimal for the Municipality and/or its district offices, and define the requirements.
- The Contractor shall conduct a survey of the connectivity options available on the Bulgarian market and perform a comparison based on: availability, reliability, security, and service level agreement (SLA) options.
- The Contractor shall assess requirements for any additional telecommunications infrastructure that might be required by the Municipality of Sofia to support new applications.
- The Contractor shall provide advice to the Municipality of Sofia on the contracting approach based on a detailed assessment of the Bulgarian market for Internet access and connectivity services (including key players, market practices, service offerings, future trends), and on the Municipality's institutional needs:
  - o Central vs. distributed approach (billing, SLA, price offering considerations)
  - o Pure connectivity vs. Internet service contract
  - o Mixed approach (Connectivity is contracted centrally, while Internet services are contracted individually by sub-institutions)
  - o Managed service contract

[Deliverables: The Contractor shall provide a report on connectivity needs and requirements, including an assessment of available connectivity offers on the market, providers, and conditions. The report shall include recommendations to the Municipality on what type(s) of connectivity or service to be contracted, contracting approach and relevant considerations.]

**Task 3: Network Architecture Development and Systems Design.**

- Based on the inputs from tasks 1 and 2, and the Grantee's goals and objectives, the Contractor shall develop a detailed design for an advanced municipal network, which is characterized by high reliability, availability, and security, and supports full interoperability with district municipal offices.
- The comprehensive network architecture and systems design should address the following elements and functionality:
  - Integrated WAN connectivity which allows for single management of data, voice and video. The WAN design should meet the following basic requirements:

- integrated security; integrated telephony and voice & video conferencing; integrated WAN optimization capability; integrated video surveillance and access control
- Centralized network management and support
- Centralized voice processing and management
- Centralized digital signage system
- System for traffic analysis and control/management
- Centrally managed network security:
  - Secure connectivity (VPN); Data Center (DC) security; Perimeter security; Content security; End-point security; Intrusion prevention
- Data Center design with respect to:
  - Security and data protection; Resiliency; Redundancy; Disaster recovery; High availability; Resource optimization and virtualization mechanisms; FCoE.
- Basic Services to be centrally supported in the DC:
  - Active Directory (LDAP); E-mail; Data Base; FTP (File sharing); Web server; DNS; Centrally managed applications

[Deliverables: The Contractor shall provide a detailed documented architecture design, which includes specifications for the core networking equipment, data center (DC), middleware, and software, and guarantees a working solution that meets all project goals. The architecture design and network specifications should be in sufficient detail to develop procurement documents.]

#### **Task 4: Implementation and Financing Plan**

- The Contractor shall develop overall cost estimates (broken down by main core infrastructure, equipment, and service categories) for the systematic roll-out implementation of the enhanced municipal ICT network.
- The contractor shall define the implementation process and timeline for deployment of the enhanced municipal ICT network, considering alternate scenarios for phased implementation of the system, and analyzing the cost/benefit of each.
- The contractor shall prepare a strategy to ensure compatibility between the Central and Regional Municipalities, incorporation of existing legacy systems, and integration of new components and sub-systems.
- The contractor shall identify constraints and limitations that should be identified and flagged for consideration during implementation.
- The contractor shall analyze economic contingencies, market conditions for technologies and network services, supply agreements, and alternative methods for achieving ICT network enhancement based on a Single Unified Network approach.



- The contractor shall analyze potential sources of financing for the municipal ICT network implementation. This analysis shall include prospective financing based on the Municipality of Sofia's operational budget as well resources available from national agencies, EU Structural Funds, U.S. Ex-Im Bank (both vendor financing and sub-sovereign loans), and multi-lateral development banks.

[Deliverable: The Contractor shall provide a report on implementation planning considerations, including an outline of alternate scenarios for implementation, a strategy to ensure compatibility, and constraints and limitations on implementation. The Report shall include an economic analysis and an assessment of likely sources of finance for the project.]

**Task 5: Developmental Impact Assessment and Environmental Analysis**

- The contractor shall evaluate the development impacts (Infrastructure, Human Capacity Building, Technology Transfer and Productivity Improvement, Market-Oriented Reforms, and others) that would result should the project be implemented in accordance with the TA recommendations. The Contract shall also develop a preliminary methodology for assessing these impacts. These factors are intended to provide the Project's decision-makers and interested parties with a broader view of the Project's potential effects on Bulgaria. The Contractor shall specifically address each of the following categories:
  - Infrastructure  
The Contractor shall evaluate how the planned municipal ICT network will support and enhance local government services and improve the efficiency and security of the physical, financial and social infrastructure of the Host Country.
  - Human Capacity Building  
The Contractor shall assess the number and types of local positions that will be needed to develop and enhance Sofia's ICT network and, more generally, how implementation of the project will lead to new job opportunities, sustained employment, or advanced training to upgrade the capability of the workforce.
  - Technology Transfer and Productivity Enhancement  
The Contractor shall provide a brief description of the advanced technologies and licenses that will be utilized in the enhanced network as well as how the network might improve processes and/or systems which will stimulate greater economic productivity or allow more efficient use of resources.
  - Market Oriented Reforms and Others  
The Contractor shall assess the potential of the network to encourage more transparent regulatory systems and institutions, privatization of state-owned economic entities, promotion of greater competition in non-competitive

economic sectors, lowering of non-tariff barriers to trade, etc. The Contractor shall also assess any additional benefits that may result from project implementation such as spin-off or replication projects, trends toward safer workplaces, enhanced good governance, and establishment of industry-related businesses.

- The Contractor shall conduct a preliminary environmental analysis of the proposed municipal ICT network enhancement project to ensure its consistency with applicable laws, regulations and standards in Bulgaria, and the EU, as well as with financing institutions such as the World Bank. The analysis shall identify potential negative environmental impacts, discuss the extent to which they can be mitigated, and develop plans for a full environmental impact assessment should the project move forward to the implementation stage.

#### **Task 6: Procurement Preparation Assistance**

- The consultant will assist the Municipality of Sofia to develop procurement documents which will assure delivery of a fully functional ICT network in conformity to the defined architecture and design. Specifically, the Contractor will develop a format, conceptual framework, and guidelines for structuring requests for proposals (RFPs) from which the Municipality can develop one or more RFPs suitable for the procurement of ICT systems and supporting infrastructure, as identified by the Municipality.
- The consultant will also assist in the preparation of methods for the preliminary evaluation of potential vendors (pre-selection criteria), proposal evaluation criteria, scoring methodology, and evaluation procedure documentation.

[Deliverable: The Contractor shall provide guidelines for developing RFPs, evaluation criteria, scoring methodology, and evaluation procedures.]

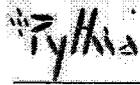
#### **Task 7: Final Report**

- The Contractor shall prepare and deliver to the Grantee and USTDA a substantive and comprehensive Final Report of all work performed under these Terms of Reference. The Final Report shall be organized according to the above 6 tasks, and shall include all deliverables and documents that have been provided to the Grantee in connection with the performance of these tasks. The report shall incorporate all findings, recommendations, and conclusions of the TA.
- Within the Final Report, the Contractor shall identify prospective U.S. sources of supply, assess their capabilities, and include their business names, points of contact, addresses, and telephone and fax numbers.
- The Contractor shall ensure that the Final Report is prepared in accordance with Annex II, Clause I of the Grant Agreement.

