ICTI Technical Projects Assessment

AMIR II Achievement of Market-Friendly Initiatives and Results

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JORDAN AMIR II

Achievement of Market-Friendly Initiatives and Results

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List of Key Words Contained in Report:

AMIR	Achievement of Market-Friendly Initiatives and Results Program
ARTS	Automated Report Tracking System
BLA	Business License Automation (for Municipality of Madaba)
CBJFA	Central Bank of Jordan Forms Automation
HCDM	Human Capital Development and Management
HR	Human Resource
JNC	Jordan National Customs
RDBMS	Relational Database Management System
SAT	Systems Approach to Training
SME	Subject Matter Expert
TIIS	Trade and Investment Management System
USAID	United States Agency for International Development

Table of Contents

Executive Summary

This report is an assessment of five Information Technology projects undertaken under the oversight of the ICTI component of the USAID AMIR Program. This assessment takes place as three of these projects enter the final stages of delivery and the other 2 projects complete important mid-term milestones. The Project Assessments include a review of the technical, functional, and organization aspects required to not only complete the technical delivery of the project, but also to ensure the implementation of the automation is successfully received and utilized by the customer. The assessment was achieved through period tracking of each of these projects to-date, as well as through interviews with Project Management, review of design documents and project plans, and a review of artifacts of the related systems.

The five projects analyzed in this report are:

1. Automated Report Tracking System (ARTS)
2. Business License Automation (BLA)
3. Human Capital Development and Management (HCDM)
4. Trade and Investment Information System (TIIS)
5. Central Bank of Jordan Forms Automation (CBJFA)

Automated Report Tracking System – Customs (ARTS)

Background

The CRM subcomponent of the AMIR II Program has generated over 30 reports containing over 200 recommendations provided to the Jordan Customs Department (JCD). As with all modernization efforts, specific recommendations over time should be either accepted, rejected, or in some instances overcome by changes in circumstances. The process of making recommendations is always far easier than implementing them and, as new studies and a better understanding of the Jordan Customs Department emerges, the weight of the significance of recommendations changes. In part, to fulfill this mandate, Mr. Howard developed a database in MS Access to record and track progress against consultancy recommendations. The baseline version of this database was accepted as part of his final report for this consultancy.

The initial testing of the Access database identified that this systematic approach to process change management has wider applications than only Customs reforms. Additionally, other features were identified to use fully the power of the automated process. Accordingly, an SOW was released to CNS to develop a multi language (Arabic/ English), multi component, user friendly, pre-defined user access, multi-reporting feature that in addition allows users to upload documents to the database.

Current Status

In February 2006, a second Task Order was issued to CNS to update and modify the baseline CRM version of the recommendations management tool based on AMIR's requirements for more effective and wider application. The second version was tested and after the positive outcomes, new requirements were raised.

A significant issue that became apparent after implementation is the need for AMIR staff to enter Recommendations into the database. This is complicated by the fact that the system resides within the Customs network, which does not extend to AMIR offices. This has resulted in AMIR maintaining a second copy of the database in AMIR offices, which is then manually synchronized with the Customs version of the database on an irregular basis. This has created issues regarding which version of the data is current, as well as the risks and complications of synchronizing different databases. The current architecture of this process is displayed in Figure 1.

