



Clinic Management System Proposal

By: DhahranSoft Ltd.

Team (4)

ALI AL-MADAN
HESHAM AL-SALEH
HUSSAIN ALYOUSEF
HUSSAIN ALALI
ABDUL-AZIZ AL-WOHEEB

Address: 4053 Dhahran, Saudi Arabia
Telephone: (+9663) 2849604
Fax: (+9663) 2849605
Contact: Abdulaziz Al-Woheeb
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1. Executive Summary

DhahranSoft is the leading organization for software design and development in management systems [CMMI 5]. The company's current market worth is 1.2 billion dollars with employees and investors worldwide.

DhahranSoft believes in creating a **smarter** and **greener** planet. We have taken up an initiative to infuse systems with intelligence. An intelligent system creates what we all look for in our businesses - efficiency. We believe in bringing together systems so that information can be exchanged, used or broadcasted in an intelligent way. This is what employees at **DhahranSoft** believe in.

This is why we believe that content management is the most important aspect for any institution. It makes information exchange a lot simpler and quick. A major part of our research and development budget has been allotted to finding algorithms to make the best content management systems. We have developed a lot over the years and without a doubt have the best tools to create a content management system.

DhahranSoft has over 1,000 employees working in offices all around the world in major cities - New York, Paris, London, Sydney, Tokyo, Hong Kong, New Delhi, Cairo, Riyadh with our headquarter located in Dhahran.

DhahranSoft has organizational partnerships with IT giants like Cisco, IBM, HP, facebook, google, Microsoft, Wipro, Oracle and Tata Consultancy. We have been involved with content management projects in partnership with them in the past and have some more projects in the coming years. All technologies that will be used in making the CCC-CMS are available with **DhahranSoft** at partial or complete ownership.

Success Story

In 2005, **DhahranSoft** developed a medical health care system for KADH (King Abdullah Hospital) located in Dammam. The system was developed for managing employee and patient records. Upon deployment, the Dean of Medicine at KADH was very impressed with improvements because of the Content management system in the

hospital, so he held a gathering for all project members and hospital employees to celebrate the success of the project.

In 2006, **DhahranSoft** developed a content management system for the KFUPM Clinic. It has now been over 4 years since the system has been deployed and it has undergone several updates under system evolution but has shown no major errors. This goes on to show the perfect level of abstractness and adaptability of the system with changing requirements.

Terms and Conditions

By not contradicting anything stated, you are agreeing to be bound by these Terms and Conditions, all applicable laws and regulations, and agree that you are responsible for compliance with any applicable local laws.

Henceforth, the employee [**DhahranSoft**] will be referred to as **(A)** and the employer [CCC] will be referred to as **(B)** in the document.

A. Duration of Agreement

The contract work will be carried out in the period from January 2011 to December 2012 [this is the estimated time in which **(A)** will complete the design, implementation, deployment and testing of the project]. The contract is void after **(A)** hands over complete control of *CMS* to **(B)** and after the two parties have settled their accounts completely.

B. Terms and Conditions

This contract certifies that the following services will be provided by **(A)** to **(B)** over the agreed period of time.

1. **(A)** is in charge of designing, developing, implementing and testing a Content Management System for CCC.

2. The content for the website is to be provided by **(B)** to **(A)**. **(A)** does not hold any responsibility for the content and quality of material uploaded on the website.

No changes will be made by **(A)** to any of the content provided by **(B)** for the website.

The content provided will be uploaded directly, unless otherwise instructed to or approved by **(B)** to make changes.

3. **(B)** will perform routine acceptance testing and provide feedback for any amount of finished work when asked to by **(A)**.

4. The two parties are obliged to mutually inform each other about everything that may influence the execution of the job described in the agreement.

C. Payment

The payment of the complete contract work is **SR. 1,200,000** only. The payment will be made in ten installments by **(B)** to **(A)** equally split over the period of the contract. All payments will be made via transfer to the SAMBA bank account number **33333333**.

D. Breach of Contract and Compensation

If one of the parties is in considerable breach of the contract the other party may cancel the contract with immediate effect. However, it is a condition for the cancellation that the party, who wants to claim breach of contract, has made a claim either by phone or by mail with a warning of at least ten working days. In case if **(B)** claims a breach of contract at any point of time, **(A)** is entitled to up to 30% of final payment.