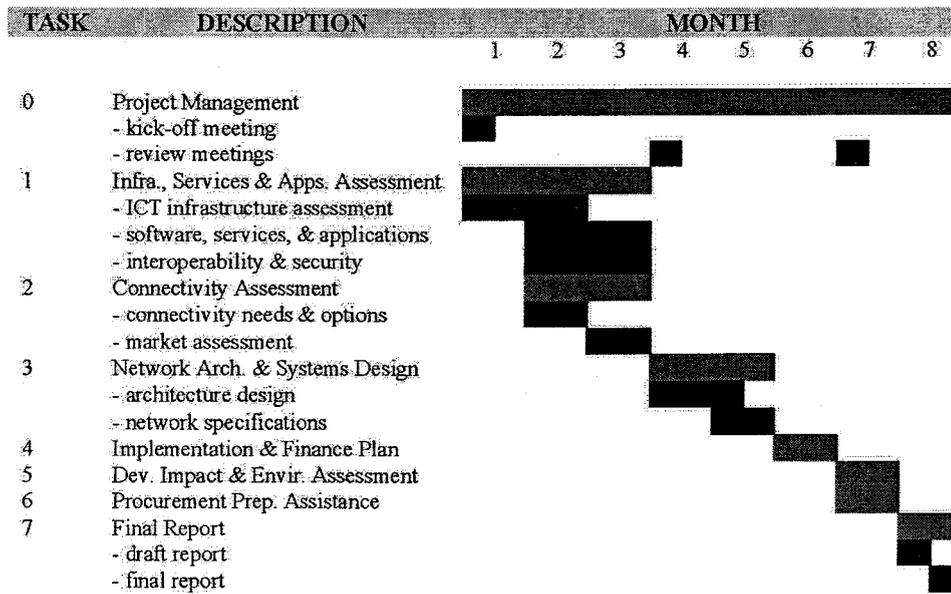


Notes:

- (1) The Contractor is responsible for compliance with U.S. export licensing requirements, if applicable, in the performance of the Terms of Reference.
- (2) The Contractor and the Grantee shall be careful to ensure that the public version of the Final Report contains no security or confidential information.
- (3) The Grantee and USTDA shall have an irrevocable, worldwide, royalty-free, non-exclusive right to use and distribute the Final Report and all work product that is developed under these Terms of Reference.



Task Completion Schedule





**K. Project Budget**

Sofia Municipality - ICT Network Enhancement Project Budget			
I. Labor	No. of Days	Daily Rate	Total
<b>Task 1 – ICT Infrastructure, Services &amp; Applications Assessment</b>			
• Project Manager	10	1,600	16,000
• Network Engineer	16	1,400	22,400
• Systems Analyst	8	1,400	11,200
• Connectivity & Network Security Specialist	7	1,400	9,800
• Financial & Business Analyst	3	1,200	3,600
• Local Expert(s)	18	600	10,800
• Support Services	9	400	3,600
- Subtotal			\$77,400
<b>Task 2 – Connectivity Assessment &amp; Recommendations</b>			
• Project Manager	5	1,600	8,000
• Network Engineer	6	1,400	8,400
• Systems Analyst	5	1,400	7,000
• Connectivity & Network Security Specialist	12	1,400	16,800
• Financial & Business Analyst	1	1,200	1,200
• Local Expert(s)	8	600	4,800
• Support Services	5	400	2,000
- Subtotal			\$48,200
<b>Task 3 – Network Architecture Development &amp; Systems Design</b>			
• Project Manager	8	1,600	12,800
• Network Engineer	14	1,400	19,600
• Systems Analyst	7	1,400	9,800
• Connectivity & Network Security Specialist	5	1,400	5,600
• Financial & Business Analyst	1	1,200	1,200
• Local Expert(s)	16	600	9,600
• Support Services	8	400	3,200
- Subtotal			\$61,800
<b>Task 4 – Implementation and Financing Plan</b>			
• Project Manager	5	1,600	8,000
• Network Engineer	6	1,400	8,400
• Systems Analyst	6	1,400	8,400
• Connectivity & Network Security Specialist	2	1,400	2,800
• Financial & Business Analyst	12	1,200	14,400
• Local Expert(s)	6	600	3,600
• Support Services	4	400	1,600
- Subtotal			\$47,200
<b>Task 5 – Developmental Impact Assessment &amp; Environmental Analysis</b>			
• Project Manager	3	1,600	4,800
• Network Engineer	3	1,400	4,200
• Systems Analyst	3	1,400	4,200
• Connectivity & Network Security Specialist	1	1,400	1,400



Sofia Municipality - ICT Network Enhancement Project Budget			
• Financial & Business Analyst	11	1,200	13,200
• Local Expert(s)	4	600	2,400
• Support Services	2	400	800
- Subtotal			\$31,000
<b>Task 6 – Procurement Preparation Assistance</b>			
• Project Manager	4	1,600	6,400
• Network Engineer	5	1,400	7,000
• Systems Analyst	4	1,400	5,600
• Connectivity & Network Security Specialist	2	1,400	2,800
• Financial & Business Analyst	4	1,200	4,800
• Local Expert(s)	6	600	3,600
• Support Services	4	400	1,600
- Subtotal			\$31,800
<b>Task 7 – Final Report</b>			
• Project Manager	1	1,600	1,600
• Network Engineer	1	1,400	1,400
• Systems Analyst	1	1,400	1,400
• Connectivity & Network Security Specialist	1	1,400	1,400
• Financial & Business Case Analyst	4	1,200	4,800
• Local Expert(s)	2	600	1,200
• Support Services	9	400	3,600
- Subtotal			\$15,400
<b>Total I. Labor</b>			<b>\$312,800</b>
<b>II. Project Expenses</b>	<b>Per Unit Cost</b>	<b>Units</b>	<b>Total</b>
• Travel Related Costs:			
- Airfare	2,200	8	17,600
- Local Travel & incidental			3,600
- Lodging and M&IE in Bulgaria	240	110	26,400
• Communications (tel., fax, internet)			1,800
• Miscellaneous (report production, photocopies, courier, etc.)			1,400
<b>Total II. Project Expenses</b>			<b>\$50,800</b>
<b>TOTAL PROJECT BUDGET</b>			<b>\$363,600</b>



### Budget Narrative

#### **Direct Labor**

*Project Manager* – Responsible for the overall relationship and deliverables on the project; provides technical direction and overall supervision and guidance to ensure successful completion of the terms of reference

- Estimated budget: 36 man-days at daily rate of \$1,600

*Network Engineer* - Provides in-depth analysis on ICT network infrastructure and topology; acts as project lead on requirements analysis, expansion planning, implementation and procurement; has over 15 years experience in IT and telecoms network deployment (emphasis on systems migration, interoperability, unified networks)

- Estimated budget: 51 man-days at daily rate of \$1,400

*Systems Analyst* – Works with the network engineer in ICT infrastructure assessment and implementation planning; acts as project lead in software applications and services assessment.

- Estimated budget: 34 man-days at daily rate of \$1,400

*Connectivity & Network Security Analyst* – Provides or leads efforts on network connectivity requirements and options; acts as project lead on connectivity market assessment; develops network security architecture (physical and cyber)

- Estimated budget: 30 man-days at daily rate of \$1,400

*Financial & Business Analyst* – Provides thorough analysis of the financial aspects of network implementation (capital & operational expenses, rate of return, cost models, etc.); acts as project lead on developmental impact assessment and environmental analysis; has experience in ICT project environment.

- Estimated budget: 36 man-days at daily rate of \$1,200

*Local Experts* – Provide assistance with data gathering (technical and/or economic), network design, and implementation planning under the supervision of the project manager, network engineer (and possibly the business analyst)

- Estimated budget: 60 man-days at daily rate of \$600

*Support Services* – Contractor(s) administrative and project support staff, providing logistics (e.g. travel & meeting arrangements), general research, document preparation, etc.

- Estimated budget: 41 man-days at daily rate of \$400

#### **Project Expenses**

*Travel-related expenses* – International flights from the US to Bulgaria for the project consultants; eight flights at \$2,200. Local travel and incidental expenses: \$3,600. Lodging, meals, etc. in Bulgaria: \$26,400.

*Other expenses* – Communications (tel., fax, internet), report production, photocopies, courier, etc.; total cost: \$3,200.

