

**Achievement of Market-Friendly Initiatives and Results Program  
(AMIR 2.0 Program)  
Funded by  
U.S. Agency for International Development**

**Memorandum of Understanding  
Implementation of E-Government Information Portal  
Final Report**

**Deliverable for ICTI Component, Workplan Activity No. 432.1.2  
Consultancy Agreement No. 278-C-00-02-00210-00**

*September 2003*

*This report was prepared by DevIS, in collaboration with Chemonics International Inc., prime contractor to the U.S. Agency for International Development for the AMIR Program in Jordan.*

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E-Gov Portal Jordan MOU dated September 18, 2003

**Memorandum of Understanding  
Implementation of E-Government Information Portal**

Date: September 18, 2003

**Preamble**

This Memorandum of Understanding (hereinafter referred to as the “MOU”) is entered on the date stated above by and between the Government of the Hashemite Kingdom of Jordan’s Ministry of Information and Communications Technology (hereinafter referred to as the “MoICT”) and the Achievement Market-Friendly Initiatives and Results Program (hereinafter referred to as “AMIR Program”), together collectively known as “Parties” to this MOU and listed in Appendix A hereto, which may be amended to add additional Parties. All financial matters involving the Parties in this MOU will be referenced under separate agreements.

WHEREAS, the MoICT is mandated to implement the national information technology (IT) strategy and related programs and, seeks to and has expressed interest in implementing the E-Government Information Portal.

WHEREAS, the AMIR Program, established by contract no. 278-C-00-02-00210-00 (hereinafter referred to as the “Contract”) between U.S. Agency for International Development/ Jordan (hereinafter referred to as “USAID”), seeks to assist in bridging the digital divide in Jordan, particularly to involve Jordanian youth to expand connectivity and to enable communities to employ information technology to stimulate economic development, all consistent with the Contract, and has also expressed interest in supporting the implementation of the Jordan E-Government Information Portal.

NOW, THEREFORE, MOICT and the AMIR Program agree as follows:

**Article I. Entire Agreement and Amendment**

This MOU shall constitute the entire Memorandum of Understanding between the Parties, and it may be amended at any time by the written amendment(s) by all Parties that have not previously terminated their participation in this MOU.

**Article II. Additional Parties to this MOU**

Additional Parties beyond those listed above and in Appendix A hereto may be added to this MOU by written amendment signed by all Parties that have not previously terminated their participation in this MOU.

**Article III. Effective Period of this MOU**

The effective period of this MOU (hereinafter referred to as the “Effective Period”) shall be from the date stated above until December, 31<sup>st</sup> 2005 or until terminated or extended in writing by all Parties that have not previously terminated their participation in this MOU.

**Article IV. Termination and Extension of this MOU**

Any party may terminate its participation in this MOU, with 30 days advance written notice from the terminating Party to the other Parties. Such termination of this MOU will end the obligations of the terminating Party hereunder. The Effective Period of this MOU may be extended by written amendment signed by all Parties that have not previously terminated their participation in this MOU.

**Article V. Mutually Agree Approach to Implementing the Jordan E-Government Information Portal**

The approach to implementing the Jordan E-Government Information Portal described in Appendix B hereto has been mutually agreed by all Parties and forms the basis for the commitments of each Party described below and in various subsequent Appendices hereto. The commitments of the parties below have been derived from the program description presented in Appendix G hereto.

**Article VI. Commitments of the MoICT under this MOU**

The commitments of the MoICT under this MOU are described in Appendix C hereto.

**Article VIII. Commitments of DOT under this MOU**

The commitments of DOT under this MOU are described in Appendix D hereto.

**Article IX. Commitments of the AMIR Program under this MOU**

The commitments of the AMIR Program under this MOU are described in Appendix E hereto.

**Article X. Communications**

Day to day verbal communication with respect to this MOU and any notice, request, document, or other communication related to the implementation of this MOU shall be in writing, in English, and shall be deemed given or sent when delivered to the Parties at the following addresses:

**To the MoICT:**

H.E. Dr. F. Zou’bi  
Ministry of Information and Communications Technology  
Amman,  
Jordan

9903 22292 Amman, Jordan  
Tel.: 962-6-585-9001  
Fax: 962-6-586-1059

**To the AMIR Program:**

Steve Wade  
Program Director  
66 Abdul Hameed Badees Street,  
P.O. Box 940503, Shmeisani, Amman  
11194 Jordan  
Tel: 962-6-566-1831 or 962-6-560-3599  
Fax: 962-2-560-3599

**IN WITNESS WHEREOF**, the MoICT and the AMIR Program, each acting through its duly authorized representative, have caused this MOU to be signed in their names and delivered as of the day and year first written above.

The MoICT:

By: \_\_\_\_\_

Name:

Title:

The AMIR Program

By: \_\_\_\_\_

Name:

Title:

Appendices:

- A The Parties
- B Mutually Agree Approach to implementing the Jordan E-Government Information Portal
- C The Jordan E-Government Information Portal description as of September 2003
- D Commitments of the AMIR Program
- E Commitments of MoICT

## **Appendix A**

### **The Parties**

The following Parties are parties to this MOU:

The Ministry of Information and Communications Technology, (MoICT)

The Achievement Market-Friendly Initiatives and Results Program, (AMIR Program)

## Appendix B

### Jordan E-Government Information Portal History and Status September 2003

May 2002 - AMIR delivers E-Government Portal Scope and Vision Document defining parameters of the project:

- Project defined as a ‘Consumer’ Information Portal targeting the delivery of government services information to Businesses, Citizens, and Government Employees
- Portal utilizes Commercial Content Management System (CMS) to management and presentation of information
- Organizational and Personnel Directory applications to be developed and integrated with Portal
- Local Jordanian IT firms employed to implement Portal
- Delivery of content envisioned as being one-way delivery of static information to users

Project Component Scope:

- Information Portal Project specifically designed to address only the Content Management component of the Enterprise Architecture
- CMS decision specifically made to be agnostic toward specifics of the Enterprise Architecture
- This modular approach allows larger architecture decisions to be outside of project scope

June 2002: Task Orders issued to 5 IQC firms to implement Portal Website:

- Task Order 1: **Estarta** – Portal Coordination
- Task Order 2: **STS** – Enterprise Directories
- Task Order 3, 4, & 5: **CNS Primus, ITG, & AlliedSoft** - G2G, G2B, & G2C Website Implementation

July 2002: Task Order 7 issued to STS to design and architect SGN, Email, and Portal Architecture as well as maintain and operate the Data Center

- TO 7 created to connect SGN with Portal Project
- STS to coordinate with Information Portal Team to ensure that CMS will run within target environment

Current Status:

- Information Architecture and Content Harvesting completed through March 2003
  - Current Task Orders closed out & document completion of IQC tasks
- CMS Implementation suspended in April 2003 due to inability of selected CMS to properly handle Arabic (CMS vendor has made full refund)
  - MoICT to procure new CMS due to architectural considerations
  - MoICT currently evaluating bids from RFP for new CMS
  - New CMS procurement expected October 2003
- Organizational and Personnel Directories dependent on selected CMS, etc.
- Several Secured Government Network implementation tasks remain open

## Appendix C

### Mutually Agreed Approach to Implementing Jordan E-Government Information Portal

#### Next Steps

- New Task Orders will be issued to IQC firms to deliver working GoJ Information Portal
- AMIR's priority is to implement Information Portal according to original Scope and Vision document:
- Project estimated @ \$900K
  - AMIR Budget = \$400K
  - MOICT to help fund remaining tasks and responsibilities

#### Next Steps – Remaining Project Areas:

- There are 4 major project areas remaining for the implementation of the E-Gov Information Portal
  - Portal Content
  - Enterprise Directories
  - Portal Platform Architecture
  - SGN Infrastructure

#### Next Steps – Division of Tasks:

- Most remaining tasks have a Design and a Development phase
  - Provides natural division for dividing responsibility
  - IQC firms produce deliverables to AMIR for completion and hand-off to MOICT
  - MOICT will Implement based on deliverables on MOICT Systems and Hardware
- AMIR assumes responsibility for Design Tasks; MOICT is responsible for Development and Implementation Tasks
  - MOICT will hire all 5 IQC firm for Development
  - IQC firms will produce deliverables for turnover to AMIR & MOICT
  - MOU set in place between AMIR & GoJ for turnover

#### Next Steps – Portal Content

- AMIR will issue Task Orders to IQC firms to finish Data Harvesting and Architecture for Portal
- Final Deliverable from AMIR will be CD containing final digitized content to be implemented in initial version of Website
- MOICT will contract same IQC firms to implement content into Website utilizing MOICT's Content Management System

#### Next Steps – Enterprise Directories

- AMIR will issue Task Orders to IQC firm to design architecture and system design for Enterprise Directories
- Final Deliverable from AMIR will be design documents
- MOICT will contract IQC firm to develop and implement Enterprise Directory from Design Document

Next Steps – Portal Architecture

- AMIR will issue Task Orders to IQC firm to design architecture and system design for Portal Platform
- Final Deliverable from AMIR will be design documents
- MOICT will contract IQC firm to develop and implement Portal Architecture

Next Steps – SGN Implementation

- AMIR will issue Task Orders to IQC firm to implement SGN components needed to support live implementation of Portal

## **Appendix D**

### **Commitments of the AMIR Program**

In support of the implementation of the Government of Jordan E-Government Information Portal, the AMIR Program will provide all manner of moral and facilitation support to ensure optimal and timely implementation of the support provided by the MoICT as described in Appendices C including any subsequent amendments thereto.

In support of the implementation of Government of Jordan E-Government Information Portal, the AMIR Program will do the following (subject to the approval of USAID):

Provide all deliverables and activities as defined in Task Orders issued to Jordanian Information Technology Firms as listed in Appendix F. All deliverables will be signed off as complete and correct by both the AMIR Program and MoICT. Acceptance sign-off is MoICT's agreement that the AMIR Program has successfully delivered the stated component per terms of this agreement and that MoICT agrees to begin fulfilling related tasks to fully perform related tasks to implement the project.

The specified Task Orders are:

Task Order 11: Estarta – E-Government Website Portal Coordinator

Task Order 12: CNS Primus – G2G E-Government Portal Web Site Design and Preparation

Task Order 13: AlliedSoft – G2C E-Government Portal Web Site Design and Preparation

Task Order 14: ITG – G2B E-Government Portal Web Site Design and Preparation

Task Order 15: STS – Enterprise Directories

Task Order 16: STS – E-Government Portal Implementation Services and Platform Design

## Appendix E

### Commitments of the MoICT

In support of the implementation of the Government of Jordan E-Government Information Portal, the MoICT will provide all manner of moral and facilitation support to ensure optimal and timely implementation of the support provided by the AMIR as described in Appendices C, including any subsequent amendments thereto. In support of the implementation of Government of Jordan E-Government Information Portal, the AMIR Program will do the following (subject to the approval of USAID):

- It is anticipated that MoICT will contract with the five local Information Technology (IT) firms that have been performing tasks on this project to continue with development activities through the implementation of this project. Doing this will increase the continuity and efficiency in the implementation of this project.
- In several cases, the IT firms will be delivering design documents to the AMIR Program as final deliverables to be signed for acceptance by MoICT. Following acceptance sign-off, MoICT assumes full responsibility for the development and implementation for components specified in the design document. Acceptance sign-off will be regarded by MoICT that AMIR has successfully completed the signed component per terms of this MOU.
- MoICT will procure and implement a Commercial Off-the-Shelf Content Management System (CMS) capable of hosting and operating the E-Government Information Portal.
- MoICT will fund IT firms to perform the following tasks related to the implementation of the Information Portal in the CMS:
  - Implement the defined Information Architecture in the CMS
  - Build content Templates for the CMS
  - Implement related workflow in the CMS
  - Populate the CMS with Content collected in all phases of the project by IT firms for G2G, G2B, and G2C portals
  - Integrate the CMS into the Portal Architecture
  - Provide all related documentation for work performed and documentation for maintenance and operations of the system
- AMIR will fund the design of Enterprise Directories as defined in Task Order 15 (Appendix F) with Design Documents and a Proof of Concept for each component. Following acceptance sign-off, MoICT will contract IQC IT firms to continue with the implementation of the Enterprise Directories as specified in the Task Orders.
- AMIR will fund the IT Firms to provide Implementation Services as defined in Task Order 16. MoICT will provide acceptance sign-off indicating their acceptance of the operating environment as documented and presented by the IT firm.
- AMIR will fund the IT Firms to provide designs for the IT platforms as defined in Task Order 16 (Appendix F). Following acceptance sign-off on the design documents, MoICT will engage IT Firm(s) to develop and implement each platform design as specified in the design documents.

## **Appendix F**

Task Orders issued by the AMIR Program Follow:

## **AMIR E-government IQC - Statement of Work -**

**Task Order 11:** *E-Government Portal Web Site Coordinator*

**Vendor:** *Estarta*

**Client Agency:** *Ministry of Information and Communications Technology, e-Government Programme Management Office (MoICT/PMO)*

**Client Project Manager:** *Mr. Fadi Mari, Egov Project Manager and Mr. Nour Bani, Egov Consultant*

### **Background**

Please read the document entitled **E-Government Portal Web Site - Background Information for IQC Firms**, which is to be considered an integral part of this scope of work. The Portal Coordinator role is described in the **Background Information for IQC Firms** and accompanying charts.