2. Comments on scope [as stated in the RFP]

Scope 1

The non-technical staff needs to be specified. Does it include anyone else other than doctors and system admin?

Doctors need to update their web pages for uploading CV, research, clinic hours etc.

System admin needs to update information on the clinic webpage.

Who else might want to update the website?

Scope 3

DhahranSoft will not be responsible for entering existing content into the delivered system. However we will provide training to CCC IT department to help them add old content to the system.

Scope 7

DhahranSoft will buy all necessary software and licenses initially for the system development. In case any software component/license expires, the CCC IT department will be responsible for its renewal. All necessary information will be provided to the IT department during system deployment.

Scope 9

The project manager appointed by our company will regularly hold meetings with the CCC staff to present and discuss the design and development issues. We will record all suggestions made but they may or may not be implemented as the company will do what it thinks is best for the system quality.

Scope 10

There is ambiguity in the term "Safe and Secure". Are we talking about the system's safety and security? If yes, in what sense should the system be safe and secure?

Scope 11

The initial design contains a primary and secondary database. In case of failure or bad connection to the primary database the system will automatically connect to the secondary database.

Scope 12

The ownership of the system software and architecture will have shared membership between our company and CCC. The company might use components from the system for future development use.

3. Proposed solution details

The CMS contains the following components –

- a. A database to store clinic's information.
- b. A network to connect all hosts in the clinic to the database.
- c. A robust backup system in case of failure of either the network or database.
- d. Connectivity to the university's central database to exchange information.

Description of the system

The CMS database is going to store patient, doctor and staff details. It will store all details of visits by a patient such as which doctor did he visit or medications that were prescribed.

For the doctors, it will store their duty timings, number of patients seen for the day, medicines that were prescribed for the day. For the staff, it records their schedules and duty locations.

The clinic has about 50 hosts that will connect to the database using the network. The connectivity of all hosts to the network and database is critical at all times. In case of failure of a host, the doctor will be able to login from any different host and perform same functionalities from his account.

In case of network failure, a backup network will immediately be set online. The clinic cannot afford to stop functioning because of a broken network. The CMS database will have connectivity to the central database to retrieve employee information. Also a backup copy of the entire CMS database will be stored at the Clinic's central database.

4. Approach and Methodology

In our development process we will use Iterative/Incremental development to eliminate the risk of changing requirements during the process (this may not include major changes). The level of change will be evaluated and executed by Change Control Board and the requirements team. Since we will follow the incremental process there will be overlapping between the following processes.

We will use the main development procedure (Tool and technique used with each process):

A. Software Requirements Specification :

This document targets the user needs and captures them. It covers two major requirement types:

- a. Functional Requirements:** the function and services that should the system provides. (eg. make an appointment for a patient).
- b. Non-functional Requirements:** that specifies criteria that can be used to judge the operation of a system, rather than specific behaviors. (eg. the system should be developed using JAVA, system should be robust etc).

Use Cases are representations of the functional requirements using models that show how users will interact with the system. Every use case will be individually documented using SRS documents along with its sequence diagram. To bridge the gap between requirements and design, a Robustness Analysis Diagram should be depicted to help gain an understanding on how to derive the entities and their relationships in the design phase.

Development Tools:

#	Tool name	Description
1	Enterprise Architect 7.0	Software modelling tool.
2	MS Visio 2007	Diagramming tool.
3	MS word	SRS documentation.

Technique used:

Technique	Applied to
Use case diagram	Software requirements
Use case description	specifications (SRS)
Data dictionary	document.
Sequence diagrams	

B. Software Design :

The design description should contain the design and architecture of the system components. All entities and components are described in the SDD using formal documentation along with UML diagrams, such as:

- Class Diagrams
- Collaboration Diagrams
- Sequence Diagrams
- ER Diagrams

After documenting the requirements the functionalities will be interpreted into prototypes which will be discussed with the stakeholders to gain consensus, validate and

verify the development of the project team. These prototypes for the user interface should be represented as follows to gain approval from the stakeholders of the system and to assure correctness:

- a. **Content Diagrams:** that represents the structure of the user interface.
- b. **Paper Prototypes:** that shows the content diagram entities.