## ANNEX 1 – Glossary of Technical Acronyms

**Asymmetric Digital Subscriber Line (ADSL)** is a form of DSL, a data communications technology that enables faster data transmission over copper telephone lines than a conventional voiceband modem can provide. It does this by utilizing frequencies that are not used by a voice telephone call. A splitter - or microfilter - allows a single telephone connection to be used for both ADSL service and voice calls at the same time. Because phone lines vary in quality and were not originally engineered with DSL in mind, it can generally only be used over short distances, typically less than 4km.

**Dynamic Host Configuration Protocol (DHCP)** is a protocol used by networked devices (*clients*) to obtain the parameters necessary for operation in an Internet Protocol network. This protocol reduces system administration workload, allowing devices to be added to the network with little or no manual configuration.

A **demilitarized zone** (in computer security), named after the military usage of the term and normally abbreviated to **DMZ**; also known as a **demarcation zone** or **perimeter network**, is a physical or logical subnetwork that contains and exposes an organization's external services to a larger, untrusted network, usually the Internet. The purpose of a DMZ is to add an additional layer of security to an organization's Local Area Network (LAN); an external attacker only has access to equipment in the DMZ, rather than the whole of the network.

The **Domain Name System (DNS)** is a hierarchical naming system for computers, services, or any resource participating in the Internet. It associates various information with domain names assigned to such participants. Most importantly, it translates humanly meaningful domain names to the numerical (binary) identifiers associated with networking equipment for the purpose of locating and addressing these devices worldwide.

**File Transfer Protocol (FTP)** is a network protocol used to transfer data from one computer to another through a network such as the Internet. FTP is a file transfer protocol for exchanging and manipulating files over a TCP computer network. A FTP client may connect to a FTP server to manipulate files on that server.

**Fiber Channel over Ethernet (FCoE)** is a proposed mapping of Fibre Channel frames over selected full duplex IEEE 802.3 networks. This allows Fibre Channel to leverage 10 Gigabit Ethernet networks while preserving the Fibre Channel protocol. The specification is supported by a large number of network and storage vendors.

The **Internet Protocol Suite** (commonly **TCP/IP**) is the set of communications protocols used for the Internet and other similar networks. It is named from two of the most important protocols in it: the Transmission Control Protocol (TCP) and the Internet Protocol (IP), which were the first two networking protocols defined in this standard.

The **Lightweight Directory Access Protocol (LDAP)** is an application protocol for querying and modifying directory services running over TCP/IP. A directory is a set of objects with similar attributes organized in a logical and hierarchical manner. The most common example is the telephone directory, which consists of a series of names (either of persons or organizations) organized alphabetically, with each name having an address and phone number attached.

The **Open Systems Interconnection Basic Reference Model (OSI Model or OSI Seven Layer Model)** is an abstract description for layered communications and computer network protocol design. It was developed as part of the Open Systems Interconnection (OSI) initiative. In its most basic form, it divides network architecture into seven layers which, from top to bottom, are the Application, Presentation, Session, Transport, Network, Data-Link, and Physical Layers.

A **Service Level Agreement (SLA)** is a formally negotiated agreement between two parties. It is a contract that exists between customers and their service provider, or between service providers. It records the common understanding about services, priorities, responsibilities, guarantee, and such — collectively, the *level of service*. For example, it may specify the levels of availability, serviceability, performance, operation, or other attributes of the service like billing and even penalties in the case of violation of the SLA.

**TIA/EIA-568-B** is a set of three telecommunications standards from the Telecommunications Industry Association, a 1988 offshoot of the EIA. The standards address commercial building cabling for telecom products and services. The three standards are formally titled ANSI/TIA/EIA-568-B.1-2001, -B.2-2001, and -B.3-2001.

A **virtual LAN (VLAN)** is a group of hosts with a common set of requirements that communicate as if they were attached to the Broadcast domain, regardless of their physical location. A VLAN has the same attributes as a physical LAN, but it allows for end stations to be grouped together even if they are not located on the same network switch. Network reconfiguration can be done through software instead of physically relocating devices.

A **virtual private network (VPN)** is a computer network in which some of the links between nodes are carried by open connections or virtual circuits in some larger network (e.g., the Internet) instead of by physical wires. The link-layer protocols of the virtual network are said to be tunneled through the larger network when this is the case. One common application is secure communications through the public Internet, but a VPN need not have explicit security features, such as authentication or content encryption. VPNs, for example, can be used to separate the traffic of different user communities over an underlying network with strong security features.



**ANNEX 2 – Letter of Request**



**MAYOR OF SOFIA**

1000 Sofia,  
33, Moshkovska Str.  
Tel.: +359 02/ 987 35 79  
Fax: +359 02/ 981 97 83

**Mr. Daniel Stein**  
Regional Director, Europe Eurasia  
U.S. Trade and Development Agency  
FAX: +1 703 875 4009

Dear Mr. Stein

The City of Sofia is exploring the new opportunities being opened up by developments in the field of information and communication technologies. By 2010 we want to reengineer our ICT infrastructure to support our efforts in achieving what all big cities see as a challenge today – lower traffic and carbon emission, better control over pollution, noise and traffic congestion, increased safety and security of citizens.

With the current letter I hope to find in the face of USTDA a partner for the initial important step in achieving this – the preparation of a solid feasibility study that we expect will outline the strategy and action plan for establishing the Digital City of Sofia.

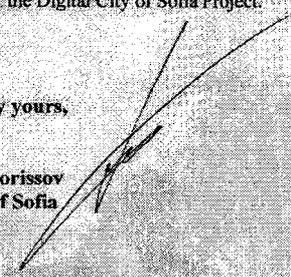
To assist you in your due diligence on our feasibility study proposal we attach a brief concept note.

We believe that this project represents continued opportunities for US companies to partner with Sofia in realizing our digital future. While we strictly follow our procurement guidelines, we are aware that US companies are among the global leaders in the hardware, software and services that our project would require.

I believe that the support of USTDA will create the necessary preconditions for the success of the Digital City of Sofia Project.

Sincerely yours,

**Boyko Borissov**  
Mayor of Sofia



## VI. SOFIA MUNICIPALITY 311 NON-EMERGENCY CALL CENTER

### A. Project Description and Background

The Municipality of Sofia is currently examining the economic and technical feasibility of developing a 311 non-emergency call center. This initiative is in line with the Municipality's 'digital city' objectives, and Bulgaria's e-government orientation. Once successfully deployed in Sofia, the system could then be duplicated and expanded into all major Bulgarian cities, leading to improved government efficiency and substantial developmental impacts on a national level.

U.S. solutions provider, Winbourne & Costas Inc., has been the main proponent of this initiative for Sofia Municipality. Discussions between the company's consultants and Sofia officials directly led to the request for USTDA technical assistance. Winbourne & Costas, which maintains a Bulgarian office, has designed and implemented 311 public service communications systems and operations since 1998. Its client base includes some of the largest jurisdictions in the U.S., including New York City, Philadelphia, and Washington DC.

311 systems, giving citizens easy, fast access to non-emergency government services using an easily remembered telephone number, have led to major improvements in the delivery of a wide-range of government services. The methods and thinking of how to deliver government services ranging from transportation to health to permitting and licensing is undergoing a transformation in the US and EU due to the role 311 systems are now playing in many large and small local governments.

Designing and implementing an efficient 311 system requires more than software and hardware. Considering that implementing and operating a 311 system is a 'transformational' undertaking for any municipal government and requires the involvement of experienced professionals, the initiative requires changes to not only the 'front-end' citizen access to services but more importantly a reengineering of the 'back-end' service delivery process by line agencies. Improving service delivery along the entire 'chain of delivery' is becoming an increasingly critical issue for public officials who are responsible to citizens with an ever rising service expectation level. 311 is a solution that provides a basis to meet those expectations. As the point of intake, and the initial point of contact with the citizen, the call center is a critical node in the delivery of service. Limited wait times, accurately handling or recording the citizen requests are the basis for a satisfied citizen. The main focus in the set-up of a 311 call center should be on the process of call handling and recording, including the staffing, procedures and technology required to make these processes effective.

