

The Arab Mediterranean Free Trade Agreement



The Arab Mediterranean Free Trade Agreement (Agadir Agreement)

Agadir Technical Unit (AUT)

Website Development and Design Services



Technical Proposal

Submitted on 2/03/2011

Contact Person: Yousef Alem

Contact Email: yousef.a@echo-jo.com

Version: 1.0



Proprietary Information

Echo Technology and the Echo Technology logo are registered trademarks. Other trademarks and trade names may be used in this document to refer to either the entities claiming the marks and/or the names of their products. Echo Technology disclaims proprietary interest in the marks and names of others.

The information in this document has been reviewed and is believed to be accurate. However, neither Echo Technology nor its affiliates assume any responsibility for inaccuracies, errors, or omissions that may be contained herein. In no event will Echo Technologies or its affiliates be liable for direct, indirect, special, incidental, or consequential damages resulting from any defect or omission in this document, even if advised of the possibility of such damages.

Echo Technology reserves the right to make improvements or changes to this document and information contained within, and to the products and services described at any time, without notice or obligation.

Echo Technology understands that any award to supply the products / provide the services that are the subject of this proposal are subject to the mutual execution of a definitive written agreement.

All information supplied for the purpose of this document is to be considered Echo Technology confidential.

This Proprietary Information, presented on this page, is an integral part of this document. Should this page of the document, in its electronic or printed formats, be lost, deleted, destroyed or otherwise discarded, this disclaimer statement applies despite the consequences.

© Copyright Echo Technology (2011)

Table of Contents

1 EXECUTIVE SUMMARY.....	5
2 SCOPE OF WORK.....	7
2.1 WEBSITE SECTIONS (SITE MAP).....	8
2.2 SITE MODULES	10
2.3 DESIGN SPECIFICATIONS.....	11
2.4 GENERAL SITE FEATURES.....	12
2.5 COMPLIANCE MATRIX	13
3 ECHOBUS V2.0 CONTENT MANAGEMENT SYSTEM.....	17
3.2 CONTENT MANAGEMENT SOFTWARE BENEFITS	21
4 OUT OF SCOPE	22
5 TECHNICAL ARCHITECTURE	23
5.1 SOLUTION KEY TECHNOLOGIES.....	23
5.2 SOLUTION ARCHITECTURE.....	24
5.3 SECURITY.....	27
6 PROJECT MANAGEMENT APPROACH.....	28
6.1 APPROACH.....	28
6.2 MICROSOFT SOLUTIONS FRAMEWORK	28
6.3 PROJECT PLAN	29
6.4 KEY PROJECT SERVICE DELIVERABLES	29
6.5 PROJECT ORGANIZATION STRUCTURE	31
6.6 PROJECT ROLES AND RESPONSIBILITIES	31
6.7 QUALITY MANAGEMENT	32
7 HOSTING AT KULACOM	33
8 TRAINING.....	34
ASSUMPTIONS	35
8.1 GENERAL ASSUMPTIONS.....	35
8.2 TECHNICAL ASSUMPTIONS AND CONDITIONS.....	36
8.3 TRAINING ASSUMPTIONS	37
8.4 WARRANTY AND SUPPORT ASSUMPTIONS	37
9 WARRANTY AND SUPPORT	38

9.1	WARRANTY	38
9.2	MAINTENANCE	39
10	APPENDIX I : COMPANY PROFILE	40
10.1	ECHO TECHNOLOGY	40
10.2	KULACOM PROFILE AND SERVICES	49
11	APPENDIX II: MICROSOFT SOLUTIONS FRAMEWORK (MSF).....	56
11.1	THE TEAM MODEL	56
11.2	THE PROCESS MODEL.....	58
11.3	MSF PROJECT MANAGEMENT DISCIPLINE	60
11.4	MSF RISK MANAGEMENT DISCIPLINE	62
11.5	MSF READINESS MANAGEMENT DISCIPLINE.....	62
12	APPENDIX III: QUALITY MANAGEMENT METHODOLOGIES.....	64

1 Executive Summary

The Joint venture of Echo Technology and Kulacom (hereinafter referred to as The Contactor) would like to extend its gratitude to the Agadir Technical Unit (hereinafter referred to as AUT) for allowing us the opportunity to present our proposal for “**Website Design and Development Services**”. Our response is based on the internationally well-established Microsoft’s Technologies and the latest and services design, development, and implementation approach trends.

Echo Technology was established as a development center serving the biggest IT firms in UAE. Echo Technology was able through this strong partnership to outsource several big projects to superior clients in UAE and KSA.

Now, due the strong demand for IT in Jordan, Echo Technology established its first sales, customer support and project management teams represented by launching Amman Business Unit.

Echo Technology is a **Microsoft partner** specialized in Portals, collaboration services and web site development eared by success stores, client’s satisfaction, and highly qualified team.

Kulacom Jordan was established in 2006 by a group of Jordanian investors whose vision was to deliver cutting edge technology to the growing needs of consumers in Jordan.

With that vision Kulacom was born. Kulacom brings simple and reliable telecommunication solutions that are tailored to your needs.

For the need of this tender Echo Technology and Kulacom did establish a joint venture; where Echo technology is nominated for leading the tender and project.

We hope that our enclosed proposal will be sufficient to demonstrate our capacity and capabilities. This proposal was prepared in accordance with the AUT business requirements. The accumulated experience of our companies and our solid reputation in delivering similar and even bigger projects on time and within budget, guarantees the successful implementation of the required services.

Within the scope The Contactor is proposing to design and develop full dynamic, piece of art design website.

The Contractor is proposing a content management solution that helps and assists AUT to controlling and managing its corporate website easily. The Contractor proposal is equipped with Microsoft

latest technologies on building the Internet Portals; Microsoft® .NET™ 3.5 & Microsoft® SQL Server™ 2008.

Scope of Work: The scope of the project is detailed in section Scope of Work. The proposal also makes certain assumptions and states dependencies on the AUT for the successful execution of the project.

Project Implementation: The implementation timing, implementation milestones and key deliverables are described in section Project Management Approach. The project will be completed in 34 working days.

Warranty and Support: The Contactor will provide a period of one year following the date of final. Please refer to section Warranty and Support.

Knowledge Transfer and Training: As more employees participate with the Solution, knowledge is captured and shared, new efficiencies are realized and the effectiveness of the employee increases, The Contactor will provide a well-established training avenue to assist the AUT employee in Identifying, addressing business processes efficiently and successfully please refer to section Training for more details.

Proposal Validity and Contact Details: This offer is valid for 90 days from submission date, for all inquiries concerning this proposal, please contact:

Eng. Yousef Alem

Business Development Manager
Echo Technology-Amman Business Unit
Tel: +962-6-4612095/6 ext. 102
Fax: + 962-6-4612096
Mob: + 962-79-5990622
Email: yousef.a@echo-jo.com

Bashar Shannak

Sales Manager
Kulacom
Tel: +962-6-2500000
Fax: + 962-6-2501111
Mob: + 962-79-9070023
Email: bashar.shannak@kulacom.jo

2 Scope of Work

The Contractor is proposing to design and develop a English/Arabic/ French user-friendly, scalable website for the AUT with a back-end content management system that allows AUT non-technical staff to add, change and delete site contents without manipulating any HTML or scripting code.

The Internet presence sites are customer-facing sites. They are usually branded and are characterized by consistent stylistic elements, such as colors, fonts, and logos in addition to structural elements such as navigation features and the structure of site pages. Although the appearance of an Internet site is tightly controlled, the content of the site may be dynamic and may change frequently.

The Internet website design will provide the following specifications:

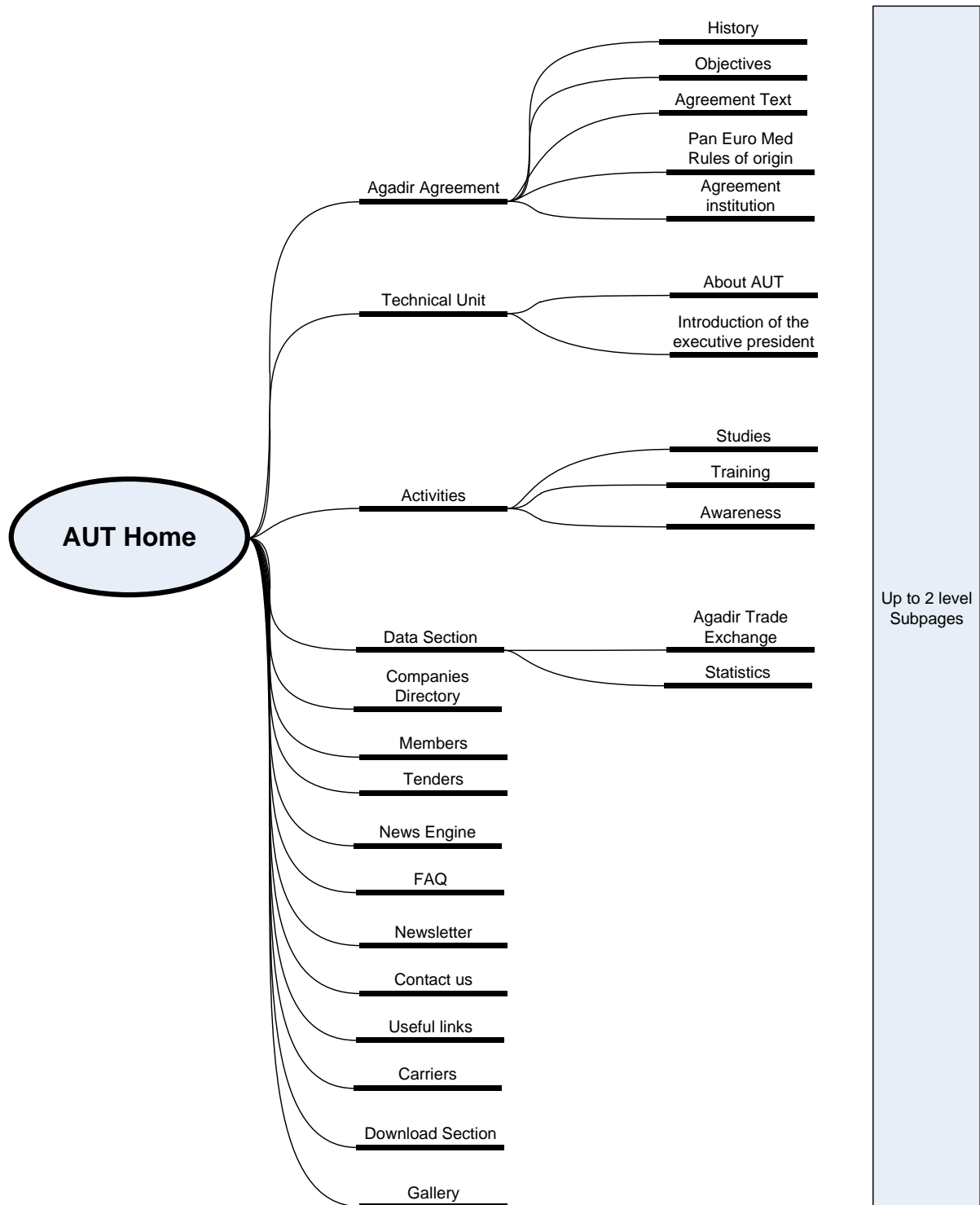
- The colors and graphics will place a visual emphasis on the identity of the website as a home page for all users.
- The website will look clean and direct. The layout of the text and graphics will be Simple and the web pages will not look too busy. Users will be able to grab the key elements at a few glances.
- The initial design of the website will be in English, Arabic and French updatable to multilingual upon your request with the additional charge to be discussed.
- The AUT will be responsible for database content preparation and updating the records.
- The site navigation will be redesigned from the viewpoint of the visitors. It will be clear and easy to follow, and make important information immediately available. Users will be able to go wherever they want to go, perhaps by using two levels of menus on every page. One menu is context sensitive and changes the items depending on which page you are on, and another contains fixed items. The menus will be placed in consistent locations.
- The website will be run from all standard Internet browsers.
- Social site links will be imbedded (Facebook, twitter ,etc..)

The contractor fully understand the need of AUT for a new website; where the new website will truly reflect AUT mission and vision by blending the business needs with latest technology and the eye catching design .

2.1 Website Sections (Site Map)

The website will include below site Structure; the pages below also can be edited and modified through the EchoBus Content Management System. The contractor will create the main menu of the site that is always displayed at each page reflecting the site map provided from the AUT. The menu will be designed in an easy to navigate way for the users of the site in addition to ensuring it is shown in an attractive way.

The site pages will be published to the public in a simple, easy to use and navigate. The pages will be coordinated with an attractive design that is well blended with the AUT logo look, feel, and primary colors. The Contractor will develop the following main pages and there subpages shown in graph below, any additional pages will be agreed on in the Envisioning phase of the project for more information please refer to section Project Management Approach.