### **Introduction**

The AMIR program to acquire services from the vendor to fill the role of E-Government Portal Coordinator has issued this Task Order. As described in this scope the coordination role includes:

- Coordinating the overall E-Government Portal design and infrastructure configuration between all IQC firms.
  - Coordinating the E-Government Portal content harvesting for new content (from new GoJ Ministries)
  - Provide translation services for all content that has not been translated to Arabic
  - Provide Data Entry/Digitization of content on all content that is not in electronic format
- Provide Information Architecture Design in format such that templates can be created in the CMS and also documenting rationale for Content Categorization

### **Coordinating the Overall Portal Design**

The GoJ E-Government Portal will encompass sites for three target audiences of the GoJ: a G2B site for business users, a G2C site for citizen users, and a G2G site for government employee users. Each of those sites will be designed and implemented by a different IQC firm. When the portal is deployed on the Internet, the three sites must fit together to produce a professional on-line presence for the GoJ. Since this important work will be shared among five firms, an overall portal design coordinator is required to make sure that all parties are working toward a common goal – from both the information architecture and visual standpoints – and the resulting design fits together harmoniously. The Portal Coordinator must coalesce the Portal Team (i.e. E-gov IQC firms, MoICT/PMO Project Managers, Ministry/Agency Content Providers, and AMIR ICTI management) into an efficient and cooperative body for both the immediate needs and longer-term vision of the Portal.

The vendor will be responsible for filling the role of Portal Design Coordinator, insuring that the designs of the three sites produce the desired result, coordinating the designs of the participating firms, providing guidance to harmonize technical approaches of those firms when necessary, and reporting to Client Agency Project Management and to AMIR staff if integration or compatibility problems arise.

Other areas of coordination include, but may not be limited to:

- Normalization of the information architecture, the taxonomy of information and services offered on the portal as a whole and for all three sub-sites (G2B, G2C, and G2G).
- Normalization of content templates for the portal as a whole and for all three sub-sites.

## **Deliverables**

Tasks performed in this Task Order builds upon work performed by this vendor in Phase 1 of this project (Task Order was closed in April 2003). In all cases, the vendor should ensure that all work products created under this Task Order is consistent and compatible in format and structure with the work product produced in the previous phase.

Documentation on the various roles and procedures for vendors performing under the E-gov IQC were provided at an orientation session for awardees in June 2002. The vendor should propose a fixed price budget summarized for each milestone related deliverable in this Task Order. The vendor is requested to propose a plan for coordinating and minimizing the costs associated with the remaining tasks associated with all IQC firms for this phase of the project.

- An integrated plan for the Portal Web for all IQC firms to perform the tasks detailed in this SOW.
- Quality control review and management of content harvesting activities and broader implementation of distributed content management activities being implemented by other IQC vendors.
- Coordination of outreach by the three E-gov IQC information architecture vendors to all Ministries/Agencies to enable distributed content management.
- Documentation detailing the Information Architecture design for the E-government portal. This design will be used to define templates and features of the Content Management System. Documentation should also provide configurations and rationale for content categorization.
- Compact Disk containing all digitized content to be imported into the Content Management System containing all previously harvested content, newly harvested content collected as a result of this SOW, newly digitized content, and newly translated content. Content on the CD should be clearly identified and organized in a manner to easily facilitate import into the CMS. This CD represents the initial content to be displayed for the E-Government Portal.
- Delivery of all Paper-based content gathered during content harvesting with Ministries.
- Documentation for guidelines of policies and procedures for future content collection and refreshment, including workflows and approvals.
- Delivery of electronic graphics files used to create website look-and-feel.

## **AMIR E-government IQC - Statement of Work -**

**Task Order 12:** *G2G E-government Portal Web Site Design and Preparation*  
**Vendor:** *CNS Primus*  
**Client Agency:** *Ministry of Information and Communications Technology, e-Government Programme Management Office (MoICT/PMO)*  
**Client Project Manager:** *E-gov IQC Vendor Estarta coordinating and managing*

### **Background**

The Government-to-Government (G2G) Portal Web Site is an internal site intended to provide GoJ staff with a platform to find information and in future phases to serve as an integration platform for key initiatives and systems. Please read the document entitled **E-Government Portal Web Site - Background Information for IQC Firms**, which is to be considered an integral part of this scope of work. Also, please read **Task Order 1, “E-Government Portal Web Site Coordinator”** and **Task Order 2, “Enterprise Directory, Organization and Personnel Directory”** for further background on how the development of the three constituent sites (G2G, G2B, and G2C) will be developed in concert with the implementation of underlying portal technology infrastructure.

### **Introduction**

This task order has been issued by the AMIR program to acquire design and implementation services for the E-Government Portal G2G Site Design and implementation. The vendor should be prepared to represent the interests of G2G users and, over the course of the Task Order, arrive at an optimal design.

- Coordinate the E-Government G2G Portal content harvesting and system implementation.
- Improve information architecture.
- Coordinate translation services for G2G content with Portal Coordinator.
- Coordinate data entry/digitization services for G2G content with Portal Coordinator

### **Design the G2G Site**

The vendor will make refinements to E-Government Portal design documents which includes, but may not be limited to, the following elements:

- Information Architecture (see below)
- Description of similar sites that the G2G site will emulate
- Site Navigation and User Interaction Map
- Sample HTML pages showing how the look-and-feel supplied by the Portal Coordinator could best be implemented on the G2G site via the CMS.
- Site Maintenance Plan, showing integration with the CMS

- Who: Job titles of the personnel in each ministry responsible for maintaining content
- How: CMS templates, tools, and forms.
- When: Estimated level of effort required of maintenance personnel

### **Information Architecture**

A key element of a successful design will be in creating a quality information architecture. The design's information architecture should:<sup>1</sup>

- Clarify the mission, vision, and goals of a web site, balancing the needs of its sponsoring organization and the needs of its audiences.
- Clearly identify the site's users, and describe why they will use the site.
- Determine what content and functionality the site will contain.
- Specify how users will find information in the site by defining its organization, navigation, and labeling. Describe how the E-Government Portal search engine will index the site's content or metadata, and display links back to relevant content.
- Specify the site's visual design, making sure that content organization and searching requirements drive visual design, and not the other way around.
- Map out how the site will accommodate change and growth over time.

Information architecture requires consultations with the site's information producers and information consumers to determine the needs and perspectives of each.

### **Deliverables**

Tasks performed in this Task Order builds upon work performed by this vendor in Phase 1 of this project (Task Order was closed in April 2003). In all cases, the vendor should ensure that all work products created under this Task Order is consistent and compatible in format and structure with the work product produced in the previous phase.