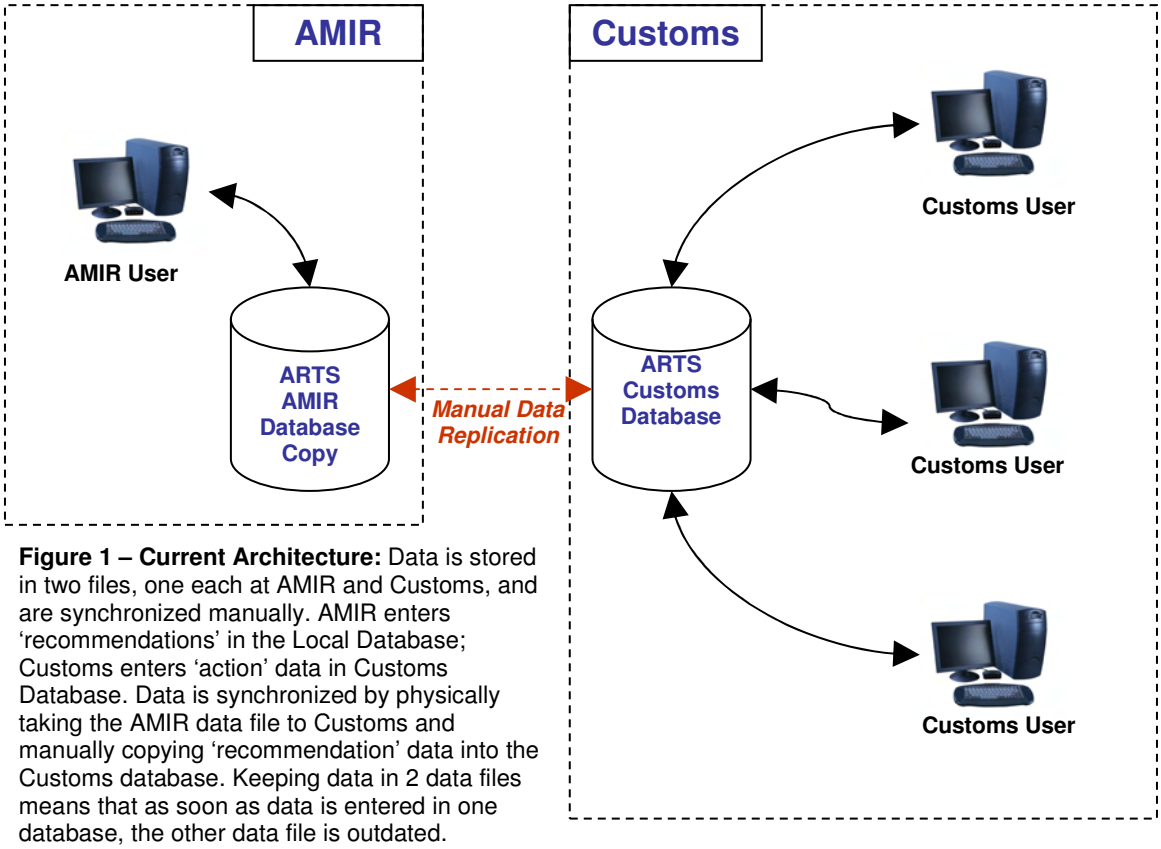

Figure 1 – Current Architecture: Data is stored in two files, one each at AMIR and Customs, and are synchronized manually. AMIR enters 'recommendations' in the Local Database; Customs enters 'action' data in Customs Database. Data is synchronized by physically taking the AMIR data file to Customs and manually copying 'recommendation' data into the Customs database. Keeping data in 2 data files means that as soon as data is entered in one database, the other data file is outdated.

Risks/Recommendations

ARTS is currently deployed, in use, and its utility is being realized. However, the issues related to maintaining separate databases at AMIR and Customs does present difficulties.

The initial thought was to rebuild ARTS as a web-based system that interacts with the web-based MM&E system that can be used for other components, counterparts and USAID projects. A further investigation does reveal several problems with this strategy:

- It is a comparatively expensive solution compare to the initial investment in ARTS.
- There are bandwidth issues (as well as internet availability) issue at Customs that may make this solution even more onerous.
- MM&E will go away at the end of the AMIR Program, likely making ARTS unsustainable beyond AMIR.
- Though MM&E does share some high-level data with ARTS, it is not apparent that there is any synergy from this data residing only in one system.

This analysis determined a more cost-effective solution that allows ARTS to be utilized as designed and developed. This solution removes the need to have a copy of the database at AMIR offices by giving access to the Customs database directly to AMIR Staff. This is accomplished by utilizing a 'Remote Access' solution that allows AMIR to control a PC inside the Customs network that has access to the Customs Database. Specifically, the open-source (and free) "VNC" program can be utilized to provide AMIR access to the Customs database by accessing a secured PC at Customs over the internet. (The UltraVNC product is recommended as it has the capability to run as a Windows Service, allowing access anytime the PC is turned on, as well as providing file transfer capabilities). There are other tools and online services that provide the same capability as an alternative to VNC, however, the discuss remains pretty much the same if an alternate utility is used. This architecture is depicted in Figure 2.