2.2 Site Modules

The three websites will contain the following modules that can be imbedded in any page:

- **News Center:** This allows you to present information or publications pertinent to your organization, or broadcast information that will be highlighted in an expressly identified section.
- **Media Gallery (Image, Video and File Gallery):** The Image and File gallery is a key to any content managed site. Site images can be stored in one convenient place for multiple uses. Published files can be Excel, PDF, Word, PowerPoint, Media, or many other file formats. Images and Files are versioned, archived, and can be scheduled to show or not show on a specific time period. The content in the gallery is controlled from the web based administration area. Adds the ability to arbitrarily classify the files and images for organizational purposes in categories to suit your particular business needs, and the categories can have a cover image and title, along with the date of publish.
- **Newsletter Management Module:** Email Newsletters are one of the most powerful marketing and customer communication tools on the web. Have your site visitors sign up to receive newsletters and schedule their delivery. EchoBus newsletter wizard lets you select the content, formatting style, recipients, and delivery dates. EchoBus can also archive all newsletters on your site as HTML or PDF file formats, allowing your visitor to see content from the past. Newsletters can be sent in TEXT, Rich Text, or HTML file formats.
- **Feedback Forms:** There will be a feedback form for each Course, which the users can use to send a feedback for the desired issue.
- **Links Module:** The Links Module produces a list of hyperlinks to any tab, image or file to a web page, image or file on the web.
- **Site Search Module:** Using EchoBus Content Management, the site will include a Full-Text Search in which the site visitors can use to search for text stored in the Content management System. The search will be dynamic and covers any newly added contents in the future. Provided search include:
 - Full-text queries on plain text data stored in the database.
 - Returning the top matches by rank, useful for enhancing performance.
- **Banner Management Module:** The banner management module allows you to place rotating banners on your site. Whether you want to promote partner sites or promote key

areas of your site, this module does the job. Banners can be scheduled to rotate indefinitely, for a period of time, clicks, or rotations. Click thru traffic is also tracked, so you can see what's working best.

- **Poll Module:** This module allows you to create short survey “**One question at a time**”. The results are compiled instantly. Statistics (in %) relating to the questions and answers are also available.
- **Form Module:** this module will be utilized for the services sections.
- **Contact Us Module:** this module will enable the updating of the ATU contacts, and can preview the location of the ATU on Google maps. Currency convertor: this module will be developed as a service to retrieve the currency rates from a 3rd party web service and have the calculation done on the AUT website.
- **Event calendar:** Users will be able to navigate the calendar where the events are highlighted on the calendar. When the user puts the mouse over a certain day, he will be able to view all events on that day. The user will be directed to the event details page once he clicks on the desired event.
- **Companies Directory:** the contractor will develop this module to deliver a well-organized directory for companies in the member countries.
- **Exchange statistic Database :** the contractor will develop a dedicated module with a dedicated Database that contains sector data where it will be shown as
 - Diagram for growth rate
 - Diagram for export and import
- **Export and Print Data Module :** this module will allow exporting the data into excel and PDF , plus as a printable versions

2.3 Design Specifications

The contractor believes that the website design is considered the main factor in attracting the visitors. A team of professional designers will be handing the website design to provide the AUT with a unique, creative, and outstanding design. The following specifications will be main anchor in the website design:

1. The standard page design will include a Home Page, Sub-Heading (Topic heading) page, and a standard page for display of content. Additional page designs may be included as needed based on themes introduced in this template design, including the above mentioned pages.
2. Buttons and navigation graphics will be standardized for all pages, where appropriate for the design.
3. The HTML templates will dictate the CSS, widgets and banner layouts
4. Incidental art will include JPEG and GIF title art, dividing lines, background images, color schemes, and other design elements as required for completing the templates.

2.4 General Site features

The websites will support the following features to better serve AUT needs:

- Each page in the websites will include a navigation bar that will allow the user to go back to the Home page and to navigate through the site by visible and clear links to all areas of the Websites. The navigation between any section and the home page will be maximum in two clicks.
- The site navigation will be redesigned from the viewpoint of the visitors .
- The site navigation will be clear and easy to follow, and make important information immediately available.
- A Content Management System will be developed to manage the AUT Websites by allowing the AUT nontechnical staff members to create, update publish and manage the whole Websites including content on all web pages, creating new pages, deleting pages, managing site users, and adding promotional materials (images, document files, PDF files, etc).
- Websites sitemap will be auto generated and readable by both site visitors and search engines.
- The development of the Websites will be based on high performance best practices to insure the speed and accessibility .
- Ajax and jquery will be utilized.
- The website will use Google Analytics which is the enterprise-class web analytics solution that gives AUT rich insights into the Websites traffic and marketing effectiveness.

2.5 Compliance Matrix

After reviewing the TOR, the table below demonstrates the contractor compliance with the required specifications.

Feature	Comply	Notes
General and desired enhancements		
Re-create and greatly enhance the ATU's existing website to be an eye-catching, easy to navigate tri-lingual (Arabic, English and French), informative, user friendly, and attractive to the website user.	Y	
Create a consistent and standardized format and enhanced graphical look for all pages; thereby establishing a unified theme throughout the ATU's website	Y	
The ATU's preferred website model calls for authorized ATU staff to have ability to perform routine content management related to routine information such as the posting of news, meeting dates, agendas, studies, events, removing old and outdated information and general noticing	Y	
The information posted on the website should be accessible through the main navigation menu and a search engine. The search engine should provide opportunities for searching the website by key words. It should also be updatable with the adding of new information on the website.	Y	
should exist where only specific members can access with a special username and password.	Y	
behind the website for trade exchange statistics between Agadir countries contains sectorial data for(textiles, leather, components and spare parts industry and motor vehicles assembly) and shows: <ul style="list-style-type: none"> • Growth rate of exports and imports (diagram). • Exports, Imports (diagram). 	Y	
Allow for interactivity. Include e-mail response, feedback, forms, and access ATU's calendars	Y	

should be available for collecting, measuring, reporting and analysis of web based data in order to understand, optimize website usage and provide detailed picture of website traffic according to date, number of visits, countries and regions where visitors come from...etc.	Y	
Linked to the major players in the Agadir Agreement should also be available, such as the international organizations (WTO, WIPO, UN.....)	Y	
A list of Frequently Asked Questions (FAQs) should be available to answer the most common questions	Y	
Design Constraints and Standards:		
All data delivered by the website, whether from static resources or from application systems must comply with HTML or PDF latest versions	Y	
All data and applications delivered through the website must be fully usable with all common web browsers, to include Microsoft Internet Explorer, Safari, Mozilla and Firefox. In each case the version of the browsers is the latest available for full release.	Y	
No special client software should be required to use any aspect of the data or applications delivered through the website	Y	
The website should conform to major web-standards so that the website and its content can easily be indexed by major search engines. That is to say, when a user searches for an article related to the Agadir Agreement, our website should be among the top 5 results listed on major search engines such as Yahoo! or Google.	N	The website will be developed on the best standards of indexing , but listing among the top five search results this is what the contractor can't guarantee since there is a number factors that

		control this process which can't be controlled by any vendor.
All special regular and special fonts should be embedded inside the website to support visitors with legacy viewing system	Y	
Form and document Printing. A number of documents and static forms will be available for printing. The new website must have links or embedded plug-ins such as Java and Adobe for opening and viewing these documents.	Y	
Capability to maintain an archive of existing and past records such as agendas, minutes, newsletters, etc. preferably in HTML format.	Y	
Availability and Maintainability		
The website and all related application systems must be designed to allow for continuous operation on a 24 hour, 365 day per year basis	Y	99.9 uptime
All LAN and WAN infrastructure must be fully resilient so that the failure of any single component or link cannot cause interruption of service.	Y	
Upload new material to be viewed through the website must be done without interruption to normal use.	Y	
In case of downtime is experienced for any application delivered through the website, a notice must be displayed on the website stating the expected time to repair.	Y	
An annual maintenance to fix bugs, errors...etc is a must.	Y	
Security/Confidentiality		
The website should be secure and bug-free	Y	
All material enclosed within the site falls under the site's copy write protection.	Y	
The Data should be held in a secure environment. It should be possible to regularly back-up entire databases and restore all the data in case of any errors or loss.	Y	

All users seeking to access any resources other than those that are flagged for public non-controlled use must log in to the website using a username and password.	Y	
All user access to the website that involves access to non-public (controlled) data should be logged, so that a record of the user identity, time in, time out resources and applications visited and data changed, is kept.	Y	
Inactive logged-in users must be logged off after a period of (not more than) 10 minutes.	Y	
All data accessible through the website, all application code, all application associated data and all website configuration data should be backed up on a weekly basis to secure location so that it is possible to restore any individual part of the website or the entire website from scratch.	Y	
The website and all related applications must use best practice in design for security, specifically to avoid access to and unauthorized updating of content, subversion of the website and its application for other purposes and any other such exploit. The strength of the website design and implementation will be tested by periodic penetration testing.	Y	
Training and Documentation:		
Sufficient training for the ATU staff to use the administration website or CMS (add, edit, delete, maintain the website ... etc) is required.	Y	
Sufficient training to monitor the website activities, statistics and generating related reports is required.	Y	
A comprehensive administration manual is required.	Y	
A detailed site map is required.	Y	

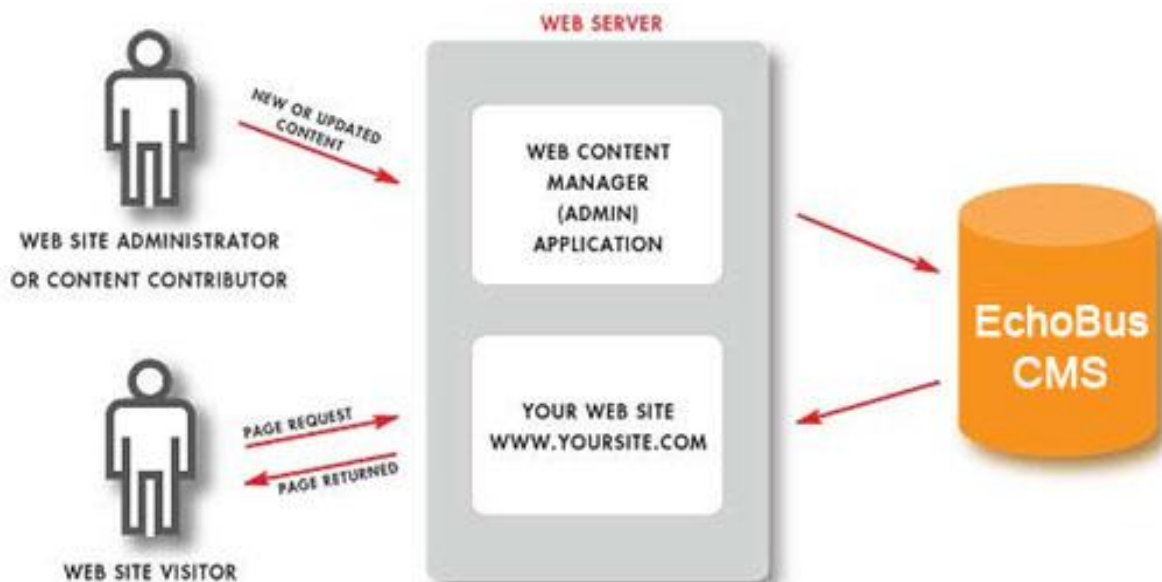
3 EchoBus v2.0 Content Management System

Echo is proud to offer its content Management System EchoBus to control and manage the new website of the AUT.



EchoBus CMS enables your staff to create dynamic Websites by providing with extensive features for Website development and content management, and enables businesses to effectively create, deploy, and manage Internet Websites.

Most pages on a website have the same "look and feel" but it's the words that change from page to page. By separating the website's design from it's content, Web Designers maintain flexibility over how the site looks but hand over control of the content to the who know best about their product - the website owner.



3.1.1 Content Management System Features

EchoBus enables you to create dynamic websites by providing with extensive features for website development and content management, and enables businesses to effectively create, deploy, and manage Internet Websites/Portals.



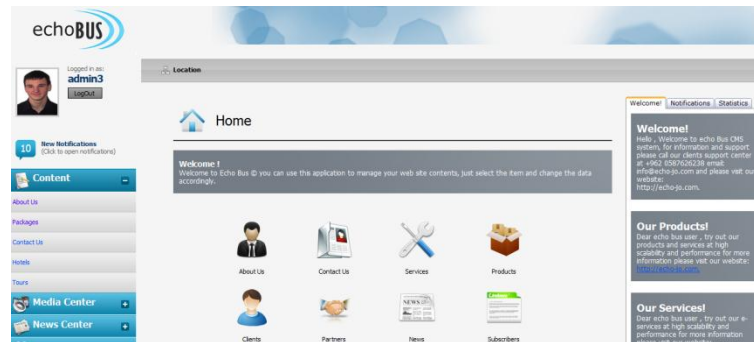
Below are some of the system major features & components:

Web-based interface

EchoBus CMS is completely managed through the browser. Administrators can access the administration from any PC with Internet Browser . You can manage your from anywhere, anytime. The browser-based administration desktop is optimized for speed, giving the same user experience as local applications. Taking full advantage of dynamic client-side technologies, the number of total screen refreshes is minimized.

Intuitive User Interface

EchoBus user interface has a MS Outlook look and feel, ensuring a familiar working environment to make it is easy to manage the many different types of content that make up a Web solution.

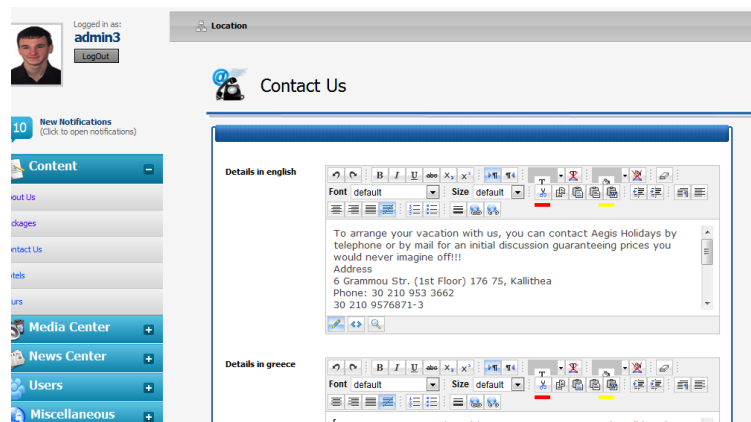


Element caching system

EchoBus has an internal page element caching mechanism that really speeds up page delivery times. Once an element is cached, it is rendered output and the calls for any sub elements are stored as an element variant in the cache. Since all following calls for a variant are delivered directly from the cache, it avoids any subsequent rendering time

Easy content management

The Word-like interface of the WYSIWYQ (What You See Is What You Get) editor allows business users to publish their content without expensive IT support.