Successful implementation of a state-of-the-art 311 call center system will provide Sofia Municipality with a number of benefits, among which are the following:



- Ensure Consistency of Government Message
- Track and Monitor Interaction with Constituents
- Provide Efficient Workflow for Staff Handoffs
- Reduce response time & improve staff efficiency

## B. Main TA Objectives

Design of the 311 Call Center should provide for maximum expansion and flexibility for future growth as the call volume increases. A brief white paper prepared by Winbourne & Costas for Sofia Municipality, discussed the main design, and project concept issues. Particular emphasis was placed on following internationally recognized best practices in implementing the system. Key elements of the white paper, along with other observations and considerations, are included in this section.

The proposed technical assistance (TA) for Sofia Municipality should define the parameters of the 311 call center and, in an initial stage, provide a system with the ability to provide minimal services for callers and providing 'walk-in' service to citizens needing forms and other information. In a second phase, the call center would incrementally expand its services to include all City agencies and services. 311 call services in this phase would include electronic service request capability, integration with Sofia Municipality's web page for information and service requests, established metrics for measuring the performance of city agencies based on the call data. These enhancements can be planned and implemented over time according to financial, technical and operational capabilities.

Using best practices is a key element for planning, implementing and managing a 311 system and the proposed TA for the Municipality of Sofia should include a survey of international best practices in 311 operations, technology, training, funding, process management, organization and personnel.

When implementing 311 citizen call service centers in major US cities, the mayors and other elected officials have established similar general goals to guide the planning and implementation. These goals include the following:

- Provide 'One Call to City Hall'. Make the experience of the citizen or visitor calling for city services or information transparent and easy.
  - Provide timely and accurate information to callers on City government services, activities and public announcements
  - Reduce the numbers of call transfers between offices, and caller patience
  - Eliminate the need for the caller to know which city agency to call for service
  - Establish a "closed loop" process for receiving and resolving service requests
  - Higher levels of citizen satisfaction



- Establish a basis to measure performance by city agencies in providing their services to citizens
  - The data collected by the call takers can be used to track and measure the performance of all city agencies, including public safety
  - Improvements in management processes resulting from management's ability to analyze patterns of consumption and efficiencies of City services.
  - Effective use of City resources.
  - Potential cost savings through consolidation of call taking activity
- Provide a communication capability for the City government to communicate with citizens when needed. Examples are public service/health announcement, changes in services, in emergencies, and special events
- Establish Call Center call taking, based on a 4 position call center

The TA should develop a phased project implementation approach to be adapted by the Municipality of Sofia in meeting all its short term and long term needs for communications with the city's residents and visitors. The initial suggestion of Winbourne & Costas was for a two-phased approach as follows:

- Phase One: Design and implement an initial 311 Call Center composed of call taking and walk-in services
- Phase Two: Enhancement of the Call Center to accommodate a full spectrum of municipal services and call volume from citizens and visitors requesting information and services

Among the main tasks that should be covered in the 311 call center technical assistance for the Municipality of Sofia are the following:

- Develop, design and manage 3-1-1 Public Services Intake Centers.
- Technology planning, integration and installation
- Benchmark best practices
- Reengineer operational processes
- Develop policies, regulations and organizational analysis
- Conduct staffing assessments and qualifications
- Assess non-emergency processes and standard operating procedures
- Develop cost analysis
- Develop RFP documents

### **C. Main Project Implementation Activities**

The TA would provide support to Sofia Municipality in coordinating the following main activities, possibly in coordination with a vendor:

#### Preliminary Planning Activities

1. Establish the project work plan, establish project milestones and schedule; form and assign roles and responsibilities for City Expert Working Group



2. Select the Call Center site, with consideration for future expansion to accommodate the Call Center (if possible with space to accommodate Watch Center and future Emergency Operations Center (EOC))
3. Determine any construction requirements, costs, and schedule. Keep these costs to a minimum, focusing mainly on electrical, cabling, equipment space, and cooling needs. Use City resources where possible
4. Initiate coordination with telephone operators, mobile and fixed for implementing 311 telephone number and other requirements for transmitting calls to the Center.
5. Obtain approval from Communications Regulatory Commission (CRC) for use of 311 telephone number
6. Plan Public Awareness/Education/Publicity campaign
7. Determine Call Center hours and days of operation
8. Begin transfer/hiring/selection process for call taking staff

#### Technical and Operational Design Activities

1. Review and re-clarify (if necessary) the project work plan, project milestones and schedule; roles and responsibilities for City Expert Working Group and vendor staff,
2. Clarify data, voice, and video communications needs and assess the supporting telecommunications and radio communications infrastructure for the Call Center  
Finalize technical solution and equipment-related Bill of Materials
3. Prepare drawings of Call Center floor and desktop layout
4. Prepare procurement documents to purchase the furniture, computers, telephones, and other equipment for the Call Center
5. Purchase equipment, schedule equipment installation by vendors
6. Coordinate with city agencies and private sector contractors for operational and communications requirements
  - 6.1. Road Repairs call
  - 6.2. Garbage Collection calls
  - 6.3. Utility Calls (water, sewage, electricity, gas, heating)
  - 6.4. City Government information (events, hours of operations, etc.)
7. Gather services-related data from city agencies and road repair, garbage collection, and utility vendors and prepare Knowledge Base
8. Design and build data base and call taker interface
9. Test Knowledge Base-data base application (limited to specified vendors and general city government information)
10. Clarify method for updating vendor and city government information
11. Prepare training plan for call takers and supervisor
12. Conduct training on equipment and knowledge base application

#### Implementation

1. Coordinate all vendor installation activities
2. Install furniture and equipment
3. Review test plans and test acceptance criteria
4. Perform product test and review results
5. Turn facility over to the City staff for ongoing operation



#### Required Call Center Equipment

A preliminary bill of materials required for initial deployment of the 311 Call Center is provided below:

- Air Conditioning unit
- Low voltage cabling for voice, data and video
- Furniture—workstations, tables and chairs
- Telephones, facsimile machine, and printer
- 5 Desktop computers
- One server for network connection. Additional equipment can be determined with City IT staff, based on connectivity to City WAN and to support Knowledge base applications, at City expense
- LCD Monitor for cable TV access (news and weather monitoring)
- Telephone connectivity (responsibility of City)

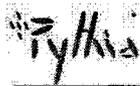
#### Planned Outcomes

The implementation approach for both the first day of operations and the eventual 'End-State Vision' is based on a single premise of providing easily accessible, more accountable, improved service delivery to citizens by the Municipality. The challenge is how to design an alternative to the current business practices that provides easy, transparent access to government services and is more responsive and accountable to citizen needs. The initial Call Center system should evolve over time to a more sophisticated system; setting expectations is a critical responsibility, especially at the initial stage of the project. Once the Call Center is launched and citizens start to use the 311 call number, the call volume is expected to increase dramatically. [For example in New York City the growth went from 3 million calls in the first year to nearly 15 million in the fourth year of the system. Thus, the possibility for rapid growth rate has to be accounted for in the initial design and later as additional services are added.]

Whereas the ultimate goal of a 311 system is to answer and handle all calls with a minimum of transfers to agencies, the initial functions of the Call Center would be limited to providing general city government information, accepting complaints and creating service requests related to the road repair, garbage collection, and utility providers, and transferring out the remainder of calls.