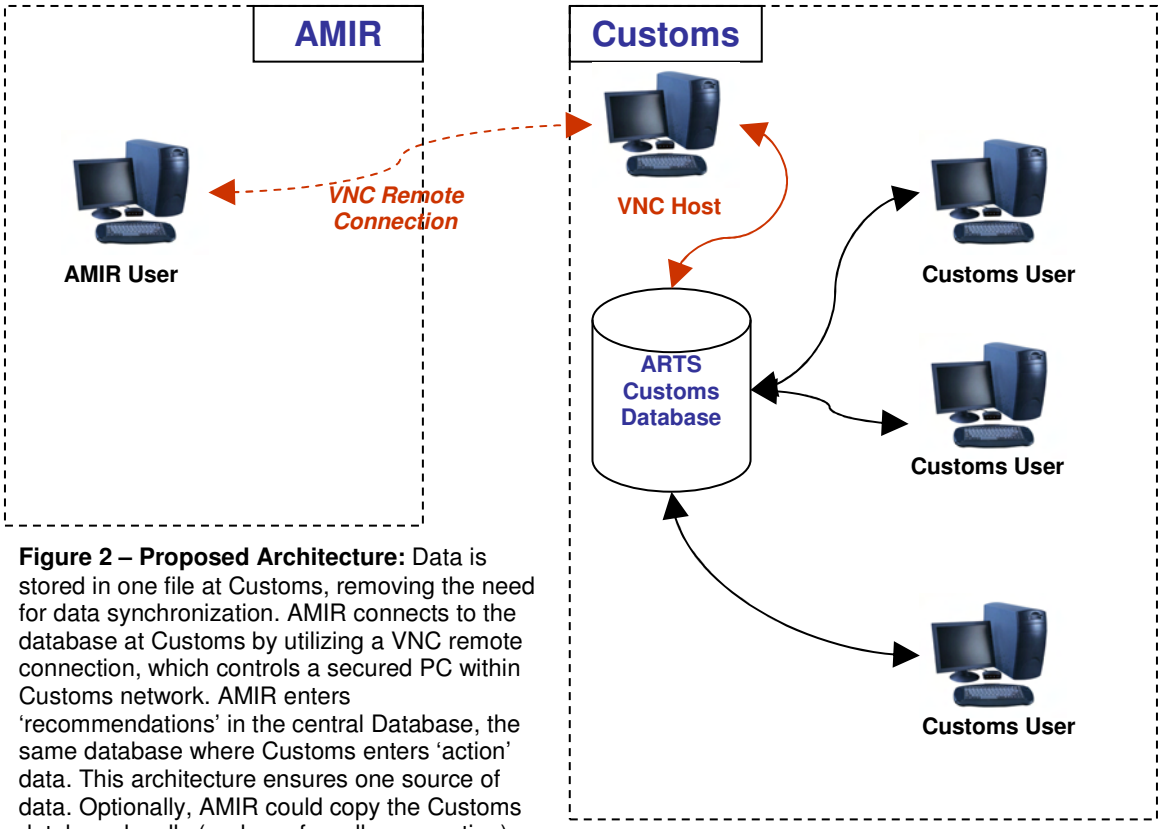

Figure 2 – Proposed Architecture: Data is stored in one file at Customs, removing the need for data synchronization. AMIR connects to the database at Customs by utilizing a VNC remote connection, which controls a secured PC within Customs network. AMIR enters 'recommendations' in the central Database, the same database where Customs enters 'action' data. This architecture ensures one source of data. Optionally, AMIR could copy the Customs database locally (perhaps for adhoc reporting), however, the Customs Database will always be the 'system of record'.