EchoBus CMS removes all technical barriers that prevent easy updates. The user-friendly Content Manager interface stimulates end-user acceptance of the CMS. Administrators can devote all time to the content of the site instead of overcoming technical limitations. The overall quality of the site improves.

Sitemap Organizer

The sitemap in the administration is the central navigation tool through your Website content. The sitemap structures the content and offers a wealth of information at a glance, such as page type and page status.

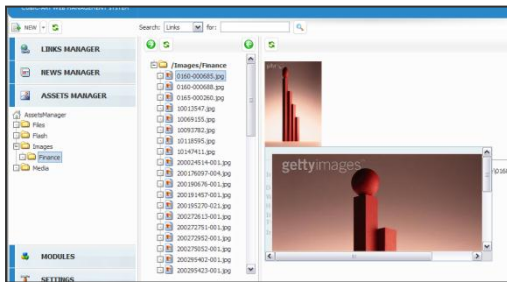
As the dynamic content of your site changes, the sitemap can be adapted as well. Administrators can freely move and restructure the content in the sitemap.

Scheduled content

Information often has a temporary nature. One moment it is relevant, the next moment it should be removed from the site. Prepare all your information today and Schedule it with EchoBus CMS

Every node in the sitemap can be put on-line and off-line based on dates. By scheduling new information upfront, new content appears on the site when it is hot and disappears when it is not.

The link control guarantees the integrity and prevents errors as content goes on and off-line



Assets Manager

EchoBus CMS integrates Assets management with easy CMS functionality. The http-based upload and management module lets the administrators add and organize images & Files and documents on the web server. The explorer-like interface and folder structure

facilitate a convenient arrangement of the uploaded material.

Images and documents can be used in the site. The Quick link window lists every image and document by its title. All resources are at hand when editing content in the WYSIWYG editor.

Meta data (Keywords)

Meta Data characterizes the content on the web pages of the Website, e.g. the keywords of the page or the title. The Meta information is used by Echo CMS Search Module to find the pages that match the given search criteria.

External search engines like Google use the Meta information to catalog your Website. Optimize the Meta information to improve the Website ranking in the major search engines.

Page revision history

Enable users to perform content audits and compare revisions through automatic storage of content revisions and page version

Internationalization (Optional)

Sites developed within EchoBus CMS can exist in different languages. Many languages use their own special alphabet like Russian or Chinese.

EchoBus CMS fully supports Unicode (UTF-8) as well as many local character sets. The content within EchoBus

CMS can be in any language written and in any alphabet. Manage your Website in English, Japanese and Russian from one central administration.

User and Privileges

Echo Bus have a strong mechanize for users who contribute in the content editing and updated ; where the administrator can create users and give them privileges to edit the content for a specific page or module ; plus an approval content publishing is also available .

3.2 Content Management Software Benefits

We believe that by implementing our EchoBus CMS, the overall benefits to Turret will be:

- Empowers non-technical authors to manage and publish their own content
- Ensures consistent site design and content accuracy
- Enables separating site design from content management
- Delivers up-to-date content /information
- Ensures lowest total cost of deployment and ownership for dynamic Web applications
- Automates the Web-content publishing workflow
- Comprehensive features available at one stop, eliminate the need to install any additional software for content-publishing on your computer

4 Out of Scope

The following points are considered as **Out-of -Scope** for The Contactor throughout this engagement:

- Integrating with any back end, legacy or external system not mentioned in the proposal.
- Process reengineering is out-of-scope
- Implementing any Business Intelligence (BI) feature on AUT Websites.
- Developing any new part other than the mentioned in the scope of work is considered as out of scope.
- ACTIVE DIRECTORY entries and any configuration related to active directory.
- Managing groups' organization in the active directory.
- InfoPath forms development and upload is considered out of scope for this project.
- Single Sign On or any user mapping mechanism is considered out of scope for this project.
- Data migration.

5 Technical Architecture

5.1 Solution Key Technologies

5.1.1 Microsoft .NET Framework Version 3.5

Microsoft .NET 3.5 is a technology that connects information, people, systems and devices. It spans clients, servers, and developer tools. The .NET Framework 3.5 is used for building and running all kinds of software, including Web-based applications, smart client applications, and XML Web Services —components that facilitate integration by sharing data and functionality over a network through standard, platform-independent protocols such as XML, SOAP and HTTP.

In fact, Microsoft.NET 3.5 is an extension to Microsoft.NET 2.0 in that it adds three foundations to the framework. Those are: Windows Workflow Foundation WWF, Windows Communication Foundation WCF, and Windows Presentation Foundation WPF. The next subsection provides an overview for WCF which will be used in implementing the proposed solution.

5.1.2 ASP.NET 2.0

ASP.NET is a technology for creating dynamic Web applications. It is part of the .NET Framework; you can author ASP.NET applications in most .NET compatible languages, including Visual Basic, C#, and J#. ASP.NET pages (Web Forms) are compiled, providing better performance than with scripting languages. Web Forms allow you to build powerful forms-based Web pages. When building these pages, you can use ASP.NET server controls to create common UI elements, and program them for common tasks. These controls allow you to rapidly build a Web Form out of reusable built-in or custom components, simplifying the code of a page.

ASP.NET provides a programming model, and infrastructure, to make creating scalable, secure and stable applications faster, and easier than with previous Web technologies

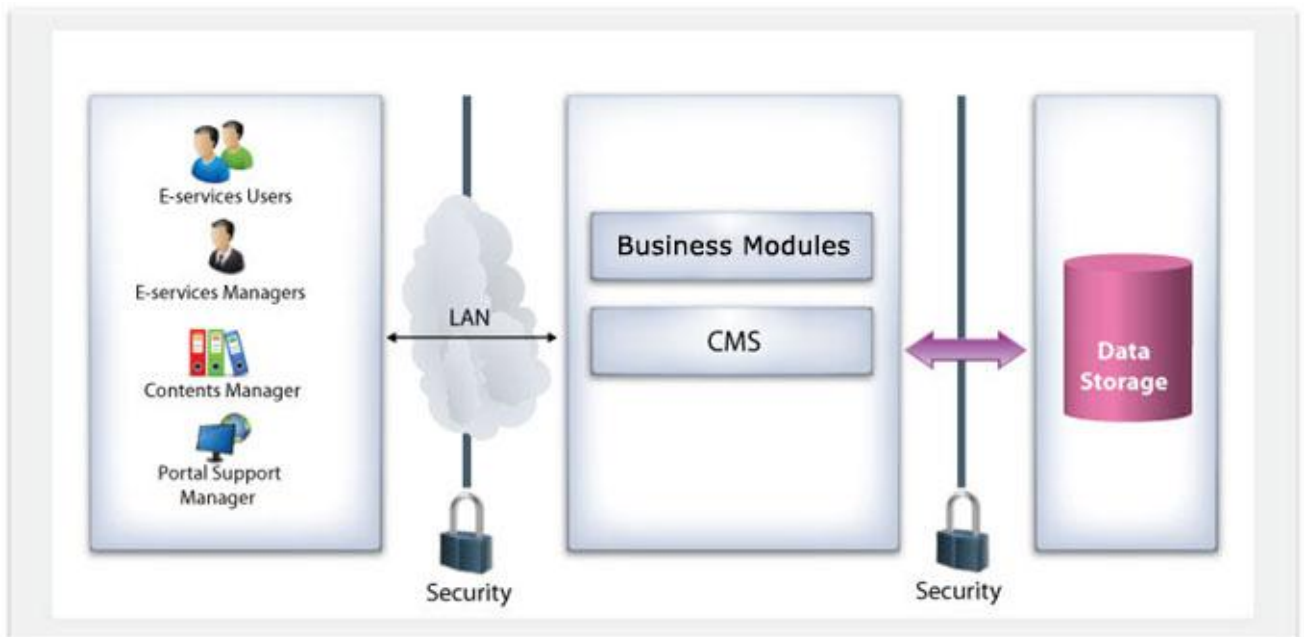
5.2 Solution Architecture

5.2.1 Conceptual Architecture

AUT websites will provide an electronic content and services gateway for citizens enabling them to access services and relevant information through the following main modules:

- Content.
- Business Modules.

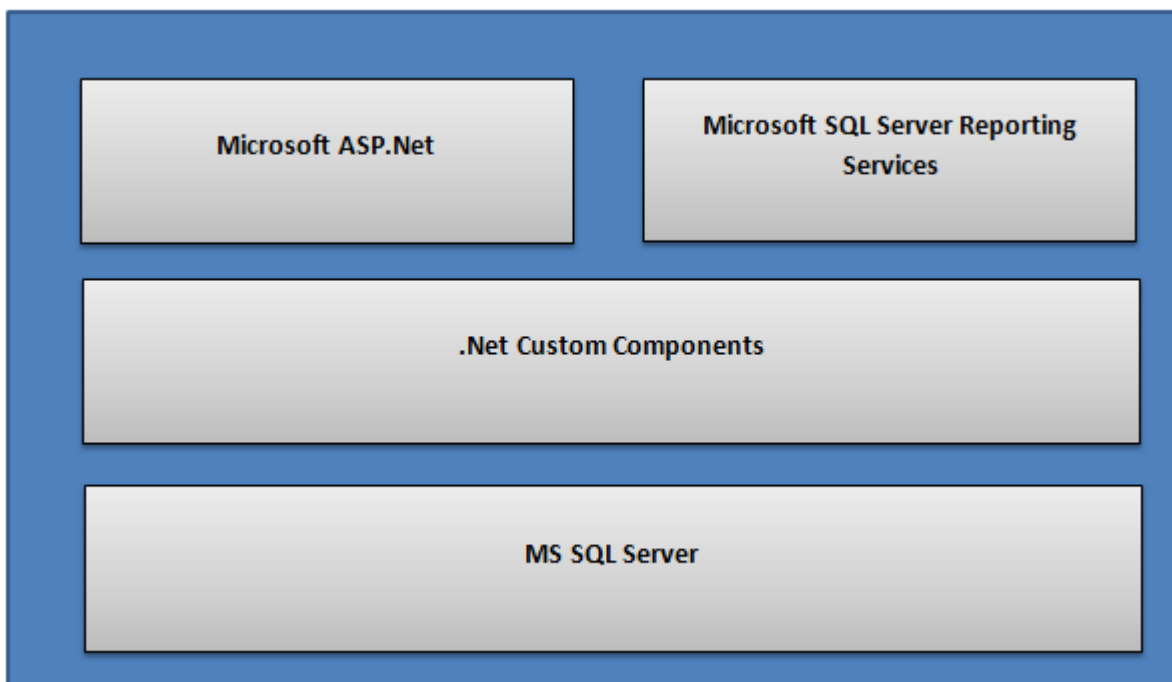
The figure below illustrates the conceptual diagram for the AUT proposed websites, showing the proposed business and content modules and the users of the developed system:



5.2.2 Logical Design

The implementation of the above conceptual design will utilize the following technologies as shown in the figure below:

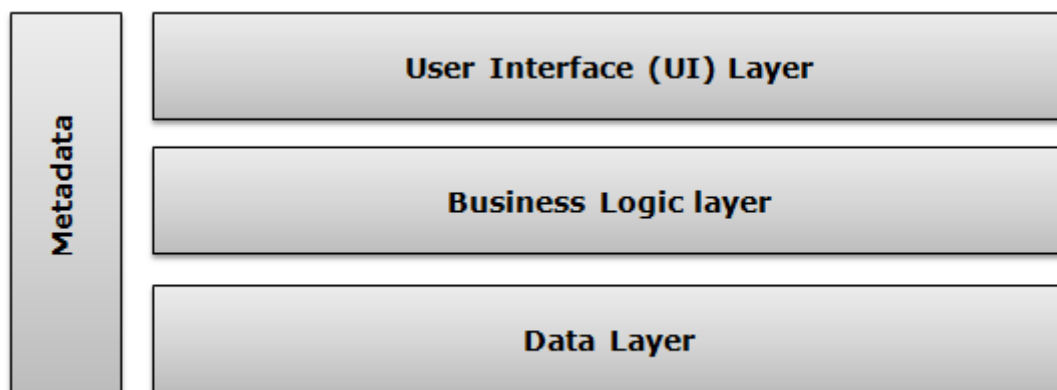
- **Microsoft ASP.Net:** For providing the user interface for both the management site and the user site
- **Microsoft SQL Server 2008 Reporting Services:** For authoring and rendering of reports
- **Microsoft SQL Server 2008 Database Engine:** For data storage management of configuration data, work items, and user information.
- **Microsoft .Net Custom Components:** These are custom developed .Net components that will be providing the business logic implementation.



5.2.3 Layered Architecture

The websites follows the layered architecture design pattern. The layered application architecture guarantees logical separation of the application layers not necessarily physical. It provides separation of concerns, factoring of responsibilities so each layer handles its related functionality. It also enhances reusability of layer's modules and allows for more flexibility and easier maintainability.

The proposed solution will be composed of the following major tiers:



5.2.3.1 Presentation Layer (UI)

This tier will be represented by a set of pages and controls implemented using ASP.NET Technology.

It will be hosted on IIS 7.0.

Advanced performance boosting techniques shall be used, such as server side caching. User interface services will provide the visual interface to front end users.

This layer contains the following:

- ASP.NET pages, Content Pages, Master Pages and Custom Web Controls: Contains all the pages and controls that will be accessed by system visitors.