As the system matures over time, the 311 Call Center will handle more calls with 'one-call solutions'. These services include:

- Fewer calls transfers to city agencies
- New services such as providing callers with answers to frequently asked questions related to city services
- Sending service request from callers directly to city agencies



- Measuring city agency performance by established metrics, i.e. time to complete service request

#### Initial Implementation Schedule

A preliminary estimation for the design and implementation tasks is approximately five to six months from award of the contract. This time period, does not include time for construction renovations, but includes the following:

- Preliminary Planning Activities—Months 1-3
- Final Design—Month 4
- Procurement of equipment—Month 4
- Installation—Month—Month 5
- Product and Integration testing—Month 5
- Training—Month-5
- Turn-over to City management for ongoing operations—Month 6

#### **D. Project Budgeting and Financing Issues**

Based on the experience of US cities, the implementation cost for a fully functional, city-wide 311 Call Center in Sofia could be estimated at roughly \$4 million. [note: this does not include facility costs: i.e. building costs, renovation, furniture, etc.] The overall estimate is broken-down as follows:

- Start-up deployment for the system: \$3.2 million
  - includes design, implementation, software and equipment [switches, routers; application servers & network; database(s); computer hardware (PCs, etc.); systems integration.]
- Operating costs: \$800,000 (yearly basis)
  - includes personnel, maintenance, and call tariffs

As the implementation cost and US export potential in Sofia alone would not justify USTDA support for the project, an important part of the proposed technical assistance would to assess possibilities for replication and/or expansion of the system to cover the other major Bulgarian cities.

Funding for implementation of the 311 Call Center could be made available from EU Structural Funds under the Administrative Capacity and/or Regional Development Operational Programs.

For U.S. sourced call center hardware and software, US Ex-Im bank is able to provide vendor financing. In addition, a number of innovative mechanisms for financing call centers have been developed, including surcharges on telephone bills and other 'off-book' financing, public-private partnerships, etc. Examining these possibilities should also be a sub-task of the technical assistance project.



## VII. LIST OF KEY CONTACTS

### A. US Government Contacts

#### U.S. Embassy Sofia

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## **B. Bulgarian Government Contacts**

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Council of Ministers  
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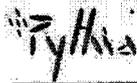
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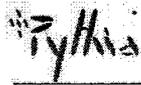


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**ANNEX 3**



**U.S. TRADE AND DEVELOPMENT AGENCY  
Arlington, VA 22209-2131**

**NATIONALITY, SOURCE, AND ORIGIN REQUIREMENTS**

The purpose of USTDA's nationality, source, and origin requirements is to assure 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, each of the following provisions shall apply to the delivery of goods and services funded by USTDA under this Grant Agreement: (a) for professional services, the Contractor must be either a U.S. firm or U.S. individual; (b) the Contractor may use U.S. subcontractors without limitation, but the use of subcontractors from host country may not exceed twenty percent (20%) of the USTDA Grant amount and may only be used for specific services from the Terms of Reference identified in the subcontract; (c) employees of U.S. Contractor or U.S. subcontractor firms responsible for professional services shall be U.S. citizens or non-U.S. citizens lawfully admitted for permanent residence in the U.S.; (d) goods purchased for implementation 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 (e) goods and services incidental to Study 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 standards of eligibility upon request.

**NATIONALITY:**

1) Rule

Except as USTDA may otherwise agree, the Contractor for USTDA funded activities must be either a U.S. firm or a U.S. individual. Prime contractors may utilize U.S.

subcontractors without limitation, but the use of host country subcontractors is limited to 20% of the USTDA grant amount.

## 2) Application

Accordingly, only a U.S. firm or U.S. individual may submit proposals on USTDA funded activities. Although those proposals may include subcontracting arrangements with host country firms or individuals for up to 20% of the USTDA grant amount, they may not include subcontracts with third country entities. U.S. firms submitting proposals must ensure that the professional services funded by the USTDA grant, to the extent not subcontracted to host country entities, are supplied by employees of the firm or employees of U.S. subcontractor firms who are U.S. individuals.

Interested U.S. firms and consultants who submit proposals must meet USTDA nationality requirements as of the due date for the submission of proposals and, if selected, must continue to meet such requirements throughout the duration of the USTDA-financed activity. These nationality provisions apply to whatever portion of the Terms of Reference is funded with the USTDA grant.

## 3) Definitions

A "U.S. individual" is (a) a U.S. citizen, or (b) a non-U.S. citizen lawfully admitted for permanent residence in the U.S. (a green card holder).

A "U.S. firm" is a privately owned firm which 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. individuals, 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, organized in the U.S. with its principal place of business in the U.S., may also qualify as a "U.S. firm" as would a joint venture organized or incorporated in the United States consisting entirely of U.S. firms and/or U.S. individuals.

A nonprofit organization, such as an educational institution, foundation, or association may also qualify as a "U.S. firm" if it is incorporated in the United States and managed by a governing body, a majority of whose members are U.S. individuals.

## SOURCE AND ORIGIN:

### 1) Rule

In addition to the nationality requirement stated above, any goods (e.g., equipment and materials) and services related to their shipment (e.g., international transportation and insurance) funded under the USTDA Grant Agreement must have their source and origin in the United States, unless USTDA otherwise agrees. However, necessary purchases of goods and project support services which are unavailable from a U.S. source (e.g., local food, housing and transportation) are eligible without specific USTDA approval.

### 2) Application

Accordingly, the prime contractor must be able to demonstrate that all goods and services purchased in the host country to carry out the Terms of Reference for a USTDA Grant Agreement that were not of U.S. source and origin were unavailable in the United States.

### 3) 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.*

**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 the State Agency for Information Technology and Communications ("Grantee"). USTDA agrees to provide the Grantee under the terms of this Agreement US\$390,180 ("USTDA Grant") to fund the cost of goods and services required for a feasibility study ("Study") on the proposed National ICT Network Project ("Project") in Bulgaria ("Host Country").

### 1. USTDA Funding

The funding to be provided under this Grant Agreement shall be used to fund the costs of a contract between the Grantee and the U.S. firm selected by the Grantee ("Contractor") under which the Contractor will perform the Study ("Contract"). Payment to the Contractor 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 Study ("Terms of Reference") are attached as Annex I and are hereby made a part of this Grant Agreement. The Study will examine the technical, financial, environmental, and other critical aspects of the proposed Project. The Terms of Reference for the Study shall also be included in the Contract.

### 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. The parties to this Grant Agreement and the Contractor shall observe these standards, which include not accepting payment of money or anything of value, directly or indirectly, from any person for the purpose of illegally or improperly inducing anyone to take any action favorable to any party in connection with the Study.

### 4. Grantee Responsibilities

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

## **5. USTDA as Financier**

### **(A) USTDA Approval of Competitive Selection Procedures**

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

### **(B) USTDA Approval of Contractor Selection**

The Grantee shall notify USTDA at the address of record set forth in Article 17 below upon selection of the Contractor to perform the Study. Upon approval of this selection by USTDA, the Grantee and the Contractor shall then enter into a contract for performance of the Study. The Grantee shall notify in writing the U.S. firms that submitted unsuccessful proposals to perform the Study that they were not selected.

### **(C) USTDA Approval of Contract Between Grantee and Contractor**

The Grantee and the Contractor shall enter into a contract for performance of the Study. This contract, and any amendments thereto, including assignments and changes in the Terms of Reference, must be approved by USTDA in writing. To expedite this approval, the Grantee (or the Contractor on the Grantee's behalf) shall transmit to USTDA, at the address set forth in Article 17 below, a photocopy of an English language version of the signed contract or a final negotiated draft version of the contract.

### **(D) USTDA Not a Party to the Contract**

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 contract and any amendments thereto, including assignments, the selection of all contractors, the Terms of Reference, the Final Report, and any and all documents related to any contract 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 Study and shall not be construed as making USTDA a party to the contract. 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 contract or any subcontract, 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

Contractor, or relieve the Contractor of any liability which the Contractor 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 contract or subcontract thereunder must be consistent with this Grant Agreement. In the event of any inconsistency between the Grant Agreement and any contract or subcontract funded by the Grant Agreement, the Grant Agreement shall be controlling.

**6. Disbursement Procedures**

**(A) USTDA Approval of Contract Required**

USTDA will make disbursements of Grant funds directly to the Contractor only after USTDA approves the Grantee's contract with the Contractor.

**(B) Contractor Invoice Requirements**

The Grantee should request disbursement of funds by USTDA to the Contractor for performance of the Study by submitting invoices in accordance with the procedures set forth in the USTDA Mandatory 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. Study Schedule**

**(A) Study Completion Date**

The completion date for the Study, which is February 28<sup>th</sup>, 2010, is the date by which the parties estimate that the Study will have been completed.