Development Tools:

Tool name	Applied to
Enterprise Architect 7.0	Class Diagram and system architecture

Technique used:

Technique	Applied to
<ul style="list-style-type: none"> • Class diagram • ER diagram • Sequence diagram • Activity diagram • Design patterns technique 	Software design document (SDD).

C. Software implementation:

Given the architecture document from the design phase and the requirement document from the analysis phase, the team will build exactly what has been requested, though there is still room for innovation and flexibility. For example, a component may be narrowly designed for this particular system, or the component may be made more general to satisfy a reusability guideline. The architecture document should give guidance. Object-Oriented programming will be used as technique for implementing that software.

Tools that will be used to build the system:

#	Language	Description
1	C#	Programming language.
2	ASP.net	Server side programming language.
3	JavaScript	Client side

		programming language.
4	XHTML	Mark-up language.
5	CSS 2.1	Style sheet language.

D. Software Testing :

The Software Test Documentation will contain the following information:

- Summary of inspection results carried out on the code.
- Find the total number of defects per class and total number of defects per type of defect across all classes.
- Present a list of test activities, test cases, test schedule, testing responsibilities (Individual roles etc.), test cases generated using visual studio, test cases results, list of bugs identified.

Variation of testing approaches and levels will be used and applied:

1. The box approach:

1.1 White box testing.

1.2 Black box testing.

2. Testing levels

2.1 Unit testing

2.2 Integration testing

2.3 System testing

2.4 System integration testing

2.5 Regression testing

2.6 Acceptance testing

3. Non-functional testing:

3.1 Software performance testing and load testing

3.2 Stability testing

3.3 Usability testing

3.4 Security testing

3.5 Internationalization and localization.

5. Schedule and Staffing Plan

A. Schedule plan:

Milestone	Date	Complete When...
Baseline SPMP completed	April 22, 2011	Baseline SPMP approved by responsible party
Baseline project charter completed	May 17, 2011	Baseline project charter approved by responsible party
Project kick-off	June 1, 2011	Baseline schedule created in Microsoft Project and all activities in it are assigned to team members
Software Configuration Management Plan completed	June 14, 2011	SCMP is submitted for approval, technically reviewed, and is approved by responsible party
System allocation completed	June 14, 2011	Technical review of system allocation yields no showstopper
Software Quality Assurance Plan completed	June 21, 2011	SQAP is submitted for approval, technically reviewed, and is approved by responsible party
Software Requirements Specification completed	July 22, 2011	SRS is submitted for approval, technically reviewed, and is approved by responsible

		party
Software Design Specification completed	November 25, 2011	SDS is submitted for approval, technically reviewed, and is approved by responsible party
Requirements & Design V&V completed	December 6, 2011	SRS and SDS have been verified, validated, and signed off by V&V team
Software Test Plan completed	December 24, 2011	STP is submitted for approval, technically reviewed, and is approved by responsible party
Documentation completed	January 31, 2012	All documentation required for implementation is approved, technically reviewed, and is approved by responsibly parties
Software Verification and Validation plan completed	February 1, 2012	SVVP is submitted for approval, technically reviewed, and is approved by responsible party
Verification and Validation completed	April 25, 2012	All software products are tested such that no showstopper defects exist
Implementation completed	April 26, 2012	All software products are in a form suitable for installation by installation team

Training completed	May 27, 2012	95% of all identified training targets have received training
Installation completed	June 2, 2012	Installation of software is completed on all CCC computer machine
All project deliverables have been delivered	June 2, 2012	
Project closeout	June 2, 2012	Closeout checklist items is approved

B. Staffing plan :

The management of this organization feels that it has the sufficient manpower to carry out this project. No new hires or outsourcing is required. The following Table shows the number of personnel needed for each position.

Function/Task	Number	Comment
President	1	Responsible for funding, marketing, non-software risk management, management, staffing
Project Manager	1	Leads S/W development by providing S/W project plan, S/W schedule, S/W cost estimation, and manages configurations
CFO	1	Responsible for Budget allocation, financial risks, project cost estimation
Technical S/W Manager	1	Provide S/W risk assessment, system development scheduling, domain research, technology decisions
System Design Engineer	4	Designs overall S/W and integrates all

		developed modules
Testing Manager	4	Primary responsibilities are quality assurance, test cost estimation, acquiring test resources, research of satellite environment, telemetry H/W research, and establishing test schedules
Software Engineer	5	Responsibilities are development of modules/ GUIs and system/unit testing
Coder	3	Codes the designed system