Documentation on the various roles and procedures for vendors performing under the E-gov IQC were provided at an orientation session for awardees in June 2002. The vendor should propose a fixed price budget summarized for each milestone related deliverable in this Task Order.

#### Design and Information Architecture

- Improve information architecture.
- Refinements to Design Document (see **Design the G2G Site** above) providing initial information architecture.
- Coordinate the remaining E-Government G2G Portal content harvesting and system implementation.
- Coordinate translation services for G2G content with Portal Coordinator.
- Coordinate data entry/digitization services for G2G content with Portal Coordinator
- G2G Maintenance plan – document how the specific Portal content relative to G2G is to be maintained.

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<sup>1</sup> Adapted from: Rosenfeld and Morville, *Information Architecture for the World Wide Web*, Chapter 2.

- Provide quality control over G2G content.
- Ensure that all G2G content is formatted and organized and that it is successfully transferred to a CD created by Portal Coordinator to be used to populate the CMS.

## **AMIR E-government IQC - Statement of Work -**

**Task Order 13:** *G2C E-government Portal Web Site Design and Preparation*  
**Vendor:** *AlliedSoft*  
**Client Agency:** *Ministry of Information and Communications Technology, e-Government Programme Management Office (MoICT/PMO)*  
**Client Project Manager:** *E-gov IQC Vendor Estarta coordinating and managing*

### **Background**

The Government-to-Government (G2C) Portal Web Site is an internal site intended to provide GoJ staff with a platform to find information and in future phases to serve as an integration platform for key initiatives and systems. Please read the document entitled **E-Government Portal Web Site - Background Information for IQC Firms**, which is to be considered an integral part of this scope of work. Also, please read **Task Order 1, “E-Government Portal Web Site Coordinator”** and **Task Order 2, “Enterprise Directory, Organization and Personnel Directory”** for further background on how the development of the three constituent sites (G2C, G2B, and G2C) will be developed in concert with the implementation of underlying portal technology infrastructure.

### **Introduction**

This task order has been issued by the AMIR program to acquire design and implementation services for the E-Government Portal G2C Site Design and implementation. The vendor should be prepared to represent the interests of G2C users and, over the course of the Task Order, arrive at an optimal design.

- Coordinate the E-Government G2C Portal content harvesting and system implementation.
- Improve information architecture.
- Coordinate translation services for G2C content with Portal Coordinator.
- Coordinate data entry/digitization services for G2C content with Portal Coordinator

### **Design the G2C Site**

The vendor will make refinements to E-Government Portal design documents which includes, but may not be limited to, the following elements:

- Information Architecture (see below)
- Description of similar sites that the G2C site will emulate
- Site Navigation and User Interaction Map
- Sample HTML pages showing how the look-and-feel supplied by the Portal Coordinator could best be implemented on the G2C site via the CMS.
- Site Maintenance Plan, showing integration with the CMS

- Who: Job titles of the personnel in each ministry responsible for maintaining content
- How: CMS templates, tools, and forms.
- When: Estimated level of effort required of maintenance personnel

## Information Architecture

A key element of a successful design will be in creating a quality information architecture. The design's information architecture should:<sup>2</sup>

- Clarify the mission, vision, and goals of a web site, balancing the needs of its sponsoring organization and the needs of its audiences.
- Clearly identify the site's users, and describe why they will use the site.
- Determine what content and functionality the site will contain.
- Specify how users will find information in the site by defining its organization, navigation, and labeling. Describe how the E-Government Portal search engine will index the site's content or metadata, and display links back to relevant content.
- Specify the site's visual design, making sure that content organization and searching requirements drive visual design, and not the other way around.
- Map out how the site will accommodate change and growth over time.

Information architecture requires consultations with the site's information producers and information consumers to determine the needs and perspectives of each.

## Deliverables

Tasks performed in this Task Order builds upon work performed by this vendor in Phase 1 of this project (Task Order was closed in April 2003). In all cases, the vendor should ensure that all work products created under this Task Order is consistent and compatible in format and structure with the work product produced in the previous phase.

Documentation on the various roles and procedures for vendors performing under the E-gov IQC were provided at an orientation session for awardees in June 2002. The vendor should propose a fixed price budget summarized for each milestone related deliverable in this Task Order.

### Design and Information Architecture

- Improve information architecture.
- Refinements to Design Document (see **Design the G2G Site** above) providing initial information architecture.
- Coordinate the remaining E-Government G2C Portal content harvesting and system implementation.
- Coordinate translation services for G2C content with Portal Coordinator.
- Coordinate data entry/digitization services for G2C content with Portal Coordinator

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<sup>2</sup> Adapted from: Rosenfeld and Morville, *Information Architecture for the World Wide Web*, Chapter 2.

- G2C Maintenance plan – document how the specific Portal content relative to G2C is to be maintained.
- Provide quality control over G2C content.
- Ensure that all G2C content is formatted and organized and that it is successfully transferred to a CD created by Portal Coordinator to be used to populate the CMS.

**AMIR E-government IQC**  
**- Statement of Work -**

**Task Order 14:** *G2B E-government Portal Web Site Design and Preparation*  
**Vendor:** *ITG*  
**Client Agency:** *Ministry of Information and Communications Technology, e-Government Programme Management Office (MoICT/PMO)*  
**Client Project Manager:** *E-gov IQC Vendor Estarta coordinating and managing*

### **Background**

The Government-to-Government (G2B) Portal Web Site is an internal site intended to provide GoJ staff with a platform to find information and in future phases to serve as an integration platform for key initiatives and systems. Please read the document entitled **E-Government Portal Web Site - Background Information for IQC Firms**, which is to be considered an integral part of this scope of work. Also, please read **Task Order 1, “E-Government Portal Web Site Coordinator”** and **Task Order 2, “Enterprise Directory, Organization and Personnel Directory”** for further background on how the development of the three constituent sites (G2B, G2B, and G2B) will be developed in concert with the implementation of underlying portal technology infrastructure.

### **Introduction**

This task order has been issued by the AMIR program to acquire design and implementation services for the E-Government Portal G2B Site Design and implementation. The vendor should be prepared to represent the interests of G2B users and, over the course of the Task Order, arrive at an optimal design.

- Coordinate the E-Government G2B Portal content harvesting and system implementation.
- Improve information architecture.
- Coordinate translation services for G2B content with Portal Coordinator.
- Coordinate data entry/digitization services for G2B content with Portal Coordinator

### **Design the G2B Site**

The vendor will make refinements to E-Government Portal design documents which includes, but may not be limited to, the following elements:

- Information Architecture (see below)
- Description of similar sites that the G2B site will emulate
- Site Navigation and User Interaction Map
- Sample HTML pages showing how the look-and-feel supplied by the Portal Coordinator could best be implemented on the G2B site via the CMS.