5.2.3.2 Business Layer

This tier will represent the middle tier between the Presentation (UI) tier, or any interested external service consumer and the Data Access Services tier. It will encapsulate the various business logic functionalities exposed to consumers.

5.2.3.3 Data Layer

The Solution will be using Microsoft SQL Server 2008 as the main storage for the system data and transactions, with all data manipulation and querying processes implemented into stored procedures, triggers, and constraints.

The data layer is responsible for AUT Solution including the eservices data management. It manages various data storage formats:

- File System storage.
- SQL Server database storage.
- Backup.

The data layer sits beneath the business components to provide data operations in an abstracted way to shield the business layer away from the various data sources found at AUT.

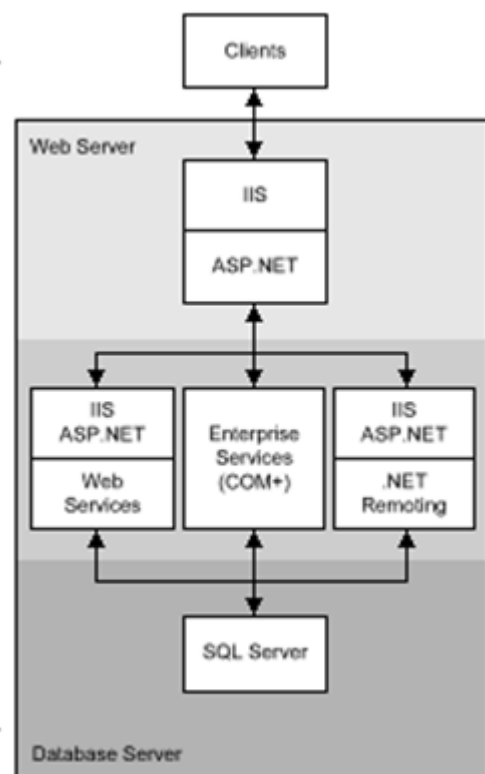
Since SQL Server 2008 gives the user the ability to define any backup process deemed necessary. A full back up or append backup processes can be defined using SQL Server Management Studio in a user-friendly manner.

5.3 Security

The Contactor fully understands the criticality of have a secure website, over the past year. Echobus CMS security is based on the latest .Net security library where it will serve:

- Authentication
- Authorization
- Secure communication

The figure demonstrates the security approach to be handled in the website deployment and publish



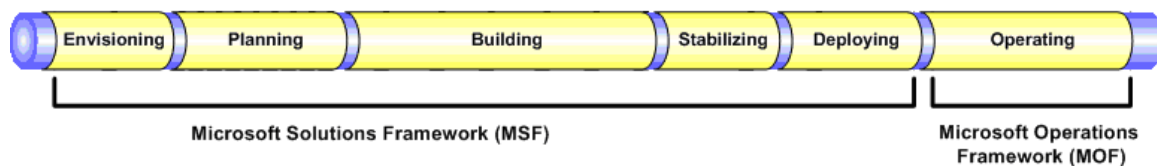
6 Project Management Approach

6.1 Approach

Our approach for the delivery of this solution is based on the Microsoft Solutions Framework, described below.

6.2 Microsoft Solutions Framework

The Contactor will leverage the Microsoft Solutions Framework (MSF) to execute this project. MSF represents an industry-proven solution development approach that provides for well-defined phases that take into account development of requirements, architectural design, detailed software design, software development, system testing, and managed release cycles.




MSF organizes the solution approach into five distinct phases during the project lifecycle.

- **Envisioning:** Envisioning involves creating a business vision and defining the scope of work necessary to bring the vision to reality (e.g., business case justification, business studies, etc.).
- **Planning:** Planning continues through the development of detailed functional requirements, system and application architectures, the user interface prototype, and a detailed project plan for the remainder of the project.
- **Development:** The Development phase begins with the first iteration of development and culminates with the “functionality complete” milestone (or Beta release).
- **Stabilization:** The Stabilization phase involves testing and acceptance.
- **Deployment:** The Deployment phase includes deployment of the core technology and site components, transitioning of the project to operations and support, and obtaining final Customer approval of the project
- **Handover Training:** Hand over training sessions completed.

For more information please refer to section Microsoft Solutions Framework (MSF)

6.3 Project Plan

The solution will be monitored using a project schedule. Below is the proposed high-level project plan outlining tasks and durations, it is anticipated that the project will take **34** working days for completion:

 Task Name	Duration	Start	Finish	Predecessors
<input type="checkbox"/> Website Development	34 days	Mon 4/4/11	Thu 5/19/11	
<input type="checkbox"/> <input type="checkbox"/> Envisioning and Planning Phase	2 days	Mon 4/4/11	Tue 4/5/11	
<input type="checkbox"/> <input type="checkbox"/> Development Phase	25 days	Wed 4/6/11	Tue 5/10/11	3
<input type="checkbox"/> <input type="checkbox"/> Stabizing Phase	2 days	Wed 5/11/11	Thu 5/12/11	4
<input type="checkbox"/> <input type="checkbox"/> Deployment Phase	1 day	Fri 5/13/11	Fri 5/13/11	6
<input type="checkbox"/> training	4 days	Mon 5/16/11	Thu 5/19/11	8

6.4 Key Project Service Deliverables

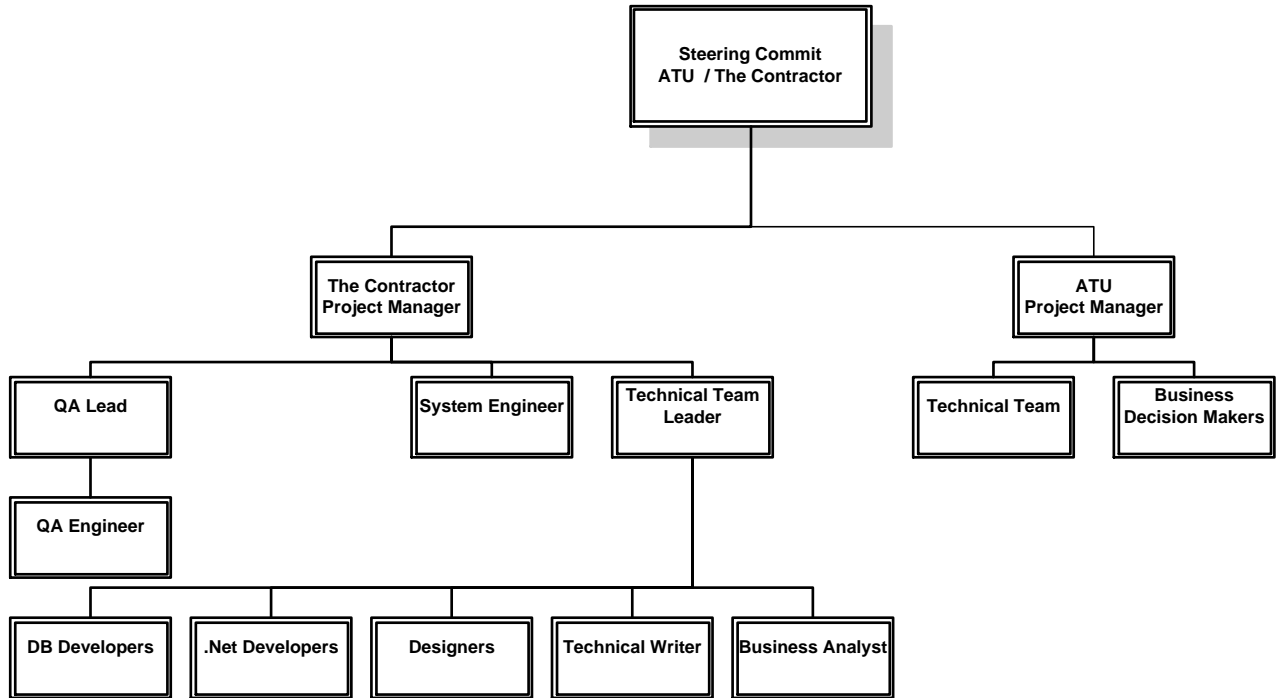
The following is a list of the key project service deliverables that will be delivered within this SOW which must be formally reviewed and accepted.

Project Phase	Deliverable(s)	AUT Role and Involvement
Envisioning and planning	- Vision/Scope Document, signed off by AUT Detailed Project Plan and Schedule.	AUT will be heavily involved at this stage. During this phase business objectives, expectations and high level requirements are agreed and documented. AUT dedicated PM needs to be available full-time during this phase. AUT business owners and decision makers also need to be available for some pre-scheduled sessions.

		AUT needs to expedite signing off the Vision/Scope document in order not to hinder project schedule and progress.
Developing	<ul style="list-style-type: none"> - System design - Database structure 	<p>AUT will be less involved during this phase.</p> <p>AUT assigned PM will need to be available for weekly meetings, and ready to handle any escalations.</p>
Stabilizing	<ul style="list-style-type: none"> - Test results Test cases Test plan 	<p>AUT needs to assign people to test the solution with our team and give feedback. It is a good idea to dedicate at least one person from every business section that will be using the system.</p> <p>Every dedicated AUT tester needs to devote at least 4 hours a day for this exercise.</p> <p>AUT assigned PM will need to be available for weekly meetings, and ready to handle any escalations.</p>
Deploying	<ul style="list-style-type: none"> - Full solution deployed (along with technical, user and training manuals and documentation) - Acceptance checklist signed off by AUT Content entry 	<p>This is when our team will need System Administrator and Technical cooperation.</p> <p>AUT needs to dedicate a team for acceptance testing during this phase.</p> <p>AUT PM will be heavily involved, almost full-time, during this phase.</p>
Training	<ul style="list-style-type: none"> - Technical and User training. 	<p>Training attendees need to make themselves available for the full scheduled duration of training courses; otherwise they will not gain value from the training.</p>

6.5 Project Organization Structure

This section identifies the overall project organization structure, reporting relationships, and key project roles and responsibilities.



6.6 Project Roles and Responsibilities

AUT Resource Requirements

Role	Primary Responsibility
AUT Project Manager	Customer Project Manager Primary contact for all project activities Coordinates different AUT internal teams
AUT Business Decision Makers	AUT Committee Decision makers Report to AUT project manager

AUT Technical Team	<p>Report to AUT Project Manager</p> <p>Execute work required from AUT side</p> <p>Support The Contactor technical team in solution implementation</p>
--------------------	--

6.7 Quality Management

The Contactor conducts a firm and strict Quality Management policy and practices in order to ensure that the variance in the project team structure has no influence at all on the quality of the deliverables.

The Contactor Quality Management involves planning and establishing project standards, rather than relying on personal standards and processes. The extent and formality of project Quality Assurance activities are decisions that AUT and The Contactor Project Management team make based on their assessment of the project and its risks.

The Contactor Quality Management focuses on monitoring processes that contribute to the achievement of high quality in deliverables. The Contactor Quality Control denotes the verification of the quality of the .Net solution through testing and review. Within the scope of Project Management Processes and the Project Manager Start-up Kit documents, The Contactor quality engineer will focus primarily on conducting and participating in various types of management and team reviews, which will focus on deliverables and documentation.

In this area, being proactive is extremely important and THE CONTACTOR is assuming that both teams, AUT and The Contactor, are proactive to act according to the set policies and procedures.

Execution of The Contactor Quality Management Plan facilitates the following:

- Conformance of project deliverables and work products to be established contractual agreements, processes, plans, policies, standards and procedures.
- Assurance that the project’s deliverables and activities meet AUT requirements, within time frame
- Provision of a basis for scheduling and conducting reviews and audits.
- Identification of defects and corrective action as early in the project as possible, thereby facilitating product reliability.

For more details please refer to section Quality Management Methodologies.

7 Hosting at Kulacom

Within this proposal the contractor is offer Kulacom hosting services for the solution; where a shared host will be located in Kulacom Data center.

The contractor is offer a shared host windows server 2008 server which is:

- Quad core CPU
- RAM: 1 GB
- Hard disk: 20 GB
- Bandwidth: 200 GB/Month

At Kulacom the contractor will guarantee

- 99.9 uptime service
- 24/7 monitoring for hosting
- Fast internet connection
- Backup and disaster recovery
- 24/7 support

8 Training

The training activities for this project should be directed towards the normal users of the system as well as the IT specialist who will be responsible in the future for the maintenance and follow up of the whole System.

For the success of the system, it is not enough to provide all the functionality requested by the customer. It is necessary for the users of that system, to accept it as a tool to help them in their daily work. This acceptance based on having a system that is easy to use, simulates the real day-to-day work and can be easily integrated into the daily routine. This can only be achieved by providing comprehensive training to all users, then supporting the users during the launch of the project.

The required training has three main objectives:

1. Familiarize the users with the new systems interface
2. Explain the new functionalities for existing applications and functionalities of new applications.
3. Provide hands on exercises on each application.

The Contactor will provide the following training sessions:

- Functional Training (End User): this training is geared for the users of the system (End Users and IT staff); it will take the users through interactive sessions on how to effectively use the system.

For 1 days

- Technical Training (Administration, super user): this training is geared for the Technical Administrators of the system; it will cover Administrative functionalities and technical details.