**(B) Time Limitation on Disbursement of USTDA Grant Funds**

Except as USTDA may otherwise agree, (a) 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 (b) all funds made available under the Grant Agreement must be disbursed within four (4) years from the Effective Date of the Grant Agreement.

## **9. USTDA Mandatory Clauses**

All contracts funded under this Grant Agreement shall include the USTDA mandatory clauses set forth in Annex II to this Grant Agreement. All subcontracts funded or partially funded with USTDA Grant funds shall include the USTDA mandatory clauses, except for clauses B(1), G, H, I, and J.

## **10. Use of U.S. Carriers**

### **(A) 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.

### **(B) 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.

## **11. Nationality, Source and Origin**

Except as USTDA may otherwise agree, the following provisions shall govern the delivery of goods and services funded by USTDA under the Grant Agreement: (a) for professional services, the Contractor must be either a U.S. firm or U.S. individual; (b) the Contractor may use U.S. subcontractors without limitation, but the use of subcontractors from Host Country may not exceed twenty percent (20%) of the USTDA Grant amount and may only be used for specific services from the Terms of Reference identified in the subcontract; (c) employees of U.S. Contractor or U.S. subcontractor firms responsible for professional services shall be U.S. citizens or non-U.S. citizens lawfully admitted for permanent residence in the U.S.; (d) 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 (e) goods and services incidental to Study 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 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. Neither the Grantee nor the Contractor will seek reimbursement from USTDA for such taxes, tariffs, duties, fees or other levies.

### **13. Cooperation Between Parties and Follow-Up**

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 (as defined in Clause I of Annex II), the Grantee agrees to respond to any reasonable inquiries from USTDA about the status of the Project.

### **14. Implementation Letters**

To assist the Grantee in the implementation of the Study, USTDA may, from time to time, issue implementation letters that will provide additional information about matters covered by the Grant Agreement. The parties may also use jointly agreed upon implementation letters to confirm and record their mutual understanding of matters covered by the Grant Agreement.

### **15. Recordkeeping and Audit**

The Grantee agrees to maintain books, records, and other documents relating to the Study and the Grant Agreement adequate to demonstrate implementation of its responsibilities under the Grant Agreement, including the selection of contractors, receipt and approval of contract deliverables, and approval or disapproval of contractor 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 Study and the Grant Agreement.

### **16. Representation of Parties**

For all purposes relevant to the 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 the Chairman of the State Agency for Information Technology and Communications. The parties hereto may, by written notice, designate additional representatives for all purposes under the Grant Agreement.

### **17. 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 a wire or electronic medium which produces a tangible record of the transmission, such as a telegram, cable or facsimile, and will be deemed duly given or sent when delivered to such party at the following:

To: State Agency for Information Technology and Communications  
6 Gurko Street  
Sofia  
Bulgaria

Phone: +359-2-949-2115  
Fax: +359-2-980-3810

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

All such communications shall be in English, unless the parties otherwise agree in writing. In addition, the Grantee shall provide the Commercial Section of the U.S. Embassy in Host Country with a copy of each communication sent to USTDA.

Any communication relating to this Grant Agreement shall include the following fiscal data:

Appropriation No.: 119/101001  
Activity No.: 2009-81009A  
Reservation No.: 2009810009  
Grant No.: GH2009810003

#### **18. Termination Clause**

Either party may terminate the Grant Agreement by giving the other party thirty (30) days advance written notice. The termination of the Grant Agreement will end any obligations of the parties to provide financial or other resources for the Study, except for payments which they are committed to make pursuant to noncancellable commitments entered into with third parties prior to the written notice of termination.

**19. 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.

**20. U.S. Technology and Equipment**

By funding this Study, 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.

**[THE REMAINDER OF THIS PAGE IS INTENTIONALLY LEFT BLANK]**

IN WITNESS WHEREOF, the Government of the United States of America and State Agency for Information Technology and Communications, each acting through its duly authorized representative, have caused this 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 the State Agency for Information  
Technology and Communications

By: 

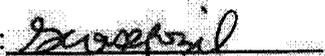
By: 

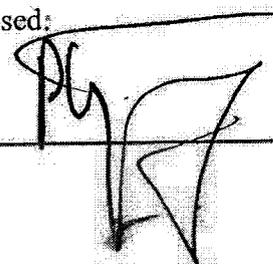
Date: \_\_\_\_\_

Date: \_\_\_\_\_

Witnessed:

Witnessed: \_\_\_\_\_

By: 

By: 

Annex I -- Terms of Reference

Annex II -- USTDA Mandatory Clauses

## Annex I

### **Terms of Reference**

#### **TASK 1: Network Infrastructure Assessment**

The Contractor shall meet with the State Agency for Information Technology and Communications (Grantee), and with representatives from the Council of Ministers (CoM) in Sofia to launch the Feasibility Study (FS). During this and subsequent sessions, the Contractor shall determine the status of the current networks of the two organizations, including existing coverage areas, main users, service types and objectives, data transmission speeds, technologies, equipment types and facility locations.

Based on inputs from the two organizations, the Contractor shall propose a plan and timetable for the full integration of the Grantee's national backbone network with CoM's metropolitan networks throughout the country, addressing both technical and organizational issues.

The Contractor shall gain a clear understanding of the Grantee's expansion plans for the combined network (including traffic volume, coverage areas and equipment under consideration) as well as possible barriers and constraints to these plans.

Another important area to be examined is the planned integration of private branch exchanges (PBXs) into the network via VoIP-based next-generation network (NGN) soft switches, which would allow free calls among State Institutions.

The Contractor shall assess the suitability of current technology and equipment to support the stated expansion plans of the combined Grantee/CoM network, and to upgrade it to a high-bandwidth, high-traffic capacity network (including future evolution towards NGN technology)

Deliverable: The Contractor shall develop a preliminary Grantee/CoM Network Assessment and Integration Plan, including: a definition of services and how they relate to mission and technical objectives; a baseline assessment of the current network infrastructure with respect to network and service capabilities, capacity utilization, infrastructure requirements, operations, and implementation planning requirements; and identification of major gaps in the existing network status and future development plans.

#### **TASK 2: Interoperability, Reliability, and Security Assessment**

The Contractor shall meet with representatives of other key ministries (including the Ministry of Finance, the Ministry of Labor, Ministry of Regional Development, Ministry of Justice, and possibly others) who are currently using, or could use the Grantee/CoM network in the future; assess the current level of connectivity and interoperability of the ministry networks with those of the Grantee/CoM and how it could be enhanced; and

determine future interoperability requirements for the planned integrated data networks (including standards, interface specifications, technology trends and multimedia services).

The Contractor shall assess the current network and IT infrastructure of the above ministries (and others that may be identified by the Grantee), determine how their networks and technologies meet current needs, and conduct a requirements analysis for planned enhancements and upgrades. This analysis shall assess the digital router-based network infrastructure in place among the ministries, the degree to which ministries are using TCP/IP on their intranets and WANs, and the potential of leveraging existing LAN and WAN infrastructure to maximize investment.

The Contractor shall assess current institutional and organizational relationships (at the working level) between the Grantee and government ICT customers (ministries, agencies), outside operators/suppliers, and other organizations (including the EU and international donors). The Contractor shall particularly focus on organizational, funding, operational and staffing matters, and any and all factors that support or hinder the Grantee's potential effectiveness as a government ICT network administrator and possible coordinator/leader for e-Government development.

The Contractor shall also assess current and future Quality of Service (QoS) requirements and the potential for introducing service level agreements (SLAs) between the Grantee and its connectivity providers and/or end-users.

The Contractor shall assess current security systems, develop a top-level security architecture for the enhanced network (including, but not limited to, encryption, access control, hash & digital signature), and develop a set of policy, organization and implementation recommendations for the security system.