- Site Maintenance Plan, showing integration with the CMS
  - o Who: Job titles of the personnel in each ministry responsible for maintaining content
  - o How: CMS templates, tools, and forms.
  - o When: Estimated level of effort required of maintenance personnel

## Information Architecture

A key element of a successful design will be in creating a quality information architecture. The design's information architecture should:<sup>3</sup>

- Clarify the mission, vision, and goals of a web site, balancing the needs of its sponsoring organization and the needs of its audiences.
- Clearly identify the site's users, and describe why they will use the site.
- Determine what content and functionality the site will contain.
- Specify how users will find information in the site by defining its organization, navigation, and labeling. Describe how the E-Government Portal search engine will index the site's content or metadata, and display links back to relevant content.
- Specify the site's visual design, making sure that content organization and searching requirements drive visual design, and not the other way around.
- Map out how the site will accommodate change and growth over time.

Information architecture requires consultations with the site's information producers and information consumers to determine the needs and perspectives of each.

## Deliverables

Tasks performed in this Task Order builds upon work performed by this vendor in Phase 1 of this project (Task Order was closed in April 2003). In all cases, the vendor should ensure that all work products created under this Task Order is consistent and compatible in format and structure with the work product produced in the previous phase.

Documentation on the various roles and procedures for vendors performing under the E-gov IQC were provided at an orientation session for awardees in June 2002. The vendor should propose a fixed price budget summarized for each milestone related deliverable in this Task Order.

### Design and Information Architecture

- Improve information architecture.
- Refinements to Design Document (see **Design the G2G Site** above) providing initial information architecture.
- Coordinate the remaining E-Government G2B Portal content harvesting and system implementation.
- Coordinate translation services for G2B content with Portal Coordinator.

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<sup>3</sup> Adapted from: Rosenfeld and Morville, *Information Architecture for the World Wide Web*, Chapter 2.

- Coordinate data entry/digitization services for G2B content with Portal Coordinator
- G2B Maintenance plan – document how the specific Portal content relative to G2B is to be maintained.
- Provide quality control over G2B content.
- Ensure that all G2B content is formatted and organized and that it is successfully transferred to a CD created by Portal Coordinator to be used to populate the CMS.

## **AMIR E-government IQC - Statement of Work -**

**Task Order 15: Enterprise Directories**

**Vendor: STS**

**Client Agency: Ministry of Information and Communications Technology, e-Government Programme Management Office (MoICT/PMO)**

**Client Project Manager: Mr. Fadi Mari, Egov Project Manager and Mr. Nour Bani, Egov Consultant**

### **Background**

Please read the document entitled **E-Government Portal Web Site - Background Information for IQC Firms**, which is to be considered an integral part of this scope of work.

The reader is also referred to the Enterprise Directory Requirements document produced by EDS that is also considered an integral part of this scope of work.

### **Introduction**

This task order has been issued by the AMIR program to acquire design services for the following E-Government Portal services: Network Operating System (NOS) Directory, Enterprise Directory, Personnel Directory, Organizational Directory, Commerce Directory, and Application/eServices Directory. This task order is illustrated in the box labeled IQC Firm 5 in the E-Government Portal Task Orders diagram found in the **Background Information for IQC Firms**. This Task Order describes these tasks:

#### **Design Enterprise Directories Services and Infrastructure Configuration**

- Coordinate the overall Enterprise Directory design, GoJ authentication systems, and support integration with E-government Web Portal tasks. Design must meet requirements for the design of the implementation the Content Management System as directed by the Portal Coordinator.
- Provide input as member of the Portal Team into the overall design of the E-government Web Portal including determining the best method for all GoJ staff to have some level of authenticated access to the G2G portal site.
- Design the Enterprise Directories Services for the GoJ:
  - Design GoJ NOS Directory in order to maintain Users and Resources
  - Design GoJ Organization Directory and Personnel Directory maintenance and query functions to all users to find people and organizations.
  - Design the GoJ E-Commerce Directory to authenticate external users and to provide future users with a personalized environment for their web experience.
  - Design Application/E-services Directory to allow future applications/services to authenticate in the portal.
- Fully implement and populate Pilot Ministry NOS Directory.

- Define and deliver a Proof of Concept for each directory design showing that each design is fully implement-able.

### **Design Enterprise Directory Services**

This task order requires the vendor to deliver an Enterprise Directory Service design which meets all the requirements in the EDS Enterprise Directory Requirements document. Enterprise Directory Services for the GoJ Secure Government Network (SGN) including should include (1) NOS Directory, (2) Commerce Directory, (3) Application/E-Services, (4) GoJ Organization Directory and (5) GoJ Personnel Directory. In addition to those requirements, at a minimum the design must specify a directory service that:

- Is a 100% LDAP-compliant
- Provides authentication services for all applications and services on the GoJ Secure Government Network (SGN)
- Manages the domain structure for the entire GoJ SGN.
- Acts as the main directory for government-wide email system
- Stores necessary in both English and Arabic

### **Design Query interface: Personnel Directory**

Personal information about GoJ users (name, employing agency, phone number, email, position, job title, etc) must be included in the Enterprise Directory design. Therefore, the Enterprise Directory can also serve as the data store for a Personnel Directory.

The vendor will design a Personnel Directory interface for the G2G site: a query which allows GoJ employees to search the Enterprise Directory by specifying search criteria such as name, email address, organization, or other personnel related information. The result of the search will be a display of the Enterprise Directory record for a GoJ employee. The Personnel Directory query interface will display data read-only. No editing is allowed through the Personnel Directory query interface.

### **Design Maintenance Interface: Personnel Directory**

The Personnel Directory must also include a maintenance interface to be deployed on the G2G site. The maintenance interface must allow a properly authenticated user to edit his or her personal information in the Enterprise Directory. Only data for the properly authenticated user may be edited through the maintenance interface. The authenticated user may edit only his or her own personal data.

The design must specify which data in the Enterprise Directory may be edited by an authenticated user. It is anticipated that, at a minimum, the following may be editable:

- Password
- English Name
- Arabic Name
- Phone number

The design should also specify which data will not be editable through the user maintenance interface and why.

### **Security Policy and Procedures**

In collaboration with the E-gov IQC vendor architecting the G2G site provide information and procedures for good password and security policies. System will adhere to security guidance as provided by MoICT/PMO and their security policies. This would include, but not limited to, the enforcement of password standards and other directory related maintenance tasks.

### **Design the GoJ Organization Directory**

The Organization Directory will provide public users (via G2B and G2C sites) and GoJ employees (via the G2G site) an interface through which they can identify GoJ organizations and how to contact those organizations, including physical addresses. The Organization Directory information on each GoJ organizational unit becomes a contact resource for the services, whether electronic or not, that are exposed via the Portal. Completion of Organizational Directory information is part of the “minimal portal content” requirement to be established for each of the 3 portal sub-sites (i.e. G2G, G2B, and G2C).