6. Project Management

Once we win that chance to develop the KFMCC Software we will develop the project management plan according to IEEE standard but in general we will describe the process at abstract level:

Project management can be viewed as a number of interlinked processes

The project management process groups include:

- Initiating processes (We are still in the first step we cannot proceed to the rest of the group unless we agreed and gain agreement on the project charter at the first place).
- Planning processes
- Executing processes
- Monitoring and controlling processes
- Closing processes

Processes overlap and interact throughout a project or phase. Processes are described in terms of:

- Inputs (documents, plans, designs, etc.)
- Tools and Techniques (mechanisms applied to inputs)
- Outputs (documents, products, etc.)

We map the main activities of project process group into these nine knowledge areas which are:

1. Project Integration Management
2. Project Scope Management
3. Project Time Management
4. Project Cost Management
5. Project Quality Management
6. Project Human Resource Management
7. Project Communications Management
8. Project Risk Management
9. Project Procurement Management

7. Warranty and Post Implementation Support

DhahranSoft guarantees the delivery of a system with the best quality possible. However to satisfy our customers we provide warranties and post implementation support for a duration that exceeds the asking time from the client. This is how much faith we have in our product quality. A project team that undertakes the development of a system makes sure that the best possible service is provided to the client.

- The project manager will give a brief presentation introducing the stakeholders to the system functionalities and giving them a brief walkthrough of the system.
- During the acceptance testing phase, a short workshop will be held by a team of experts to provide short tutorials to all end users.
- After deployment and during the acceptance testing phase, a team of testers will be allotted to the KFMCC who will stay there during all working hours. Their job will be to fix any minor bugs in the system before they roll up to become major problems. Also they will be present to clear out any questions or issues end users may have while using the system.
- After the initial deployment, **DhahranSoft** will place a full time employee at our call center for 2 months to specifically resolve any issues that any end users may have.
- After initial deployment, the KFMCC IT department will undergo training given by **DhahranSoft** employees on how to maintain and manage the system efficiently.

- In case where software's used to complete the system have any kind of renewal period or all such information related to the system update will be reported to KFMCC IT department during deployment.
- Our system will have a warranty period of 3 years of system up-time provided the system has not undergone maintenance without the supervision of **DhahranSoft**.

8. List of services to be provided by us

- ✓ Tutorials for system end users.
- ✓ One month of free call center service to resolve issues for end users.
- ✓ Presence of DhahranSoft employees during KFMCC working hours to fix minor bugs and resolve issues.
- ✓ Hold workshops to familiarize end users with the system.
- ✓ Training to KFMCC IT Department on how to efficiently manage the system.

9. Vendor Profile

Business Full Name : DhahranSoft			
Business License Details: License issued on 2001. Other details available upon request.			
HQ Address: Dhahran, Eastern Province			
P.O Box: 9009	City: Dhahran	Country: Saudi Arabia	Postal Code: 31261
Sales Representative: Abdulaziz Al-Woheeb		Contact Info: +966 506 333333	
E-Mail Address: Aziz.awb@DhahranSoft.com		Web Address: www.DhahranSoft.com	
Phone: +966 3 860 3333		Fax: +966 3 860 0001	
Number of Years in Business: 15 years		Number of Full Time Employees: 950 employees	
Commodities/Services: We provide comprehensive IT scientific and business solutions and services, focused on Microsoft Technologies, SAP services, Documentum, Adobe, Google, 3D, J2EE/.NET Software Application Development, Consultancy, Systems Integration, and Implementation services			
Type of Business: IT services			

10. Vendor References

Name: iSoft	Entity:	Phone: 03821374
Name: HughWare	Entity:	Phone: 01232123

11. Profile of Key Positions CV's

Name: Hesham Al-Saleh	Position: President
Name: Abdulaziz Al-Woheeb	Position: Manager of web development department
Name: Ali Al-Madan	Position: Manager of testing department
Name: Hussain Al-Yousef	Position: Manager of maintain and support department
Name: Hussain Al-Ali	Position: Manager of Desktop based application