The main benefits to the proposed solution are:

1. Extremely low cost & low risk
2. Removes the need for multiple database copies and synchronization
3. Can be expanded to allow access to other outside entities
4. System can continue to be used after the AMIR Program completes

There are several obstacles that could make this solution difficult. The main concern is the internet bandwidth at Customs, which is likely to be slow. In fact, it may be too slow for VNC to operate properly. This can only be determined through testing at certain times and it may be apparent that the solution would only work during non-peak times. (It is noted that if bandwidth is indeed an issue, the same problems would complicate a web-based solution as proposed earlier.) The other major issue would to the VNC solution would be issues from Customs IT providing access through to a PC on their network. However, experience to date has indicated that Customs IT would be receptive to this approach.

Business License Automation – Madaba (BLA)

Background

AMIR/USAID has implemented a pilot project in the Municipality of Madaba in order to develop a model licensing/permitting process that can be applied to other municipalities in the Kingdom. The pilot seeks to simplify the fulfillment of existing legal requirements rather than risk delay in negotiating legislative changes. Another objective behind this pilot was to standardize and document processes within the selected two pilot municipalities to achieve two main goals; transparency and clarity of rules, and to set a standard for all other municipalities in Jordan to follow suit and apply the reengineered processes thus having consistency in the application of rules.

The pilot project has designed and tested a simplified manual process (Stage One) and the current work applies suitable E-Processing improvements to the selected licensing and permitting processes (Stage Two). AMIR/USAID has established a multi-initiative BPR Task Force, comprising ICTI, MEI and PSPI to formulate and direct the pilot project.

The primary objective behind this Activity is to measurably reduce compliance and administration costs for selected business processes at two pilot municipalities. The Consultants shall (1) prepare an information website supporting to the business licensing process; and (2) design, develop, test, and implement an automated computer application that supports the municipality business license application and renewal processing though a web-based interface in order to achieve the following benefits:

- Accelerate Professional License Issuance/ Renewal processes.
- Eliminate redundancy.
- Improve communication among departments and staff.
- Improve communication with clients and businesses.
- Promote efficiency and effectiveness with automated tracking and workflow.
- Increase the accuracy and consistency of data.
- Provide capability to produce accurate and timely reports on Professional Licenses with minimal investment of staff time to produce such reports.
- Establish a base for integration with future e-government projects.

Current Status

The current task order that has been issued to AlliedSoft and Al Jidara by the AMIR program is to design, develop, test, and implement automation to support business license application and renewal processing for the Municipality of Madaba. There are two major tracks in this initiative:

1. **Static Website:** Developing a static website or creating a dedicated section under the e-government portal MoICT E-Government Information Portal (ie Ministry of Municipal Affairs section) to include a complete guide to professional license issuance /renewal processes as well as the related necessary forms available online thus realizing the one-stop shop online service of business establishment.

2. **Web-based Automation of Internal Processes:** An interactive web-based workflow application through automating internal workflow and processes of professional license issuance/ renewal within the Municipality of Greater Madaba office.

Testing of the production software has been complete. Modifications were recommended by the Municipality and accepted. It is expected that implementing these modification will be complete by the end of March. It is expected that the BLA will be fully operational following the March license renewal 'rush'.

Risks/Recommendations

BLA is very close to completion and there are few technical risks. The major risks at this point are organizational. Madaba staff does continue to make suggestions for the system, however, at this point it has been developed per the original scope. Staff will be instructed to continue to collect their suggestions with the intention that a future release of the system will incorporate these suggestions.

Training and engaging Madaba staff is key at this point, as the system will not realize it's potential if the users are not engaged. From now until the official roll-out of BLA, it is highly recommended that the implementation team keep Madaba staff engaged through weekly meetings and updates. Weekly training should be utilized to increase awareness, acceptance, and engagement with BLA. This can also serve to reduce the official training on the system once it is in production (Training is scheduled for April 3).

For public awareness, AMIR plans 3 press releases in succession:

1. Emphasis on manual process improvements made that decrease process time
2. Announcement that the automation support BL has been completed
3. Announcement of whole story and intention of roll-out to other municipalities.

This press should help create visibility of the changes to all people affected including related businesses and other municipalities that could benefit.