For 2 days

Assumptions

8.1 General Assumptions

This proposal is prepared taking into consideration the following assumptions:

- It is assumed that the week contains 5 business days and 8 working hours per working day, except for the holy month of Ramadan when there are less working hours in place. Jordan public holidays are not considered working days.
- The Project Schedule provided in this proposal is preliminary and doesn't account for Public Holidays.
- The project Schedule might be affected during the requirements phase, therefore an updated plan will be provided during the planning phase to cater for the scope of the project.
- Any conflict arising from the misinterpretation of generic, conflicting and in-exact statements made by verbally or through writing will be resolved through reference to The Contactor proposal, which will supersede at that point.
- Issues and questions reported to AUT are to be verified and answered within one working day from being submitted.
- AUT will allocate and schedule the appropriate participants and/or representatives necessary to decide and bring closure on design items, issues, questions, and recommendations presented throughout the project. Closure to issues will be provided within one working day from a request of information. Major Deliverables are expected to be reviewed within 5 working days of submission. Revisions of such deliverables are expected to be reviewed within one working day. A no response will also be considered as acceptance, this applies to the final project acceptance as well.
- Additional requirements, clarifications or requests that might broaden the scope of work as stated in the proposal will be dealt with as a Change Request and might affect the project time estimates and budget. Change Requests will go through the Change Management procedure which will be agreed upon between both parties in the planning phase.
- This proposal assumes that there is a high level agreement on the deliverables of the solution. If during requirements gathering session's changes are seen to diverge from this high level agreement deliverables then they should not affect the overall allocated time

frame and budget. Any major discrepancies or changes that considerably impact the cost and the time frame of the project will be dealt with as Change Request.

- A dedicated team from AUT will participate in the acceptance testing which will be conducted under supervision from The Contactor. AUT team should produce Daily reports detailing the deviation points from the acceptance criteria. Any delay or shortcomings from AUT that will affect the acceptance procedure should entitle The Contactor to act in whatever way it sees appropriate in order to reduce the impact on the project budget and timeline.
- AUT is responsible for providing any required technical resources to facilitate the implementation of the solution.
- AUT project manager will be empowered to make project-related decisions and actions and will be part of the steering committee.
- AUT employees will be available for interviews as per an interview schedule. The employees should be fully dedicated during the time interviews.
- The Contactor will require 2-4 weeks for mobilization of team after project sign.
- Hardware specifications included in this proposal represent the minimum technology specifications needed for the proposed solution at the time of submitting the proposal and as per AUT foreseen load on the solution; nevertheless during project implementation The Contactor will provide AUT with its equivalent specifications if the proposed hardware has been discontinued or is not currently available in the market.
- Feedback and notification channel will be limited only to email which will be an official means of communication and approval notification.
- All correspondences and project documentation will be in the English language.
- Upon final acceptance, The Contactor reserves the right to reference the work performed with Customer in press releases, presentations and other promotional artifacts.

8.2 Technical Assumptions and Conditions

- The Contactor will only be responsible for the deployment of its solution for the solution. The Active Directory, Firewalls, Exchange servers, ISA servers, and any other systems needed to be deployed to complement the solution is not part of this proposal.

- Any needed modifications, enhancements or configurations to AUT network and systems (i.e. Active Directory, exchange, etc...), is considered out of the scope of this proposal.
- Data and language translation is ATU responsibility

8.3 Training Assumptions

- AUT needs to provide the training venues and the equipment needed for the training per the request of The Contactor which will be provided 2 weeks from the start of the training sessions.
- AUT needs to inform its participants about the training schedule and arrange for their attendance. Any delay that results from the un-availability of attendees or the un-readiness of the training venue is to be the responsibility of AUT and The Contactor will not be held liable for any subsequent delays as a result of this.
- The training sessions will be conducted as per the offered training which will provided 10 days before the start of the training sessions.
- The Contactor will not provide specialized Training on Applications, Operating systems and technologies that support, directly or indirectly, its offered solution.
- The training session will be from The Contactor staff directly to AUT 's IT staff. Whereas, AUT 's IT staff will be responsible for training the end user (if necessary).
- The training plan will cater for training sessions related to the modules within the system being offered by The Contactor. If repetition of training sessions is requested by AUT then it will be considered as a Change Request.
- No official training certificates from Microsoft will be provided.

8.4 Warranty and Support Assumptions

- The warranty includes the support services and technical consultancy for the deployed system. The Warranty will not cater for any issue that is not, directly or indirectly, related to the business solution being offered by The Contactor or any supporting system such as Active directory, Exchange servers, ISA servers, Firewalls etc...
- The warranty includes fixing problems and/or bugs that appear in the Deployed systems which are in relation to The Contactor work on Solution.

9 Warranty and Support

9.1 Warranty

Upon successful installation and acceptance of the system, The Contactor will extend a Warranty period of 12 months, where the following terms apply:

- Response Time: the time needed to reply back to the customer.
- Target Fix Time: the time needed to provide the customer with a resolution.
- Severity 1 - Critical Business Impact: Customer's production use of the supported System(s) is stopped or so severely impacted that the Customer cannot reasonably continue work.
- Severity 2 - Significant Business Impact: Important supported System features are unavailable with no acceptable workaround. Client's implementation or production use of the supported System is continuing but not stopped; however, there is a serious impact on AUT 's productivity and/or service levels.
- Severity 3 - Some Business Impact: Important supported System features are unavailable but a workaround is available, or less significant Supported System features are unavailable with no reasonable workaround.
- Severity 4 - Minimal Business Impact: Client requests information or clarification regarding the Supported System but there is no impact on the operation of the System.
- Support Hours: Technical Support’s business hours are from 9:00 AM to 06:00 PM Jordan Local Time. Sunday thru Thursday, except Public holidays. Ramadan Support Timing will be 10:00 AM to 03:30 PM.
- Each Incident should be documented by a follow up email; describing the incident, and assigned Severity level.

The variations for this support policy are described below:

Severity	Response Time	Target Fix Time
Severity 1	4 Working Hours	Within 1 working days
Severity 2	4 Working Hours	Within 1 working days

Severity 3	12 Working Hours	Within 2 working days
Severity 4	12 Working Hours	Within 2 working days

9.2 Maintenance

If requested by AUT, The Contactor will extend maintenance services to AUT upon the completion of the Warranty period. A special agreement will be developed for Maintenance cost and terms.

10 Appendix I : Company Profile

10.1 Echo Technology

10.1.1 Company Overview

10.1.1.1 Who we are

In 2008 Echo Technology was established as a development center serving the biggest IT firms in UAE; which are Limitless IT and Cubic Art Technology. Echo Technology was able through this strong partnership to outsource several big projects to superior clients in UAE and KSA.

In 2010 due the strong demand for IT in Jordan, Echo Technology established its first sales, customer support and project management teams represented by launching Amman Business Unit.

Amman Business Unit focusing on the leading edge of information transfer technologies, adding significant value to their business. Most importantly, we accomplish this by creating a long-term relationship with each partner by clubbing creative and cost effective solutions with a solid foundation of support and maintenance.

10.1.1.2 What we do

Echo Technology delivers different IT services ranging from custom made solutions, Software and IT Consultation. We build our services on understanding clients' business requirements and providing dependable, tailored, cost effective solutions accordingly.

10.1.1.3 Our Vision

To be the leaders in IT service providers in software development within MENA Region

10.1.1.4 Our Mission

To be known and trusted by our clients to deliver top quality full range of IT technology services. Through faith and commitment, we build win-win relationships with our partners, and treat our talents with enjoyable and rewarding environment to carry out the company towards Excellency

Information Contacts Details:

Eng. Yousef Alem

Business Development Manager

Amman Business Unit

Phone: +962 6 4612095 Ext: 102

Fax: +962 6 4612096

Cell: +962 79 5990622

Email: yousef.a@echo-jo.com

10.1.2 General Company Information

Commercial Arabic Name:	شركة الصدى للتكنولوجيا
Commercial English Name:	Echo Technology
Year of Incorporation:	2008
Company Headquarter	Amman Business Unit , Jordan / Amman- Wadi Sakra Riyadh Business Unit , KSA / Riyadh Development Center , Jordan/ Amman – Jabal Hussein
Principle Place of Business:	Jordan United Arab Emirates Saudi Arabia Sudan Libya
Main Lines of Business:	IT Development services IT Consultancy Services
No. of Full Time Staff:	28 +

10.1.3 Partners



10.1.4 Echo Technology Staff

Echo Technology believes that human resource is the most valuable asset. Echo Technology has always been committed to the development of its human resources. This commitment has reflected well on our employees where they have evolved into a highly qualified Industry Knowledge Workers. Echo Technology clients recognize our staff as a group of top IT specialists and engineers in the MENA region. With certified consultants, engineers, and technicians; The Contactor can guarantee its clients the highest standard of delivery and services.

Below table lists the type of certifications and the number of people at Echo that hold them.

Certification				
No	Certificate	Description	Qty.	
1	PMP	Project Management Professional	2	
2	PgMP	Program Management Professional	1	
4	ITIL	Information Technology Infrastructure Library – Foundation	1	
Microsoft	5	MCP	Microsoft Certified Professional	14
	6	MCAD	Microsoft Certified Application Developer. Net	6
	7	MCSA	Microsoft Certified Solution Developer	1
	8	MCSA	Microsoft Certified Systems Administrator	1
	9	MCDBA	Microsoft Certified Database Administrator	2
	10	MCTS	Microsoft Certified Technology Specialist	4
	11	MCITP	Microsoft Certified IT Professional	1

10.1.5 The Contactor Business lines

10.1.5.1 Microsoft Solutions



- Collaborative workspaces
- Internet/Intranet/ Extranet Portals
- Enterprise Content Management
- Business Process & workflow
- InfoPath forms
- Business Intelligence



- Internet Databases
- Custom Enterprise Business Solutions
- E-Commerce Portals
- E-Services Portals
- Client Servers Business Applications & Products
- Web Content Management Solutions
- Distance learning Solutions
- Hospital Management Solutions
- Rapid Application Development



- Enterprise Resource Planning (ERP)
- Customer relationship management (CRM)



- Integration functionality
- Strong durable messaging
- Rules engine
- EDI connectivity
- Business Activity Monitoring (BAM)
- RFID capabilities
- IBM Host/Mainframe connectivity

10.1.5.2 Enterprise information portals

Echo Technology professionals understand the business needs of the regional market, as we have designed, built, and integrated various portal solutions for clients in the region across different sectors.

Echo Technology utilize MS SharePoint, .Net Framework, SQL server, and JavaScript to facilitate client needs and provide a comprehensive control over content which enables decision makers to make a better-decision based on the well-structured information and let them gain a competitive edge over their competitors.

Echo Technology provides turnkey enterprise internet portal solution for public and Intranet solution for internal use, in addition to extranet solution.

10.1.5.3 Enterprise Application Integration

Echo Technology realizes the wide range of applications and line-of-business (LOB) systems that are available in the market, in addition to the need of data interchange between these applications.

The Contactor application integration services utilize BizTalk server and .NET framework to provide a wide range of adapters and API's that simplifies the data interchange between different applications based on different technologies.

10.1.5.4 Custom Application Development

10.1.5.4.1 Web Application

Echo Technology professionals keeps up with the technologies rapid changes and updates, hence they work on the latest technologies of developing Web Applications such as (ASP.NET, ASP MVC, Silverlight, AJAX... ,etc.); to enhance and deliver a high-end web solutions that acquires Clients satisfaction.

10.1.5.4.2 Process Automation

All the software today aims towards supporting business processes, and throughout utilizing latest workflow technologies, Echo Technology Professional can build a high complex business process that vary between processes that rely solely on the communication between applications and ones that rely on people intervention (initiate, approve...,etc.).

10.1.5.4.3 Web Services & Service Oriented Architecture SOA

The move to service-oriented communication has changed software development. Viewing services as a distinct software abstraction is fundamental to service-oriented architecture (SOA), Echo Technology has adopted this approach in its development environment aiming to drive applications to the norm.

10.1.5.4.4 Database Solution

SQL Server is a database platform for large-scale online transaction processing (OLTP), data warehousing, and e-commerce applications; it is also a business intelligence platform for data integration, analysis, and reporting solutions. The Contactor realized the vast need of building such

platforms, and built a Professional team that can handle such huge project with the optimal efficiency.

10.1.5.5 E-Government Solution

E-Government is about leveraging electronic technology to deliver better services to constituents and improve the efficiency of government. E-Government is also about positioning government to drive new revenue generation opportunities. By utilizing the Internet and top of the line IT infrastructure, the government can improve its services and increase efficiency.

Echo Technology solutions for the government include portals, content management, e-services and gateway solutions.

10.1.6 Our Products

We applied our technical knowledge and practical experience of web tools and screen presentation to develop useful systems that are attractive, innovative and effective such as:

E-Agenda

E-Agenda manages and automate the issuing of the agendas of the boards and commissions electronically. **E-Agenda** also provides logging of all actions that have been made on the agendas. The adoption of the work-flow engine allows the electronic agenda to route through the department to the authorized personnel. And with the notification module embedded authorized personnel will stay informed with the process status.

E-Follow-up

E-Follow-up provides a facility to monitor and track all agendas issued by the Board/Council, in addition to the ability to modify letters of meetings, and will send notifications to the authorized personnel, with the proper actions to be taken.

E-Correspondence

E-Correspondence is a solution that aims to automate Official Mail receiving, processing, sending and circulation in order to minimize transaction processing life time, increase productivity and provide management with immediate and accurate tracking and status information.

Both electronic and paper working versions can be internally routed among departments, section, projects and employees. Throughout, transaction's routing and assignments, concise transaction and user history is continuously maintained, providing transaction assessment at a glance.

E-Correspondence will facilitate mail circulation and management processes through the main modules: (Inbound module, Outbound Module, Assignments module, Editor module, Archiving Module, Search Module, Privileges module, Reports module, Information Center Module, Logging and Audit Trail Module, System Administration Module).

EchoBus CMS

EchoBus CMS is web-based content management application enables you to create dynamic website by providing with extensive features for website development and content management, and enables businesses to effectively create, deploy, and manage Internet Websites

EchoCRM

A simple, lightweight and cost-effective web-based Customer Relationship Management software and contact management system. Based on ASP.NET

10.1.7 Selected Clients

Successfully, Echo Technology supplied and supported solutions from various sectors in Jordan, gulf countries and the MENA region. Echo Technology has completed many benchmark projects. Below is a selected list of Echo Technology recent clients.