12. Qualifying Requirement compliance

#	Qualifying Requirement	Bidder Response
1	<p>RFP Response is submitted by the due date and time, signed by a company's official/owner.</p>	<p>UNCONDITIONAL COMPLIANCE WITH THIS REQUIREMENT?</p> <p>YES</p>
2	<p>Compliance With Saudi Arabia's Laws The bidder is aware of Saudi law and ensures the proposal doesn't violate it</p>	<p>UNCONDITIONAL COMPLIANCE WITH THIS REQUIREMENT?</p> <p>YES</p>
3	<p>Business License The bidder's business is licensed from the Ministry of Commerce & Industry in Saudi Arabia, or its respective entity if non-Saudi</p>	<p>UNCONDITIONAL COMPLIANCE WITH THIS REQUIREMENT?</p> <p>YES</p>
4	<p>Compliance with Scope of Work and Technical Requirements, hence the bidder is aware that his project must satisfy the requirements of the project provided in this document or serve the system's goals. The bidder is aware that he is to do further requirements elicitation.</p>	<p>UNCONDITIONAL COMPLIANCE WITH THIS REQUIREMENT?</p> <p>YES</p>
5	<p>Warranty Bidder shall provide warranties for the Software, the Hardware, and the Solution along with his proposal, all of which shall commence on the day KFMCC begins using the system for its purpose (actual Warranty effective date to be determined during contract negotiations), and shall be included in the bid price. Bidder shall submit detailed descriptions of all warranties.</p>	<p>UNCONDITIONAL COMPLIANCE WITH THIS REQUIREMENT?</p> <p>YES</p>
6	<p>Installation & Maintenance The bidder is required to install the system along with its software, hardware and interfaces fully in KFMCC. The maintenance costs to the system should be included in the bid price in details,</p>	<p>UNCONDITIONAL COMPLIANCE WITH THIS REQUIREMENT?</p> <p>YES</p>

13. List of Deviations from Requirements

Deviation: DhahranSoft is not responsible for entering old information into the system.

Comment: however we are willing to provide training to KFMCC IT Department to be capable of this.

Deviation: DhahranSoft will not provide software licenses if they expire after initial purchase.

Comment: we will provide a detailed report to the KFMCC IT Department on the validity of all software's used in making the system and then the IT Department will be accountable for performing system updates.

Deviation: DhahranSoft is not willing to provide 100% code ownership to KFMCC.

Comment: however we are willing to negotiate a partial ownership as DhahranSoft may want to use components from this system design.

Financial Proposal

DhahranSoft, Developers and Consultants company, offers to provide the complete development of *Clinic Management System (CMS)* for *King Fahd Medical Care Center (KFMCC)* in accordance with the Request for Proposal #86 that has been issued by KFMCC . The proposed cost of completion the project is for the sum of **SAR 1,200,000.00 (One Million Two Hundred Thousands Saudi Riyals)**.

Project Deliverables Lump-Sum Price

All prices of the tasks are in Saudi Riyals include the travelling expenditure, fees of expatriate experts ...etc.

	Task	Cost (SAR)
1	Developing complete project plan.	SAR 115,000.00
2	Developing Software Requirements Specifications (<i>SRS</i>) <i>Document</i> .	SAR 243,000.00
3	Developing Software Design document.	SAR 160,000.00
4	Implantation of (CMS).	SAR 355,000.00
5	Testing.	SAR 245,000.00
6	System deployment.	SAR 82,000.00
	Total	SAR 1,200,000.00

Man-Day Rates for Additional Work or Change in Scope of Work:

In this section, the man-day rates of any additional or changes in scope of work are specified.

	Task	Man-day Rate(SAR)
1	Adding or changing in functional requirements.	SAR 250.00
2	Adding or changing in non-functional requirements.	SAR 370.00
3	Changing in software design.	SAR 550.00
4	Adding or changing in the graphical user interface.	SAR 240.00
5	Requesting changes in implementation.	SAR 780.00

Man-Day Rates for Maintenance:

In this section, the man-day rates for (CMS) maintenance.

	Task	Man-day Rate(SAR)
1	Maintaining the CMS website.	SAR 200.00
2	Maintaining the CMS database.	SAR 260.00
3	Maintaining the user management of CMS.	SAR 150.00
4	Maintaining the user management of CMS.	SAR 120.00
5	Maintaining and backing-up CMS	SAR 330.00
6	Maintaining CMS network that connects all host of the clinic	SAR 420.00