Human Capital Development and Management – Customs (HCDM)

Background

The AMIR program has promoted that JNC adopt an IT solution to support the SAT approach to training. The goal of this solution would address each of the component parts of the SAT approach, including: Performance management, Skills/competence tracking, and Training tracking. Prior to procuring a supporting HCDM system, AMIR worked

with JNC to define a collection of business and user requirements (functional, non-functional, and technical). These requirements were defined to conform to existing Human Resources-related business processes adopted at JNC, and to provide JNC with a comprehensive and open IT platform to enable the organization to use SAT to meet its Human Resources development requirements for the next 2-6 year period.
A Pilot project to implement a comprehensive Human Capital Development and Management (HCDM) software solution and at 5 Customs department covering about 200 employees was executed in September-October 2005. The HCDM System provides JNC with a comprehensive platform to allow the organization to use a SAT approach to meeting its Human Resources development requirements.

An assessment that provided a third-party evaluation of the Pilot and the feasibility to extend the piloted system to the rest of Jordan National Customs departments and sites was performed at the end of the Pilot Phase. This assessment resulted in a 'High Positive Recommendation' to proceed with the full roll-out. This recommendation was based on the main factors: (1) There were no unresolved issues or hi-impact risks from the pilot that would indicate not doing complete roll-out; and (2) technically, the system would easily scale to meet the full usage requirements for Customs. The new HCDM system would replace a legacy HR system that had limited capabilities and would provide new automated capabilities to the Training Center where there was no previous system.

The assessment did identify several risks associated with the roll-out. The most important risk identified relates to Data Cleansing and Migration of HR Data. There are known data quality/consistency issues in current HR and Financial Systems that make the data cleansing a challenge (the migration of Pilot data created 200 employee records in 12 days). To mitigate this problem, it was highly recommend the project management vendor, AlliedSoft assume responsibility and the risk to cleansing and migrating the data. As part of this, AlliedSoft would prepare Policies and Procedures for HR defining how data should be entered in the system to prevent data quality errors from arising in the future. Further, in order to prevent data discrepancies between the HR and Financial systems, JNC would issue directives making HR system the official system of record.

Current Status

Approval for roll-out of HCDM immediately followed the successful completion of the Pilot phase. The scope of the roll-out phase builds on and extends the pilot implementation to the rest of Jordan National Customs including 23 Departments, 40 remote locations, and covering the up to 3000 employees under the different departments (200 have been covered in the pilot, 2800 covered under the rollout phase).

At this time all the roll-out implementation tasks have been completed including data conversions and Customs is currently in parallel testing. This testing is expected to be complete by the end of March. Thus far, no major bugs have been reported and Black Iris has been very agreeable to making cosmetic changes as requested.

Risks

This project is very near completion and most previously identified risks have been mitigated. JNC has pretty much accepted the system and the project should be closed with relative ease.

JNC has made requests to extend the parallel testing for an additional 2 weeks. If the project manager agrees to accept the request, it should not provide additional risk and may increase buy-in from Customs. However, the additional testing is not expected to uncover anything that would material affect the acceptance of the system.

Customs is installing a new Attendance System that is intended to integrate with the HCDM. Interfaces need to be developed and implemented, however, the HCDM is designed to easily accommodate data interfaces with attendance systems. This task should be easily accomplished.

The MenaME interface does not show some data fields that Customs would like to display. Mena has indicated that they may make modifications to show these fields, however, if they don't there are no major consequences.

Trade and Investment Information System (TIIS)

Background

Currently, Jordan actively participates in the global market by moving forward with its commitments under the World Trade Organization (WTO), and other free trade agreements, such as the Jordan-US FTA and the EU Association Agreement. Despite this active participation in the global market, Jordan's statistics lack accuracy and timeliness, and only few organizations commit to international trade and investment standards in the collection, classification, and presentation methods of statistics. Various AMIR studies found that despite the fact that the trade and investment information systems in Jordan are concentrated in few government agencies; the systems are uncoordinated and fragmented.

The origins of this project go back to 2001, when AMIR conducted an assessment of the trade and investment information systems in Jordan. The findings of the assessment pointed out that trade and investment systems in Jordan are disjointed with noticeable shortcoming. Of these, systems appear to undertake minimal processing of information; hence, trade and investment data lack timeliness, consistency, and compliance to standards or minimal presentation requirements.