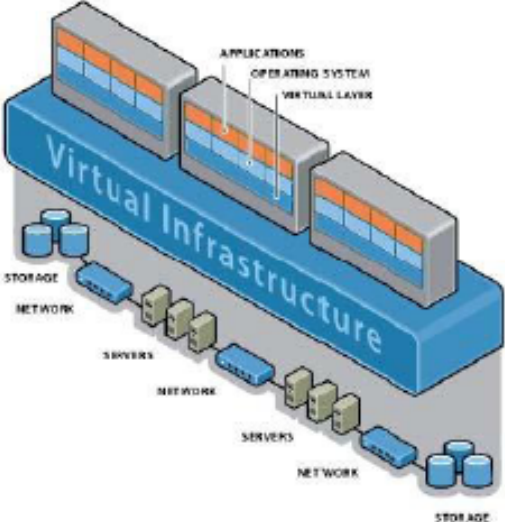
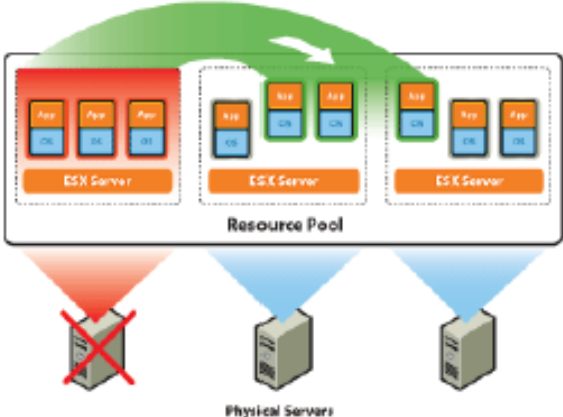


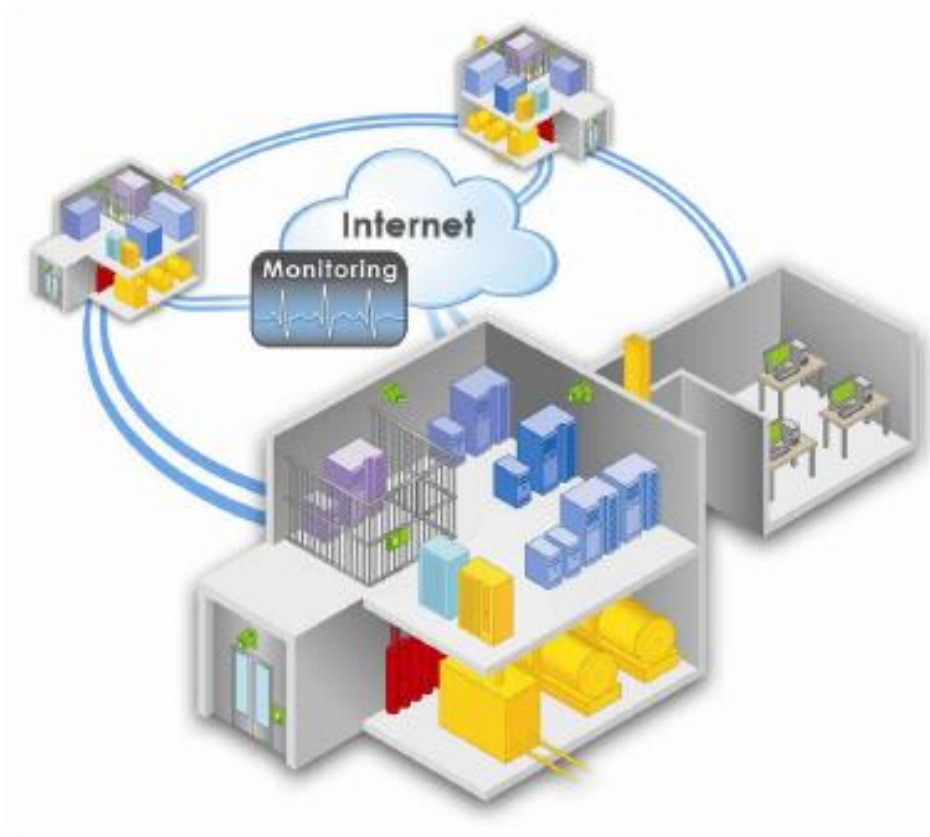
10.2 Kulacom Profile and Services

MetroBeam Wireless Telecommunications CO. LLC (Kulacom Jordan) was established in 2006 by a group of Jordanian investors whose vision was to deliver cutting edge technology to the growing needs of consumers in Jordan.

With that vision Kulacom was born. Kulacom brings simple and reliable telecommunication solutions that are tailored to your needs. We take the time to listen to you; find out how we can make your life easier and take the appropriate measurements to accomplish your needs, keeping you informed every step of the way. Most importantly, we strive every day to exceed your expectations.

In our efforts to find the best technology partner we went straight to the source...the founders and market leaders of “next generation networking” technologies SKT (South Korea Telecom).

Description of Virtual Infrastructure	
<p>What is a Virtual Machine?</p> <p>A virtual machine is a tightly isolated software container that can run its own operating systems and applications as if it were a physical computer. A virtual machine behaves exactly like a physical computer and contains its own virtual (ie, software-based) CPU, RAM hard disk and network interface card (NIC).</p> <p>An operating system can't tell the difference between a virtual machine and a physical machine, nor can applications or other computers on a network. Even the virtual machine thinks it is a "real" computer. Nevertheless, a virtual machine is composed entirely of software and contains no hardware components whatsoever. As a result, virtual machines offer a number of distinct advantages over physical hardware.</p> 	<p>What is VMware High Availability (HA)?</p> <p>VMware High Availability (HA) provides easy to use, cost-effective high availability for applications running in virtual machines. In the event of physical server failure, affected virtual machines are automatically restarted on other production servers with spare capacity. In the case of operating system failure, VMware HA restarts the affected virtual machine on the same physical server.</p>  <p>VMware HA automates the monitoring of physical server availability. HA detects physical server failures and initiates the new virtual machine restart on a different physical server in the resource pool without human intervention.</p> <p>VMware HA detects operating system failures within virtual machines by monitoring heartbeat information. If a failure is detected, the affected virtual machine is automatically restarted on the server.</p>



Operational Security Measures

- | | | | |
|---|---|---|---|
|  |  |  |  |
| Power supply | Temperature Control | Rack - /Server | System Monitoring |
|  |  |  | |
| Fire Protection | Access Control | DR Offices | |
|  |  | | |
| Backbone | Internet Uplinks | | |



Power Supply

The power supply in our data centers is assured by a reliable and stable power infrastructure, guaranteeing a maximum availability:

- AC 230 Volt power breakers (13Amp - 32Amp).
- Two separate power feeds with redundant UPS, generator backup (n+1), power availability of up to 99.999%.



Internet Uplinks

Our datacenters are connected to the Internet by multiple, redundant Gigabit Uplinks and assure highest availability as well as great performance.

As official representative of Tinet (formerly Tiscali International Network B.V.) in Switzerland we do have a direct access to the backbone of this tier1 carrier, with national as well as international peering agreements.



Temperature Control

Our rack systems are being cooled by a down-flow cooling system which guarantees maximum cooling for your equipment. Redundant cooling equipment (n+1) provide permanent and stable temperature within our facilities.

The temperatures are maintained at 18 to 25 degrees, the humidity level of 40 to 60%.



Rack- & Server Systems

Our rack- and server-systems are preconfigured which guarantees fast delivery. Access to carriers or other service providers are provided on fibre or copper basis.



Monitoring

Our connectivity & datacenter services are monitored around the clock (7 x 24 x 365) and come along with flexible Service Level Agreements (SLA) that can be defined according to your needs.



Fire Protection

Our datacenters are equipped with fire detection systems, Very early smoke detection (VESDA), as well as gas-based fire suppression systems. The buildings are equipped with handheld CO2 fire extinguishing systems.



DR-Office

Within our datacenter facilities you will find disaster recovery offices and workstations which can be accessed and used 7 x 24 by your employees in case of a potential disaster.



Access Control

Strict security processes and state-of-the-art security systems such as proximity cards, biometric readers and mantraps limit the access to our datacenters for authorized personnel. The facilities are controlled by cameras and security personnel 7 x 24 x 365.

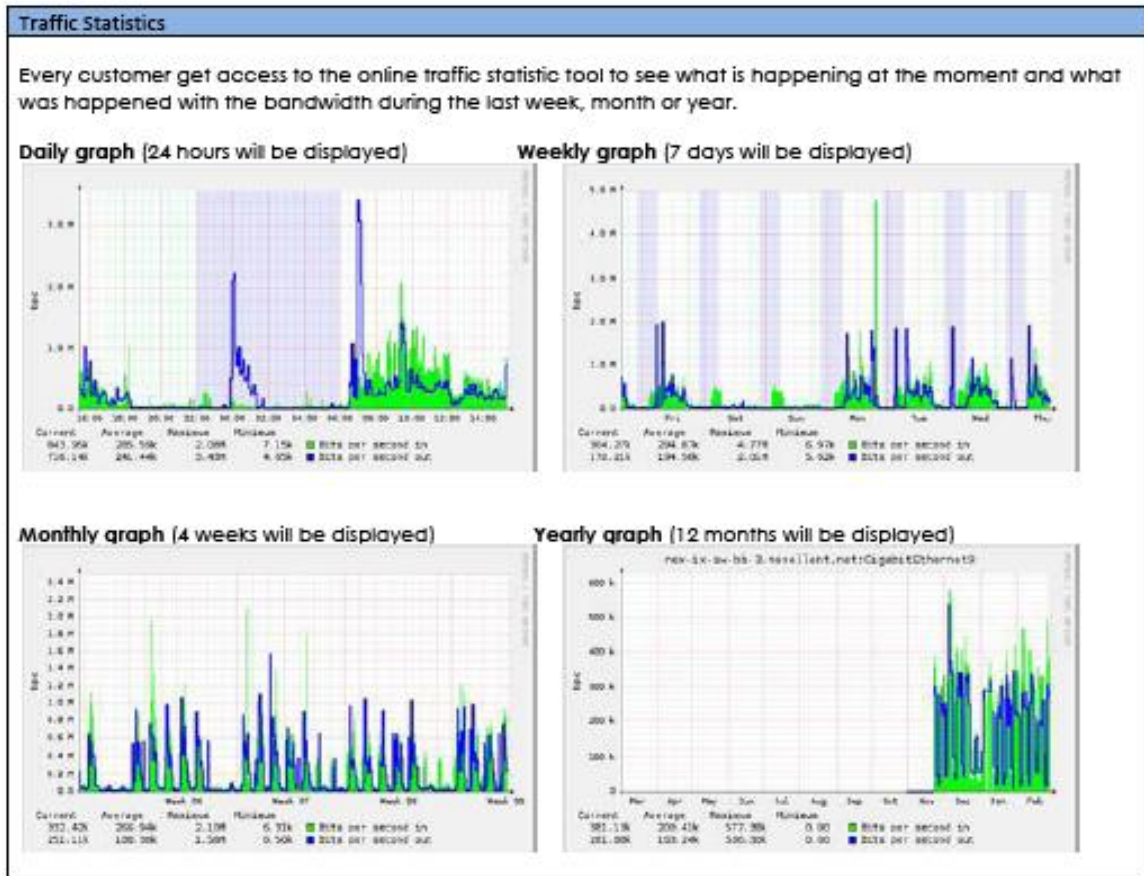


Backbone

Our redundant DWDM fiber backbone connects our datacenters and allows cost-efficient active-active or active-passive solutions. The complete redundancy of the fiber backbone guarantees highest availability.

Managed Server Service	
<p>Our Server Services provide you with turn-key solutions for secure outsourcing of your server infrastructure and embedded applications in our state-of-the-art data centre. In order to ensure the highest degree of operational reliability, Kulacom exclusively relies on high-capacity servers of DELL.</p> <p>Next to our dedicated server products, Kulacom also offers Virtual Server Services as VMware Service Provider Partner (VSPP). Solutions such as VMware High Availability (HA) or Fault Tolerance (FT) offer various possibilities to enhance availability without requiring the setup of complex, difficult to manage and expensive cluster systems.</p> <p>Apart from offering professional infrastructure, Server Services also include the installation of Windows or Linux Operating Systems and applications. It is on the customer to decide if software management stays in-house or if this responsibility should be passed on to Kulacom for our clients to keep the main focus on their core business.</p> <p>The following server and connectivity resources are provided by Kulacom:</p>	<p>Access to your server</p> <ul style="list-style-type: none"> ✓ Root access for Unix, Administrator for Windows ✓ SSH Terminal, and RDP <p>Connectivity, DNS</p> <ul style="list-style-type: none"> ✓ up to 8 fixe IP Addresses ✓ Online DNS Management Tool <p>Software inclusive</p> <ul style="list-style-type: none"> ✓ Windows 2008, Standard ✓ Windows 2003, Standard ✓ CentOS, Fedora ✓ Red Hat, Standard <p>Software option</p> <ul style="list-style-type: none"> ✓ MS SQL 2005 Standard <p>Security option</p> <ul style="list-style-type: none"> ✓ Managed Backup ✓ Managed Shared Firewall ✓ Monitoring Services

Managed Backup	
<p>Where will your data be stored All data is being stored in Kulacom's best in-class Data center. Backup data is stored in a separate Storage of your data in our data center.</p> <p>Recovery of your data Requested restoration of backup data onto your productive equipment is conducted by authorized Kulacom personnel only, possible at any time during office hours.</p>	<p>Backup Advanced Is a fully automated & managed backup solution with daily backup of your data onto our fully redundant Storage Area Network infrastructure.</p> <p>Weekly full backup of your data <ul style="list-style-type: none"> ✓ 1 version is being stored onto the backup infrastructure </p> <p>Daily, incremental backup (incremental data to the weekly full backup), 6 versions are being stored. The daily incremental backups are being deleted after the successful full backup of the following week.</p> <ul style="list-style-type: none"> ✓ Protected VLAN connection to our backup infrastructure ✓ Storage of data onto our mirrored disk infrastructure (RAID 50) ✓ Backup & restoration of your data is supervised and conducted by Kulacom ✓ Weekly full backup of your data onto mirrored disk infrastructure ✓ Daily incremental backup of your data onto mirrored disk infrastructure



11 Appendix II: Microsoft Solutions Framework (MSF)

The Contactor applies the Microsoft Solutions Framework (MSF) in its engagement. The Contactor Technologies is currently working on its own methodology; The Contactor Framework (ESF), which is based on MSF and other standards and methodologies such as Project Management Institute (PMI), Rational Unified Process (RUP), SEI-CMMI-based New Technology Rollout (INTRO), and others.