The Organization Directory is a service that provides contact information for all organizations in the GoJ. As GoJ services are added to the CMS each one must be linked to an organization. For example, ‘business registration’ services would map to MIT/CCD (Ministry of Industry and Trade / Company Controllers Directorate), and ‘duties and taxes’ would map to the Ministry of Finance and the Customs Service.

Designers of the Organization Directory and the Enterprise Directory must decide whether the Organization Directory can, or indeed should, use the Enterprise Directory for all or part of its data store. The vendor must also design a query interface and a maintenance procedure/interface for the Organization Directory. The query or view interface is needed for the G2B, G2C, and G2G sites to allow users to find information in the Organization Directory.

### **Organization Directory Query Interface**

The query interface for the Organization Directory will be shared among the G2G, G2B, and G2C sites. The query interface should allow users to enter searches for services and information in the Organization Directory and return non-personal contact information leading them to the information or services. Non-personal contact information means that the Organization Directory should not return the names of government employees, but should only provide central phone numbers and any existing web links. This will insure that the data quality of the Organization Directory is not tied to job placements of individuals and will be easier to maintain and more general in its usefulness.

### **Organization Directory Maintenance Interface**

The Organization Directory maintenance interface should ideally be designed to allow system administrators or individuals responsible for maintaining the Organization Directory at the ministry or agency level, to update their Organization Directory information. An overall design goal of the Web Portal is to distribute maintenance of content rather than require MoICT/PMO Portal Manager interaction. Maintainers of the Organization Directory should be authenticated

by the Enterprise Directory Service. Therefore, the maintenance interface design should be coordinated with the vendor responsible for the Enterprise Directory design. On the other hand if changes are deemed so infrequent for some elements (i.e. an Add or Name Change might be infrequent) then it might be handled by Portal Manager via Directory Service tools thus minimizing Web interface development.

## Activities and Deliverables

Tasks performed in this Task Order builds upon work performed by this vendor in Phase 1 of this project (Task Order was closed in April 2003). In all cases, the vendor should ensure that all work products created under this Task Order is consistent and compatible in format and structure with the work product produced in the previous phase.

Documentation on the various roles and procedures for vendors performing under the E-gov IQC were provided at an orientation session for awardees in June 2002. The vendor should propose a fixed price budget summarized for each milestone related deliverable in this Task Order.

### Design Enterprise Directories Services and Infrastructure Configuration

- Coordinate the overall Enterprise Directory design, GoJ authentication systems, and support integration with E-government Web Portal tasks. This task should include time and resources to participate in the design and provide input into the E-government Web Portal design.
- An implementation plan for the Enterprise Directories and related services including milestones and dates for review of project progress.
- Design Enterprise Directories Services as defined below. The Vendor should provide a separate document for each Directory defining the directory design for each Directory in addition to documenting work performed for each task.
  - **(1) NOS Directory:**
    - Analysis
      - Define NOS Dir Scope
      - Workshop at MoICT to discuss
      - Select Pilot Ministry
      - Approve NOS Dir Scope
      - Survey/Fact Finding at Pilot Ministry
      - Gap Analysis & Report
      - Gap Addressed
    - Design
      - Design NOS Directory for Pilot Ministry
      - Workshop at Ministry
      - Refine Design Document
      - Approve Design
    - Implement & Test
      - Execute NOS Dir for Pilot Ministry
      - Test Plan

- Test & Fix
    - Approve Implementation
    - Publish NOS Policy
    - Produce NOS Policy Documentation
    - Rollout Plan for 5 ministries
  - **(2) Commerce Directory:**
    - Analysis & Scoping
    - Software Architecture & Design
    - Proof of Concept & Test Plan
  - **(3) Application/E-Services:**
    - Analysis & Scoping
    - Software Architecture & Design
    - Proof of Concept & Test Plan
  - **(4) GoJ Organization Directory:**
    - Analysis & Scoping
    - Software Architecture & Design
    - Proof of Concept & Test Plan
  - **(5) GoJ Personnel Directory:**
    - Analysis & Scoping
    - Software Architecture & Design
    - Proof of Concept & Test Plan
- Personnel Directory Query Interface: Design a query service and interface for the G2G site allowing users to query the Enterprise Directory to find personal information for GoJ employees (name, phone number, email, etc.). The vendor shall provide a detailed design document defining the Interface for approval by AMIR & MoICT.
  - Personnel Directory Maintenance Interface and Implementation Plan: Design a maintenance interface accessible via the G2G site allowing government employees to maintain appropriate elements of their own personal information (name, phone number, etc.) in the Enterprise Directory. Develop, in collaboration with other E-gov IQC vendors, an implementation plan for fully populating the Personnel Directory first with SGN Ministry staff and secondarily with all GoJ staff in all Ministries and Agencies.
  - Organization Directory Query Service/Interface: Design a query service and an interface that will be shared among the G2G, G2B, and G2C sites. The query interface would allow users to look up, or browse via a tree structure, contact information for all GoJ organizational units. The service would allow a Portal “services object” to query the Organization Directory to find contact information for

an organizational unit and present the result as a standard object via the Content Management System (CMS). The vendor shall provide a detailed design document defining the Interface for approval by AMIR & MoICT.

- Organization Directory Maintenance Procedure: Given frequency of changes in GoJ organizational structure document process for updating the Organization Directory. This could include a maintenance interface for Content Managers to maintain Organization contact information.

Submission of Deliverables from this task order will be presented to both AMIR and MOICT. Following acceptance of these deliverables, MoICT will issue Task Orders for the related follow-on development and implementation of these tasks.

## **AMIR E-government IQC - Statement of Work -**

**Task Order 16:** *E-Government Portal Implementation Services & Platform Design*

**Vendor:** *STS*

**Client Agency:** *Ministry of Information and Communications Technology, e-Government Programme Management Office (MoICT/PMO)*

**Client Project Manager:** *Mr. Fadi Mari, Egov Project Manager and Mr. Nour Bani, Egov Consultant*

### **Background**

The AMIR program has committed to assisting the Government of Jordan (GoJ) in creating an e-government portal by December 2002. The primary purpose of the GoJ portal is to create a central point of access to information and services that the GoJ makes available on-line, either via the Internet, or on the government's Secure Government Network (SGN). The reader is strongly urged to read the "E-Government Portal Web Site Scope and Vision Document" for background. The detailed analysis in that document will not be repeated here.