Deliverables: The Contractor shall develop a Network Integration and Connectivity/Interoperability Report, including alternative scenarios where relevant. This shall include a functional requirements analysis of selected ministries, an institutional/organizational relationship report and a security assessment.

### **TASK 3: Enterprise Architecture Development**

Based on the technical conclusions from Tasks 1 and 2, and on detailed discussions with the Grantee, the CoM, and other ministries/agencies, the Contractor shall develop the framework for the creation of a Government-wide Enterprise Architecture. This will be in the form of a set of processes and structures that will govern the development, coordination, implementation, and ongoing management of the national ICT network. The Enterprise Architecture should ensure that implementation will be well-coordinated and effective. It should also ensure that performance of the network and related initiatives align with national e-government initiatives, that ICT resources are used effectively and responsibly, and that technology-related risks are managed appropriately. This framework should include a guide for development of the overall direction, strategy, and

management that will be necessary to evaluate, adopt, and implement an architecture strategy for a fully integrated government ICT network.

The Contractor shall propose concrete measures to ensure that all involved entities buy into a shared organizational framework with clearly established processes, roles, and responsibilities, and that all initiatives are mutually supporting, compatible, and cost effective.

The Contractor shall also propose the organizational structure (ideally a cross-ministerial body under Grantee leadership) that will manage the network and services implementation, e-government processes, citizen accessibility, and future requirements.

Deliverable: The Contractor shall develop an Enterprise Architecture Governance Model and Institutional Framework Guide for the Bulgarian National ICT Network. This report should integrate key technical/network elements and connectivity, interoperability, and capacity issues from Tasks 1 and 2 into a broader management, institutional capacity, services organization and planning document.

#### **TASK 4: Economic and Financial Analysis**

The Contractor shall conduct an economic analysis of the project, which should provide information regarding economic contingencies, market conditions for technologies and network services, supply and sourcing agreements, alternative methods of achieving desired network functionality, or any other economic parameters that could impact on the potential successful implementation of the national ICT network.

Based on data from the technical assessment and specifications, the Contractor shall develop overall cost estimates (broken down by main core infrastructure, equipment, and service categories) for the systematic roll-out implementation of the proposed integrated national ICT network.

The Contractor shall assess the available sources of financing for the implementation of the nationwide ICT network, including platforms, applications, training and other aspects. This assessment should include, but not be limited to, Bulgarian Government resources, EU Structural Funds, U.S. Ex-Im Bank, the World Bank and public-private partnerships. The most likely sources of implementation financing for the project should be developed in more detail, covering modalities and eligible aspects of the network that could be financed by the respective source.

Deliverable: The Contractor shall develop an Economic and Financial Report. Both the economic and financial analysis prepared for the Grantee shall satisfy the requirements for prospective public, private and EU funding sources.

## **TASK 5:     Developmental Impact Assessment**

The Contractor shall evaluate the development impacts that would result should the project be implemented in accordance with the FS recommendations. The Contractor shall also develop a preliminary methodology for assessing these impacts. These factors are intended to provide the Project's decision-makers and interested parties with a broader view of the Project's potential effects on Bulgaria. The Contractor shall specifically address each of the following categories:

### Infrastructure

The Contractor shall evaluate how the planned national ICT network will support and enhance local and national government services, including emergency services, and will improve the efficiency and security of the physical, financial and social infrastructure of the Host Country.

### Human Capacity Building

The Contractor shall assess the number and types of local positions that will be needed to develop the ICT network and, more generally, how implementation of the project will lead to new job opportunities, sustained employment, or advanced training to upgrade the capability of the workforce.

### Technology Transfer and Productivity Enhancement

The Contractor shall provide a brief description of the advanced technologies and licenses that will be utilized in the enhanced network as well as how the network might improve processes and/or systems which will stimulate greater economic productivity or allow more efficient use of resources.

### Market Oriented Reforms

The Contractor shall assess the potential of the network to encourage more transparent regulatory systems and institutions, privatization of state-owned economic entities, promotion of greater competition in non-competitive economic sectors, and lowering of non-tariff barriers to trade.

### Other Impacts

The Contractor shall assess any additional benefits that may result from project implementation such as spin-off or replication projects, trends toward safer workplaces, enhanced good governance, and establishment of industry-related businesses.

#### **TASK 6: Regulatory Review and Preliminary Environmental Analysis**

The Contractor shall assess current Bulgarian law and EU regulations as they apply to the Grantee's current ICT, and future government-wide, network. The regulatory analysis shall include a review of the Bulgarian E-Government Program and recently passed E-Governance Law, and a discussion of how the Program and Law, as well as other relevant policies and legislation (e.g., Law on Electronic Communications, Telecommunications Sector Policy), will impact the ICT network's viability or prognosis to move forward.

The Contractor shall discuss any legal implications and/or constraints to development of a fully integrated national ICT government network, as well as any issues or barriers to the Grantee's role in the administration and management of the network. The analysis shall also identify laws, regulations, or government decisions that might have to be implemented or modified in order to enable the broader, cross-government ICT network functionality or further empower the Grantee.

The Contractor shall conduct a preliminary environmental analysis of the proposed national ICT network to ensure its consistency with applicable laws, regulations and standards in Bulgaria and the EU, as well as with financing institutions such as the World Bank. The analysis shall identify potential negative environmental impacts, discuss the extent to which they can be mitigated, and develop plans for a full environmental impact assessment should the project move forward to the implementation stage.

#### **TASK 7: Implementation and Procurement Plan**

Based on the conclusions of Tasks 1 – 4, as well as relevant factors and/or constraints identified in Task 6, the Contractor shall develop a high-level implementation plan for the National ICT Network, including an action plan of next steps that need to be taken by the Grantee and other government agencies that will interconnect with the network.

The Contractor shall develop technical specifications and a High-level Procurement Plan of the core infrastructure and main equipment and services (e.g., IP routers, MPLS switches, optical core, Ethernet/metro optical switches, wired and wireless LAN equipment, network management and security systems, application servers, training) that would need to be acquired by the Grantee and participating agencies.

The Contractor shall assist the Grantee in developing procurement documents. Specifically, the Contractor will develop a format, conceptual framework, and guidelines for structuring requests for proposals (RFPs) from which the Grantee can develop one or more RFPs suitable for the procurement of core ICT network components.

Deliverables: The Contractor shall develop a High-level Implementation Plan, a Network Technical Specifications Document, and a High-level Procurement Plan in a sufficient level of detail for the Grantee to develop one or more RFPs.

#### **TASK 8: Final Report**

The Contractor shall prepare and deliver to the Grantee and USTDA a substantive and comprehensive Final Report of all work performed under these Terms of Reference. The Final Report shall be organized according to the above tasks, and shall include all deliverables and documents that have been provided to the Grantee in connection with the performance of these tasks. The report shall incorporate all findings, recommendations, and conclusions of the FS.

Within the Final Report, the Contractor shall identify prospective U.S. sources of supply, assess their capabilities, and include their business names, points of contact, addresses, and telephone and fax numbers.

The Contractor shall ensure that the Final Report is prepared in accordance with Annex II, Clause I of the Grant Agreement.

#### **Notes:**

- (1) The Contractor is responsible for compliance with U.S. export licensing requirements, if applicable, in the performance of the Terms of Reference.**
- (2) The Contractor and the Grantee shall be careful to ensure that the public version of the Final Report contains no security or confidential information.**
- (3) The Grantee and USTDA shall have an irrevocable, worldwide, royalty-free, non-exclusive right to use and distribute the Final Report and all work product that is developed under these Terms of Reference.**

## Annex II

### **USTDA Mandatory Contract Clauses**

#### **A. USTDA Mandatory Clauses Controlling**

The parties to this contract acknowledge that this contract 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 State Agency for Information Technology and Communications ("Client"), dated \_\_\_\_\_ ("Grant Agreement"). The Client has selected \_\_\_\_\_ ("Contractor") to perform the feasibility study ("Study") for the National ICT Network Project ("Project") in Bulgaria ("Host Country"). Notwithstanding any other provisions of this contract, the following USTDA mandatory contract clauses shall govern. All subcontracts entered into by Contractor funded or partially funded with USTDA Grant funds shall include these USTDA mandatory contract clauses, except for clauses B(1), G, H, I, and J. In addition, in the event of any inconsistency between the Grant Agreement and any contract or subcontract thereunder, the Grant Agreement shall be controlling.