MSF describes how to:

- Align business and technology goals
- Establish clear project goals, roles, and responsibilities
- Implement an iterative, milestone-driven process
- Manage risk proactively
- Respond to change effectively

MSF is based on two core models: Team Model and Process Model. MSF has also three major areas: Project Management Discipline, Risk Management Discipline, and Readiness Management Discipline. The following sections will describe in detail these core models and disciplines.

11.1 The Team Model

Teams organized under the MSF Team Model are small, multidisciplinary teams in which the members share responsibilities and balance each other's competencies to focus tightly on the project at hand. They share a common project vision, a focus on deploying the project, high standards for quality, and a willingness to learn. The Team Model prescribes no single leader: The members work together as a team of peers. The figure below shows MSF team role clusters and roles within each cluster.

MSF Team Role Clusters and Their Functional Areas

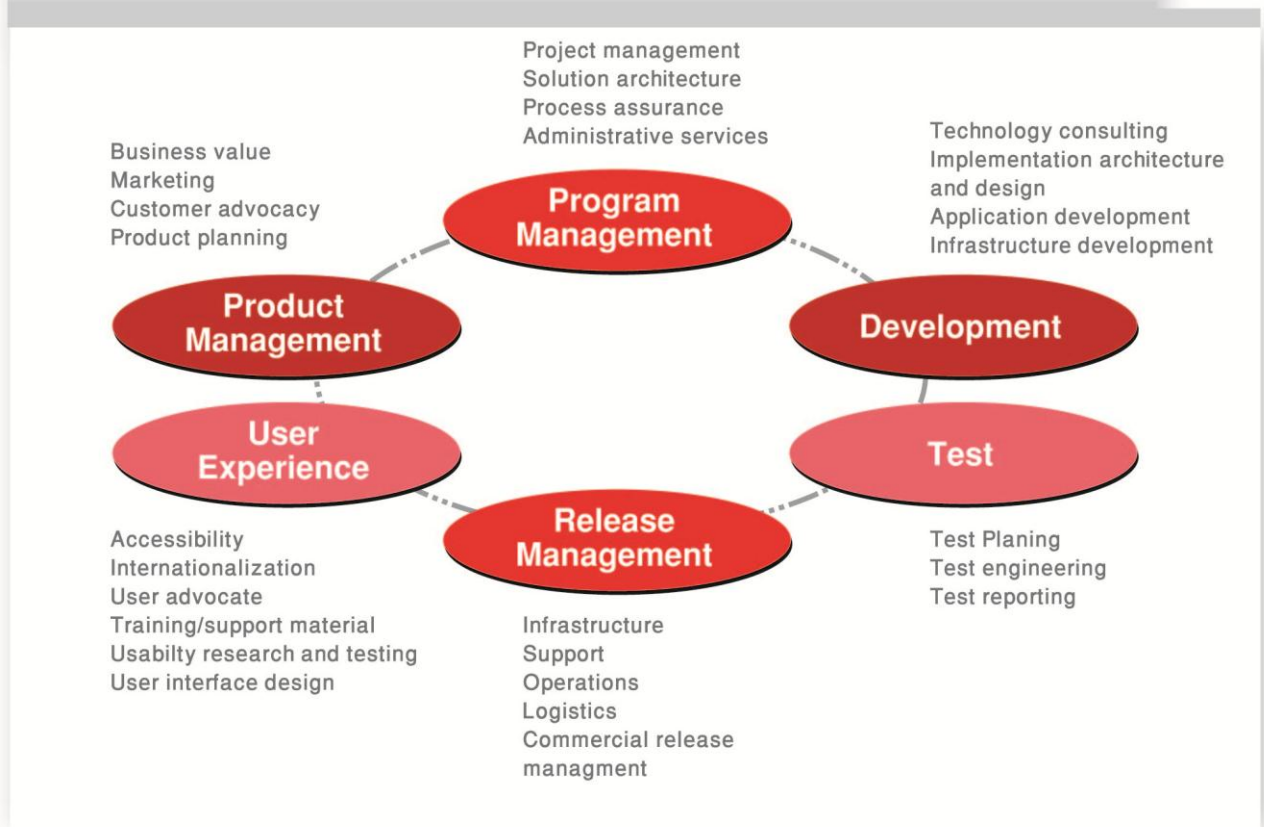


Figure 1: MSF Team Model

The MSF Team Model is built upon certain underlying practices and principles called *MSF Foundational Principles*. The following are the best practices and principles that have helped make the Team Model a success:

- **Clear Accountability, Shared Responsibility:** The MSF team shares the responsibility of the project success, but every role has a clearly defined accountability.
- **Empower Team Member:** In an effective team, each member is empowered to deliver on his/her own commitments and has confidence that, where they depend on the commitments of other team members, that these will also be met. Likewise, the customer has a right to assume that the team will meet its commitments and will plan on this basis.
- **Shared Project Vision:** A project's success depends on the ability of project team members and the customer to share a clear understanding of the project's goals and objectives.
- **Learn from All Experiences:** Willingness to learn. Learning has to be made an explicit activity—for example, by dedicating time in the schedule—for it to have the desired effect.

- **Focus on Business Value:** The MSF Team Model advocates basing team decisions on a sound understanding of the customer's business and on active customer participation in project delivery.
- **Stay Agile, Expect Change:** MSF assumes that things are continually changing and that it is impossible to isolate an IT solution delivery project from these changes.
- **Foster Open Communications:** MSF proposes an open and honest approach to communications, both within the team and with key stakeholders.

There are goals for success that underlie the MSF Team Model. To be truly successful, every team strives to accomplish these six goals:

- **Satisfied customers:** Satisfying the customer must be a principal goal for the project team.
- **Delivery within project constraints:** Historically, many IT (and other) projects have suffered from significant delays and cost-overruns.
- **Delivery to specifications that are based on user requirements:** This goal includes two points.
- **Release after addressing all known issues:** The team does not release the product until it has identified all of the issues and handled them somehow, whether by fixing them or agreeing to address them in a later release.
- **Enhanced user performance:** The product is designed with user performance in mind.
- **Smooth deployment and ongoing management:** Finally, a project's success is measured over its product's lifetime costs, not just the immediate development costs.

11.2 The Process Model

There are different types of process models in use in business today. The MSF Process Model originated from the process used by Microsoft to develop applications and evolved to combine some of the most effective and popular principles of process models into one model that can be applied across any project type—a phase-based, milestone-driven, and iterative model. The MSF Process Model combines the best principles of the waterfall and spiral models, deriving the benefits of predictability from the milestone-based planning of the waterfall model, as well as the benefits of feedback and creativity from the spiral model. The figure below illustrates the MSF Process Model phases and milestones.

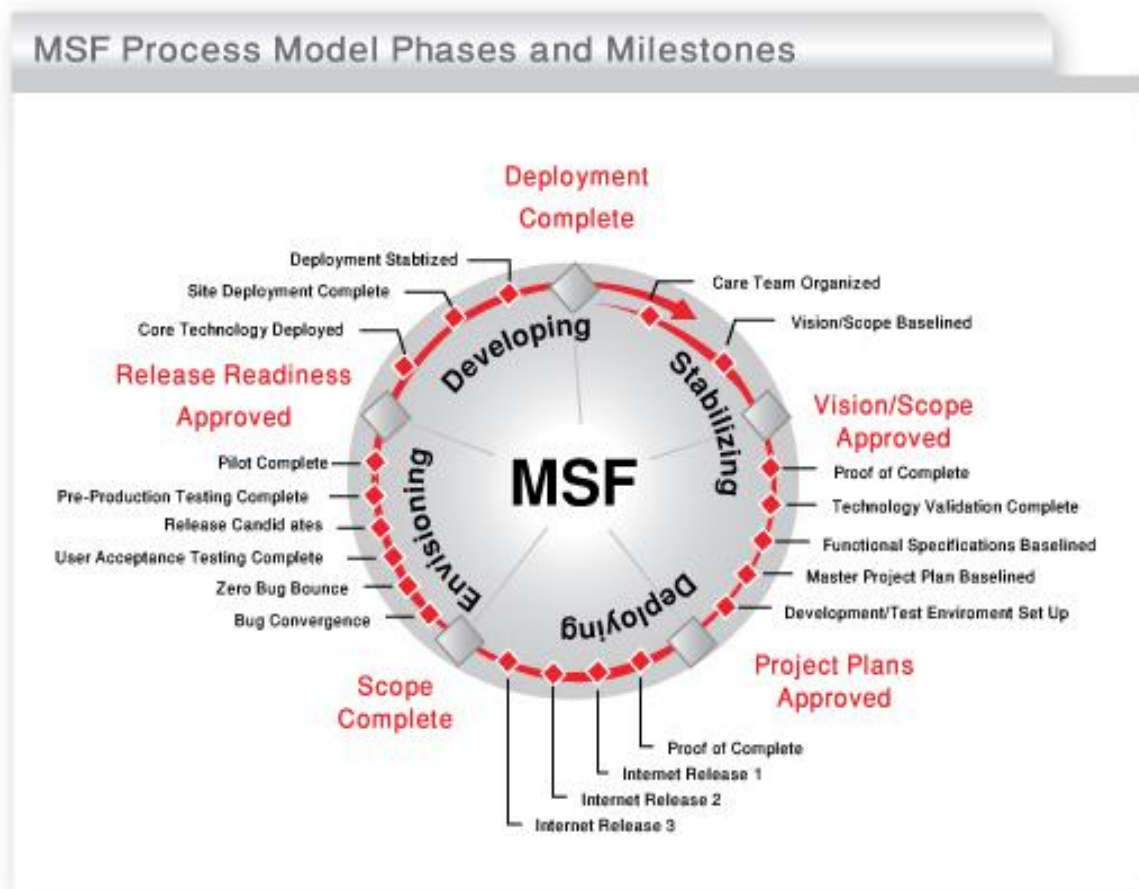


Figure 2: MSF Process Model

The MSF Process Model provides a project planning structure that consists of five distinct phases. Each phase culminates in an externally visible milestone.

- **Envisioning Phase:** The envisioning phase addresses one of the most fundamental requirements for project success—unification of the project team behind a common vision.
- **Planning Phase:** The planning phase is when the bulk of the planning for the project is completed. During this phase the team prepares the functional specification, works through the design process, and prepares work plans, cost estimates, and schedules for the various deliverables.
- **Development Phase:** During the developing phase the team accomplishes most of the building of solution components (documentation as well as code). However, some development work may continue into the stabilization phase in response to testing.
- **Stabilizing Phase:** The stabilizing phase conducts testing on a solution whose features are complete. Testing during this phase emphasizes usage and operation under realistic

environmental conditions. The team focuses on resolving and triaging (prioritizing) bugs and preparing the solution for release.

- **Deployment Phase:** During this phase, the team deploys the core technology and site components, stabilizes the deployment, transitions the project to operations and support, and obtains final customer approval of the project.

11.3 MSF Project Management Discipline

MSF has a distributed team approach to project management that improves accountability and allows a great range of scalability from small projects to very large, complex projects.

11.3.1 Project Management Principles

- Clear Accountability, Shared Responsibility.
- Empowered Teams are more effective.