The AMIR 2.0 program has contracted EDS to source and install the SGN (and E-mail) hardware and software, EDS is cooperating with STS in order to accomplish this task, AMIR also contracted with five technology firms under its E-Government Indefinite Quantity Contract (IQC). Given the size of the overall E-Government Portal Web Site project, the wide variety of tasks, and the deadline under which the work must be completed, all five IQC firms are assigned an important piece of the portal work. Estarta is assigned the portal coordination role, Information architecture design and search engine, STS is assigned the enterprise directories (as well as Implementation and Portal Platform Designer as defined in this Task Order), CNS is assigned the G2G site, ITG is assigned the G2B site and Alliedsoft is assigned the G2C site. AMIR is counting on all five firms to adopt a cooperative approach, which is critical to the success of the overall project. As Estarta assumes the portal coordinator role, all firms must ensure that designs for their components follow requirements for the Portal as delineated by Estarta.

### **Introduction**

This task order has been issued by the AMIR program to acquire Architecture Design and Implementation Services related to Information Portal web environment. The Vendor is to perform on the activities, and produce the deliverables, as detailed in this Task Order. Yet, the Vendor is also expected to utilize, & expand on, whatever Designs/Architectures & Documentation already created by the previous Architecture Owners & those of which are available to AMIR & at MoICT.

- Prepare the Operations Center environment for E-Government Information Portal deployment.

- Architecture & Design of the E-government Web Portal environment, incorporating best practices and coordinating Portal requirements guidance with the Portal Coordinator.
- Hand-Over & Training to eventual Team in Charge

## **Portal Architecture & Design**

The task order requires the Vendor to analyze key inputs including current data center strategies, architecture, requirements, performance, operations and procedures, costs, constraints and risks. Based on an understanding of these areas, the Vendor will work with AMIR to develop relevant options for the Portal Architecture design. These designs will take into consideration appropriate technologies and standards, Enterprise portal Architecture Scope, recognized E-Government applications needs, today and future, as referred to in Roadmap & Blueprint. The overall objective is to develop an architecture & design that meets the e government applications and technology requirements as specified today (foremost, the E-Government Information Portal), and which can adapt to meet future requirements as recognized from provided references.

## **Key Activities and Deliverables**

Tasks performed in this Task Order builds upon work performed by this vendor in Phase 1 of this project (Task Order was closed in April 2003). In all cases, the vendor should ensure that all work products created under this Task Order is consistent and compatible in format and structure with the work product produced in the previous phase.

The vendor should propose a fixed price budget summarized for each milestone related deliverable in this Task Order.

## **Key Activities and Deliverables for Portal Platform Design and Architecture Service include:**

The following lists Key deliverables that are expected to be the product of all the activities detailed in this task order. The vendor is expected to provide documentation of work performed including configuration settings for each task. The vendor should expect to receive written sign-off of acceptance that service has been configured successfully and completely from AMIR and MoICT. Such deliverables may include, and may not be limited to, the following:

- Overall Portal Strategy Definition and Framework
  - o Analyze Key Inputs
  - o Define/Discuss Port Strategy
  - o Prepare Recommendations/Best Practices
  - o Define/Discuss High Level Plan
  - o Document Portal Strategy
- Portal Architecture – Analysis

- Assess current architecture
- Examine recommended architectures and develop the best method for hosting the CMS, its Web/Production & Staging/Development Environments.
- Analysis of other key inputs
- Develop/Document Architecture Options
- Portal Architecture – Definition
  - Select Architecture
  - Refine architecture approach
  - Enumerate gaps
  - Create Portal Architecture Document
- Portal Platforms Design Documents
  - Portal Security Platform Design
  - Portal Delivery Platform Design
  - Content Rendering Platform Design
  - eServices Delivery Platform Design

### **Key Deliverables for Implementation Services:**

The following baseline categories, & its relevant procedures, will be performed for the overall SGN & Portal environments. The vendor is expected to provide documentation of work performed including configuration settings for each task. The vendor should expect to receive written sign-off of acceptance that service has been configured successfully and completely from AMIR and MoICT.

- Network Implementation Service
  - Install and Configure
  - Test and Implement
- Intrusion Detection System Implementation Service
  - Install and Configure
  - Test and Implement
- Hardware & Operating System installation Service
  - Install and Configure
  - Test and Implement
- Database Cluster Implementation Service
  - Install and Configure
  - Test and Implement

- Security Policy & Firewall Implementation Service
  - o Security Policy Creation
  - o Install and Configure
  - o Test and Implement
  - o Post Implementation Assessment
- Web/Application Server Implementation Service
  - o Install and Configure
  - o Test and Implement
- CMS Search Engine Service in coordination with the portal coordinator
  - o Install and Configure
  - o Test and Implement
- Backup implementation Service
  - o Backup Policy Creation
  - o Install and Configure
  - o Test and Implement
  - o Post Implementation Backup Policy Assessment
- Define & Document Hand-over ( & Training ) Plan to GoJ

### **Implementation Services Activities**

The vendor will perform the following activities for the production site network infrastructure, which may include, and may not be limited to, the following:

#### ***Network Implementation Services Activities***

The following baseline procedures & activities will be performed for the production site network infrastructure, which may include, and may not be limited to, the following Components:

- Load balancing switches (Production systems) if needed
- Load balancing switches (CMS systems) if needed
- VPN/RAS/RADIUS
- 2<sup>nd</sup>-Level/Back-end Firewalls
- Backend Core switches
- Management System
- Cards & Fabrics for existing environment

**Installation and Configuration** - STS will perform the following installation and configuration tasks:

- Implement the VLANs as per the requirements of the design.
- Implement security policy & firewall rules in load balancing equipment.
- Implement Virtual IP Addresses and Server Load Balancing groups, as specified by the design.
- Implement Network Address Translation, if required and as specified by the design.
- Configuration of Servers supplied with this solution, to enable NIC failover as required by the design.
- Configuration of Trunk Ports as required by the design.
- Re-configuring the existing hardware supplied by first stage, if needed by the data center expansion design.

**Implementation Testing** - STS will setup and conduct functional testing to verify the following:

- VLAN configurations are correct.
- Inter-VLAN communication is working as required by the design.
- Server Load balancing is working as required by the design.
- Secure separation of VLANs, Back-end, Internal Customer Network & Operations Centre has been achieved.
- Correct operation for each fail-over scenario identified in the detailed design. i.e. where protection against a single point of failure is to be provided, it will be tested to demonstrate it works correctly.
- Correct operation of each service that is delivered through the VSDN infrastructure.