#### **B. USTDA as Financier**

##### **(1) USTDA Approval of Contract**

All contracts funded under the Grant Agreement, and any amendments thereto, including assignments and changes in the Terms of Reference, 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 contract has been formally approved by USTDA or until the contract conforms to modifications required by USTDA during the contract review process.

##### **(2) USTDA Not a Party to the Contract**

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 this contract and amendments thereto, including assignments, the selection of all contractors, the Terms of Reference, the Final Report, and any and all documents related to any contract 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 financing the Study and shall not be construed as making USTDA a party to the contract. 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 contract or any subcontract, 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 Client or USTDA from asserting any right they might have against the Contractor, or relieve the Contractor of any liability which the Contractor 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 services funded by USTDA under the Grant Agreement: (a) for professional services, the Contractor must be either a U.S. firm or U.S. individual; (b) the Contractor may use U.S. subcontractors without limitation, but the use of subcontractors from Host Country may not exceed twenty percent (20%) of the USTDA Grant amount and may only be used for specific services from the Terms of Reference identified in the subcontract; (c) employees of U.S. Contractor or U.S. subcontractor firms responsible for professional services shall be U.S. citizens or non-U.S. citizens lawfully admitted for permanent residence in the U.S.; (d) 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 (e) goods and services incidental to Study 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 Contractor 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 contract. 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 contract term and for a period of three (3) years after final disbursement by USTDA. The Contractor 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 Contractor shall provide adequate Workman's Compensation Insurance coverage for work performed under this Contract.

#### **G. Reporting Requirements**

The Contractor 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 Study. In addition, if at any time the Contractor receives follow-on work from the Client, the Contractor shall so notify USTDA and designate the Contractor's contact point including name, telephone, and fax number. Since this information may be made publicly available by USTDA, any information which is confidential shall be designated as such by the Contractor and provided separately to USTDA. USTDA will maintain the confidentiality of such information in accordance with applicable law.

#### **H. Disbursement Procedures**

##### **(1) USTDA Approval of Contract**

Disbursement of Grant funds will be made only after USTDA approval of this contract. To make this review in a timely fashion, USTDA must receive from either the Client or the Contractor a photocopy of an English language version of a signed contract or a final negotiated draft version to the attention of the General Counsel's office at USTDA's address listed in Clause M below.

##### **(2) Payment Schedule Requirements**

A payment schedule for disbursement of Grant funds to the Contractor shall be included in this Contract. 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 contract performance milestones; and (3) the final payment may be no less than fifteen percent (15%) of the total USTDA Grant amount, payable upon receipt by USTDA of an approved Final Report in accordance with the specifications and quantities set forth in Clause I below. Invoicing procedures for all payments are described below.

##### **(3) Contractor Invoice Requirements**

USTDA will make all disbursements of USTDA Grant funds directly to the Contractor. The Contractor 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 Contractor for performance of the contract by submitting the following to USTDA:

**(a) Contractor's Invoice**

The Contractor's invoice shall include reference to an item listed in the Contract payment schedule, the requested payment amount, and an appropriate certification by the Contractor, as follows:

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

"As a condition for this mobilization payment, the Contractor certifies that it will perform all work in accordance with the terms of its Contract with the Client. To the extent that the Contractor does not comply with the terms and conditions of the Contract, including the USTDA mandatory provisions contained therein, it will, upon USTDA's request, make an appropriate refund to USTDA."

(ii) For contract performance milestone payments:

"The Contractor has performed the work described in this invoice in accordance with the terms of its contract with the Client and is entitled to payment thereunder. To the extent the Contractor has not complied with the terms and conditions of the Contract, including the USTDA mandatory provisions contained therein, it will, upon USTDA's request, make an appropriate refund to USTDA."

(iii) For final payment:

"The Contractor has performed the work described in this invoice in accordance with the terms of its contract with the Client and is entitled to payment thereunder. Specifically, the Contractor has submitted the Final Report to the Client, as required by the Contract, and received the Client's approval of the Final Report. To the extent the Contractor has not complied with the terms and conditions of the Contract, including the USTDA mandatory provisions contained therein, it will, upon USTDA's request, make an appropriate refund to USTDA."

**(b) Client's Approval of the Contractor's Invoice**

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

(ii) For contract 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 Contractor have been performed satisfactorily, in accordance with applicable Contract 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 Contractor have been performed satisfactorily, in accordance with applicable Contract provisions and terms and conditions of the USTDA Grant Agreement. The Final Report submitted by the Contractor has been reviewed and approved by the Client. "

**(c) USTDA Address for Disbursement Requests**

Requests for disbursement shall be submitted by courier or mail to the attention of the Finance Department at USTDA's address listed in Clause M below.

**(4) Termination**

In the event that the Contract is terminated prior to completion, the Contractor will be eligible, subject to USTDA approval, for reasonable and documented costs which have been incurred in performing the Terms of Reference prior to termination, as well as reasonable wind down expenses. Reimbursement for such costs shall not exceed the total amount of undisbursed Grant funds. Likewise, in the event of such termination, USTDA is entitled to receive from the Contractor all USTDA Grant funds previously disbursed to the Contractor (including but not limited to mobilization payments) which exceed the reasonable and documented costs incurred in performing the Terms of Reference prior to termination.

**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 Contractor shall provide the following to USTDA:

(a) One (1) complete version 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 Contractor 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) 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 Contractor to ensure that no confidential information is contained on the CD-ROMs.

The Contractor shall also provide one (1) copy of the Public Version of the Final Report to the Foreign Commercial Service Officer or the 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 Contractor who prepared the report, a report title, USTDA's logo, USTDA's mailing and delivery addresses. If the complete version of the Final Report contains confidential information, the Contractor shall be responsible for labeling the front cover of that version of the Final Report with the term "Confidential Version." The Contractor 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 mailing and delivery addresses, and USTDA's mission statement.

Camera-ready copy of USTDA Final Report specifications will be available from USTDA upon request.

(c) The Contractor 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 Contractor who prepared the report, a report title, and the following language:

“The Contractor certifies that this CD-ROM contains the Public Version of the Final Report and that all contents are suitable for public distribution.”

(d) The Contractor 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 shall be included for Contractor 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 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.

#### **J. Modifications**

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

#### **K. Study Schedule**

##### **(1) Study Completion Date**

The completion date for the Study, which is February 28<sup>th</sup>, 2010, is the date by which the parties estimate that the Study 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 contract for goods and services which are provided prior to the Effective Date of the Grant Agreement; and (b) all funds made available under the Grant Agreement must be disbursed within four (4) years from the Effective Date of the Grant Agreement.

## **L. Business Practices**

The Contractor agrees not to pay, promise to pay, or authorize the payment of any money or anything of value, directly or indirectly, to any person (whether a governmental official or private individual) for the purpose of illegally or improperly inducing anyone to take any action favorable to any party in connection with the Study. The Client agrees not to receive any such payment. The Contractor and the Client agree that each will require that any agent or representative hired to represent them in connection with the Study will comply with this paragraph and all laws which apply to activities and obligations of each party under this Contract, including but not limited to those laws and obligations dealing with improper payments as described above.

## **M. USTDA Address and Fiscal Data**

Any communication with USTDA regarding this Contract 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.:	119/101001
Activity No.:	2009-81009A
Reservation No.:	2009810009
Grant No.:	GH2009810003

## **N. Definitions**

All capitalized terms not otherwise defined herein shall have the meaning set forth in the Grant Agreement.

**O. 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. Neither the Client nor the Contractor will seek reimbursement from USTDA for such taxes, tariffs, duties, fees or other levies.