11.3.2 Project Management Areas

The table below shows MSF Project Management areas and a brief description for each area:

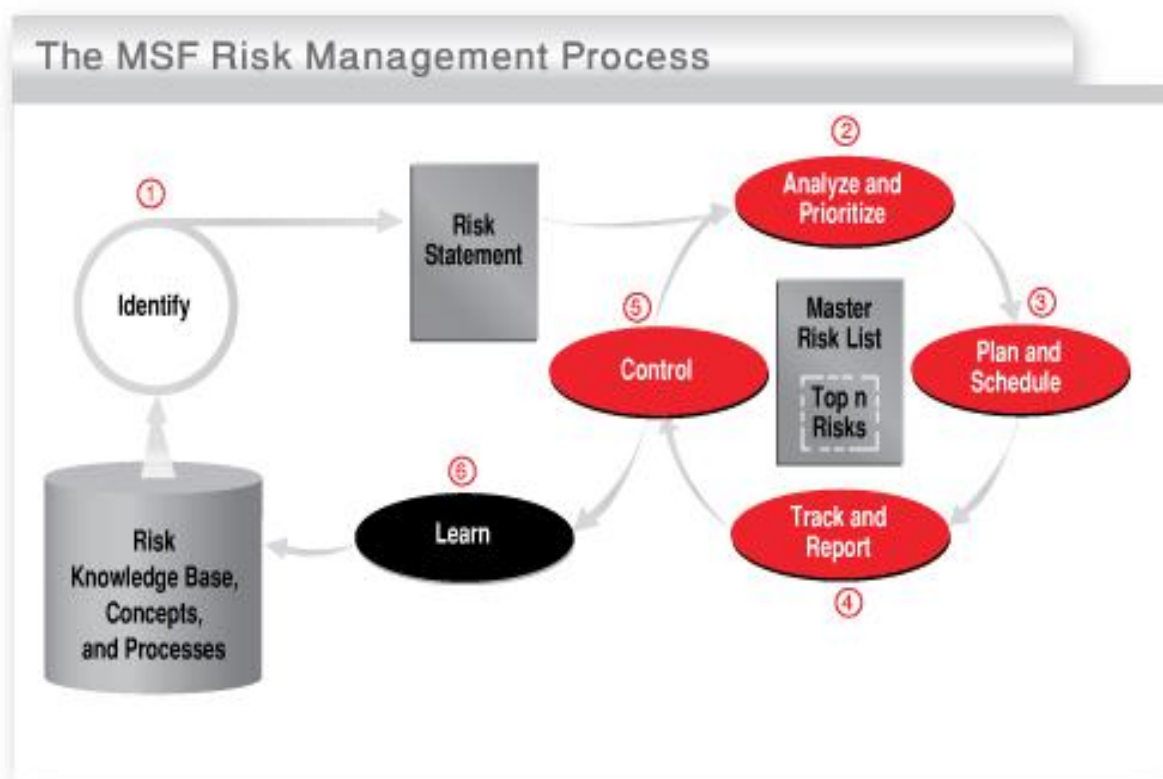
Project Management Area	Description
Project Planning/Tracking/Change Control	Integrating and Synchronizing project plans; setting up procedures and systems for managing and tracking change
Scope Management	Defining breaking down scope of work (project scope);managing project tradeoffs
Schedule Management	Generating schedules from team estimates, task sequencing, matching resources to tasks, applying statistical techniques, schedule maintenance
Cost Management	Preparing cost estimates based on team time estimates; progress reporting and analysis; analyzing cost risk, value analysis
Staff Resource Management	Resource planning, team building, conflict resolution, skills readiness planning (for project)

<p>Communications Management</p>	<p>Communication planning (team, customer/sponsor, users, stakeholders), project status reporting</p>
<p>Communications Management</p>	<p>Communication planning (team, customer/sponsor, users, stakeholders), project status reporting</p>
<p>Risk Management</p>	<p>Facilitating, driving team risk management process; maintaining risk documentation</p>
<p>Procurement</p>	<p>Soliciting contractor bids for services and/or hardware/software; preparing requests of proposals, (RFP), managing vendors or subcontractors; managing and negotiating contracts, agreements; opening purchases orders and approving invoices.</p>
<p>Quality Management</p>	<p>Quality planning, determining which standards to use, documenting quality criteria and quality measurement processes</p>

11.4 MSF Risk Management Discipline

Risk Management is a core discipline of MSF. MSF recognizes that change and the resulting uncertainty are inherent aspects of the IT life cycle. The MSF Risk Management Discipline advocates a proactive approach to dealing with this uncertainty, assessing risks continuously, and using them to influence decision-making throughout the life cycle.

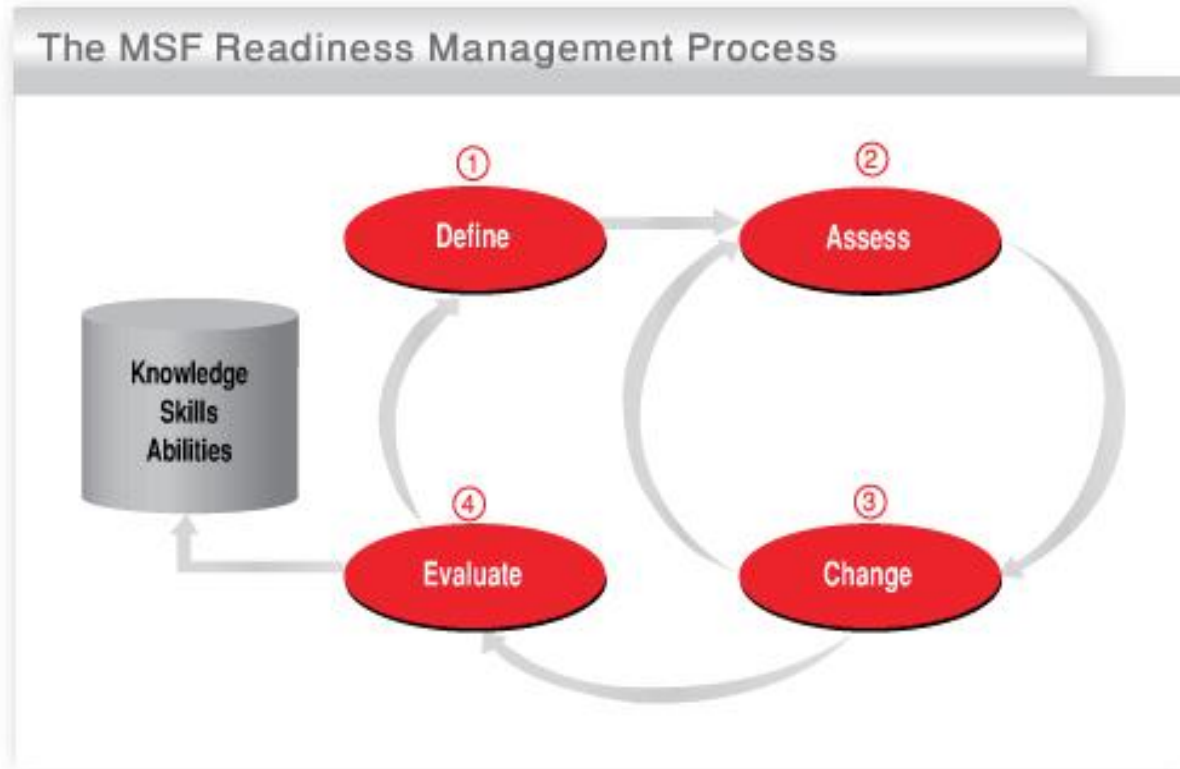
The figure below shows how MSF manages risks during a project.



11.5 MSF Readiness Management Discipline

Readiness Management is a core discipline of MSF. This discipline outlines an approach for managing of the knowledge, skills and abilities needed to plan, build and manage successful solutions.

The figure below shows how MSF manages the readiness of the team continuously.



12 Appendix III: Quality Management Methodologies

This section presents a description of the project quality management methodologies that will be applied during the life of this project with specific emphasis on the software development components:

The objective of the quality plan is to guarantee that AUT needs are completely fulfilled and that AUT is fully satisfied with the provided solution. Various quality terms are briefly defined and discussed. The used Quality Assurance Framework is explained in detail.

12.1.1.1 Quality Planning

As a means of determining if the needs are being satisfied, quality focuses on three areas, however, achieving a balance between these variables is difficult but critical to the Project success.

- **Goals:** Ensuring that the project is achieving its objective.
- **Performance:** Ensuring that the project is structured to deliver an end product that is both efficient in its use of resources and effective in function.
- **Methods:** Ensuring the use of the appropriate methodologies, standards, procedures and guidelines during the course of the project.

Quality Standards are a fundamental aspect in satisfying the project user needs. It is only through effective standards that the appropriate balance between goals, methods, and performance can be achieved. The outlined standards and guidelines provide a framework for managing quality.

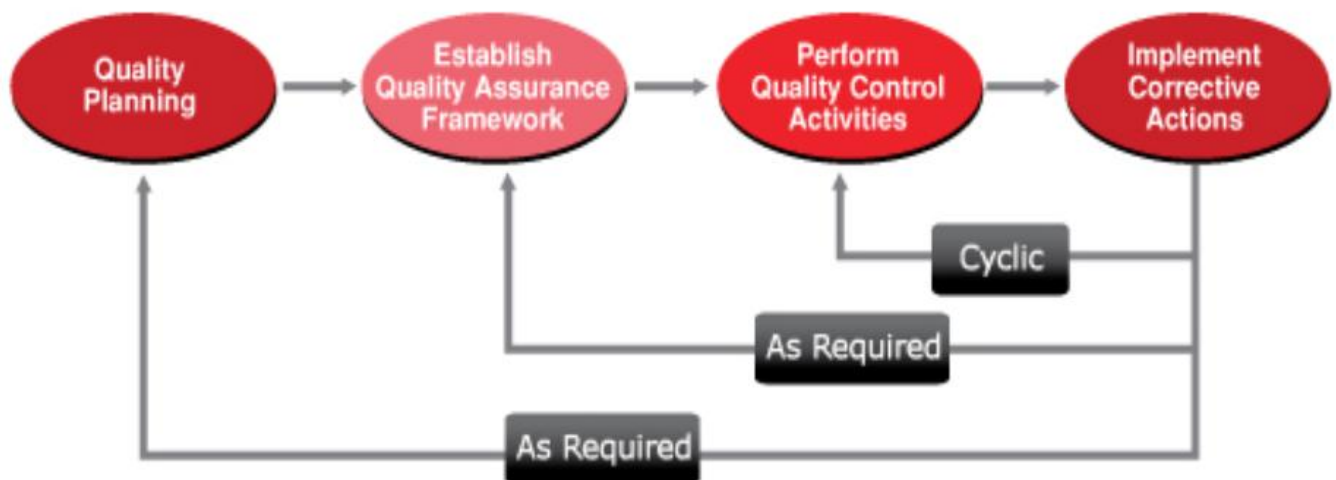


Figure 3: Quality Assurance Framework

There is a distinct difference between quality plan, quality assurance and quality control. In brief, these terms are defined as follows:

- **Quality Plan:** The document that outlines the methods, procedures, standards, and mechanisms for producing quality deliverables.
- **Quality Control:** The means by which the specific deliverables are measured to verify that the intended level of quality has been achieved.
- **Quality Assurance:** The means by which the quality process itself is evaluated to ensure that all appropriate measures are being taken to instill quality in each deliverable and project phase.

12.1.2 Quality Assurance Framework

To be successful, the quality assurance framework must have strong management support. This support must come from Product Manager, Program Manager, and all other levels of management involved with the project effort.

12.1.3 Quality Control

In this section, The Contactor quality control is presented. To ensure that the provided solution is matching specifications, The Contactor uses quality control process that includes the deliverable distribution and approval process, change control procedure and configuration management.

12.1.3.1 Specifications Matching

A project must satisfy the criteria upon which it was established during the envisioning and planning phases. Its documentation represents the discipline and commitment of a team dedicated to delivering quality. The traceability audit process confirms quality documentation or remediates existing documentation to expected standards. In addition, the development phase must be assessed to ensure that what was committed to during early phases has been actually built.

12.1.3.2 Regulatory Compliance

The Contactor uses original and licensed copies for all tools, products, and applications used throughout the project lifecycle.

12.1.3.3 Quality Control Process

The Program Manager and Test Team Leader are tasked with ensuring that all quality control activities are communicated and understood via the Project Team. These standard processes enable the project team members to meet the desired objectives, hence, increasing the probability for project success, this includes:

- A. **Selecting the Configuration Tool:** Ongoing configuration management processes use an automated configuration management tool, selected by the Program Manager, to reduce the labor intensity of manual control, and to produce required control reports.
- B. **Configuration Management Responsibility:** In order to facilitate the control of documentation, responsibility for the project repository is often allocated to a designated configuration manager in the Project Team.
- C. **Configuration Management Procedures:** Configuration management procedures strike the right balance between effective control and ease of use by project members. The configuration management addresses the following aspects of security:
 - Integrity of Master Copies
 - Integrity of System Areas
 - Backup and Recovery



Figure 4: Configuration Management Process

- D. **Implement Ongoing Configuration Management Process:** Prior to beginning task work in a new project phase, the Program Manager reviews upcoming deliverables to ensure the current configuration management procedures are sufficient.
- E. **Modify Procedures:** The project procedures for configuration management may require modification and alteration as the project progresses through various phases.

- F. **Coordinate with Planning and Reporting Processes:** Since the configuration management process ultimately controls all project deliverables, careful synchronization between configuration management and the planning and reporting processes are required.

12.1.3.4 Qualifications Methods

This section discusses the validation, verification, and testing plan details.

➤ **Test Plan Objectives:**

- Define the activities required to conduct both manual and automated System Integration and Regression testing.
- Communicate to all responsible parties tasks that they are responsible.
- Define various deliverable and responsible parties.
- Identify problems early in the development cycle. If corrections are made early in the development cycle, project costs are kept down and the customer receives a timely product of high quality.
- Provide a structure for testing within the system development life cycle. This keeps the effort focused and on schedule.
- Define responsibilities within the testing framework. This plan holds participants accountable for agreed-upon responsibilities.
- Coordinate test efforts and provide overall direction for all sharing of test data throughout phases of testing.

- **Testing Strategy:** The testing strategy includes all types of tests. A fundamental guideline of this strategy is to ensure that the Developers have to conduct only the Unit Testing.

A. **Coverage Testing:** Coverage tests are typical of the developing phase tests, these include:

- Unit Testing
- Functional Testing
- Check-in Testing
- Build Verification Testing
- Regression Testing

B. **Usage Testing:** Usage testing is intended to ensure that the solution works in the environment for which it is intended and focuses on testing the solution, as users and operations staff would use it, these include:

- Configuration Tests
- Security Tests
- Stress Tests

- Performance Tests
- Documentation and Help File Tests
- Usability Tests

12.1.3.5 Test Equipment

Testing requires a test environment that must produce the expected results. In many cases tests require special test environments, and in other cases tests can be conducted in operational environments. Repeating tests requires keeping as many test parameters, such as a test environment, constant. Software inspections and project reviews always examine test environments. Documenting the test environment makes this possible.