**Hardware and Operating System Installation Service**

The following baseline procedures & activities will be performed for the production site hardware infrastructure, which may include, and may not be limited to, the following Components:

- Backup Solution Components
- Storage Solution Components
- Web Environment Components
- CMS Staging/Development Components in coordination with the portal coordinator
- OpSys for Microsoft/Solaris/Linux Servers

**Installation and Configuration** - STS will perform the following installation and configuration tasks:

1. Rack mount all computer systems included in the scope of this phase.
2. Integration of the new hardware and storage with the existing setup and network infrastructure
3. Scaling up the exiting storage hardware and reconfigure the storage to fit the new requirement
4. Power up and run hardware diagnostics on all computer systems included in the scope of this phase. Successful completion of this step demonstrates that there are no hardware failures in the configuration.
5. Install operating system on all computer systems included in the scope of this phase. Then bring the hardware and operating system up to the latest engineering revision by the application of all required software patches and firmware revisions.
6. Backup software installation and testing.
7. Performance Tuning and Optimisation of the operating environment
8. Applying required Patches to the operating environment
9. Hardware and Software implementation services
10. Storage Implementation Services
11. Integration & Collaboration Services
12. Security and Backup services

**Implementation Testing**

1. Run testing on all computer systems to demonstrate that all hardware is working under operating system control.
2. Perform backup/restore procedure to authenticate the process
3. Testing connectivity within the LAN and Storage box

**Security Policy and Firewall Implementation Service**

This includes the design and delivery of a security policy document, detailing the traffic rules for the firewalls and load balancers within the solution, including the rule set for the operations centre and development environment. After completion of the document, firewall and load balancers packet filtering will be implemented for the production system, operations and development environment security implementation.

**Security Policy Creation** – The following Tasks will need to be conducted before devising a Security Policy;

- Construct a data flow analysis that develops the threat profile and trust model
- Review existing server configuration
- Identifying security requirements which may include, and may not be limited to :
  - access control
  - authentication and authorization
  - privacy
- Capture needs and uses for the application and services intended for the server

**Installation and Configuration** - STS will perform the following installation and configuration tasks:

1. Develop a security policy document for the production, operations centre and development sites, including rules and policies for:
  - Firewalls
  - Load Balancers
  - Operating system hardening for the desired servers
  - Authentication & Access Control
2. Install firewall on requisite servers;
3. Add the Firewalls to the CSPM management station and apply related rules
4. Configure security policy on the firewalls and load balancers;
5. Implement OS hardening for the desired servers, as per the security policy document.
6. Configure Authentication and Access control settings on the OS

**Implementation Testing** – STS will setup and conduct functional testing to verify the following:

1. Verify the functionality of the firewall rule set;
2. Resiliency provided by the load balancers;
3. Failover for the firewalls.

**Post Implementation Assessment & Security Policy Review**– The following Tasks will need to be conducted after Deployment to re-assess Security Practices:

- Review Firewall/DMZ environment and how it relates to line of business
- Gather appropriate security data/information
- Review existing security policies, procedures, and practices
- Comprehensive analysis of the following:
  - Current architecture of Firewall/DMZ environment
  - Audit logs and accountability checks
  - Review of firewall rule-base
  - Assess IT staff technical security knowledge and training

### ***Backup Implementation service***

**Installation and Configuration** - STS will perform the following installation and configuration tasks:

1. Install the backup software on relevant server/s and on any required clients, as per the design document;
2. Configure the backup software with backup server and associated devices (e.g. L20);

**Implementation Testing** - STS will setup and conduct functional testing to verify the following:

1. Standard operation of all tape drives in the tape library;
2. Backup and restore operation of a server;
3. Backup and Restore operation of a client data.

**Post Implementation Backup Policy Review**– The following Tasks will need to be conducted after Deployment to re-assess Backup Practices:

- Review Backup configuration and environment including the existing network infrastructure and clients services.
- Review Backup Solution Design
- Design a strategy for backup to meet the allowed backup window
- Design a strategy for restoring the backup server
- Optional Performance testing of backup and restore

### ***Intrusion Detection System Implementation Service***

**Installation and Configuration** - STS will perform the following installation and configuration tasks:

1. Install IDS network engines, IDS host engines and IDS monitor/s, as per the design document
2. Add the IDS system to CSPM-I and configure its ID's

3. Configure reporting from engines to the monitor

**Implementation Testing** - STS will setup and conduct functional testing to verify the following:

1. Standard operation of network engines in each segment and host engines on the selected servers, as per design document;
2. Verify alarm functionality on the monitor
3. Verify IDS response on attacks, these responses include TCP reset and IP blocking

### ***Cluster Implementation Service***

The following tasks will be performed for all cluster implementations resultant from the design.

#### **Installation and Configuration**

1. Plan and document the detailed configuration design of the cluster environment to ensure it meets the availability levels required by the customer business
2. Basic hardware and OS platform installation followed by testing of the platform hardware for at least x hrs, storage hardware testing will be done separately depending on the storage hardware chosen.
3. Storage installation and disk layout as defined by the customer and discussed in the planning meeting,
4. Cluster software installation and configuration,
5. Volume manager installation and configuration,
6. Integration of any required application into the cluster environment
7. Installation of database binaries, creation of database instance(s) based on application requirements provided by the customer. This **will not** include architecting the database nor any other database related consultancy.

#### **Implementation Testing**

1. Testing of the completed platform focusing on its RAS (reliability, availability and serviceability) features to ensure that the cluster and any integrated applications behave according to specification,

### ***Web/Application Server Implementation Service***

The following baseline procedures & activities will be performed for the production site Web infrastructure, which may include, and may not be limited to, the following Components :

- Web Server
- Enterprise Application Server
- OS Hardening

**Installation and Configuration** - STS will perform the following installation and configuration tasks:

1. Install web server/s
2. Install the Enterprise Application Server on machine/s, and configure for load balancing and high availability;

3. Configure High Availability on Application Servers (Product Dependant)
4. Install OS hardening

**Implementation Testing** - STS will setup and conduct functional testing to verify the following:

1. Standard operation of HTTP;
2. Standard operation of the Enterprise Application server, using a “Hello World” basic Java program;
3. Validating the OS hardening

### ***CMS & Search Engine Implementation Service***

The following tasks will be performed as part of the CMS implementation service and will be in close coordination with the portal coordinator:

**Installation and Configuration** - STS will perform the following installation and configuration tasks:

1. Install the Content Management System, as per the design document;
2. Install the Search Engine, as per the design document;
3. Install and configure any required servlet engine;
4. Install and configure any Deployment Server;
5. Configure load balancing on the CMS & Search Engine, if required by the design;
6. Install any CMS & Search engine plugins on the Web Server, if available.

**Implementation Testing** - STS will setup and conduct functional testing to verify the following:

1. Standard HTML services from the CMS & Search system;
2. Standard delivery of a simple HTML form through the web server/s;
3. Verify load balancing and fail-over on CMS & Search Engine components, if required by design.

Note: STS needs to agree with the portal coordinator on the required installation and configuration details before commencing the work described above in this section.