In 2003, AMIR commissioned a group of consultants (Al Jidara to undertake the business assessment of TIIS and Allied Soft to undertake the technical assessment) to carry out a scoping study of the trade and investment information system project. The proposed TIIS came as the core recommendation of the scoping study. Additionally, guidelines on how the system should be established, governed, and structured were provided. This effort was concluded towards the end of year 2004. Realizing the pressing need to actually

establish the TIIS, as per the scoping study's recommendations, AMIR called for the assistance of the two consulting firms (Al Jidara and Allied Soft) to set-up and implement the Trade and Investment Information System (TIIS). A two-phase approach was chosen for the implementation as follows with Al Jidara leading the project management efforts:

Phase I – Data Governance of the TIIS, December 21, 2004-October 31, 2005: This phase is the focus of the report at hand. This phase deals with the business aspects of the system, which include, but are not limited to, the following: forming a TIIS Task Force that encompasses participating entities, surveying technical and business data, developing metadata, researching best practices and international standards, developing operational procedures and a governance structure.

Phase II – TIIS Development, November 2005-current: The focus of this phase is the actual technical development of the TIIS. This phase guided by the business requirements and needs aims at selecting the appropriate technical solution and constructing the system. The end-in-mind goal is an up and running TIIS.

Current Status

Development of the TIIS is approximately 50% complete with only minor issues in the development process. The selected platform for TIIS is built around the Business Intelligence/Analytic software, SAS. Though it is mature in other parts of the world, SAS is new in Jordan, thus providing a challenge to the development team that has never worked with SAS before. In order to alleviate these concerns, SAS has provided lavish on-site support to the developers to help ensure they can complete the project. Since SAS is planning on expanding within the ME region, they have a vested interest in making sure this project is a success.

The back-end work has mostly been completed and the development team has started working with entities to extract their data for import into TIIS. The entities have shown a widely varying degree of their ability to extract data from their own systems and in some cases, the developers have had to create the entities own views to extract the required data.

Development of the front-end continues, however, the developers are having to do more programming than they had anticipated and are finding the development environment to be cumbersome. They are finding that more Java coding is needed and their lack of experience with Java causing the development to slow. The Front-End interface template has been finalized and the web GUI components are being laid out on the corresponding pages in order to finalize the page design. Research and investigation is taking place to conclude the best approach to integrate the back-end to front-end.

Risks/Recommendations

Though there are technical challenges to this project, the bigger risks are organizational. This project will not succeed unless all entities participate and ensure quality in the data they present. The project is currently experiencing the affects of non-participation: they recently asked all entities to test the FTP capabilities (a task that would take about a minute) and only 3 entities responded. Also, a key entity in the implementation, SEI, has recently not been responding to requests.

The organizational challenges must be met on two fronts – first by Project Management and through a Project Champion from GoJ. Project Management should continue to cultivate a close relationship with each of the entities to ensure their engagement with TIIS is understood, timely, accurate, and complete. To date, the Project has had a deep involvement with the entities, however, as the project continues, it may require an even deeper involvement to keep the entities engaged.

The need for a Project Champion is vital for the system to be utilized as a useful tool. The Project Champion will promote the system as a beneficial tool for all and ensure that everybody involved understands its importance. Recently, the team approached the head of the Government Performance Directorate to act as Project Champion, to which the response was luke-warm. The response was that the data collected was only a subset of what was needed to be useful and only wanted to support a comprehensive solution. Though unexpected, this response is not illogical as there is use for Trade and Investment data, it does not tell the whole story of the Jordanian economy and sectors that are not involved in T&I would have no need to participate.

In order to obtain buy-in across the board of GoJ and industry sectors, the marketing of TIIS should be changed to be the first phase of a much larger project (perhaps Government Statistics Info System?), rather than a complete system by itself. Though this change does not affect the current project, it does convey that the project will eventually represent all areas of the economy. Al Jidara is currently preparing a short analysis of the areas that could be incorporated into the future system with a logic phase plan on how it could be accomplish.

Technical risks to the project do remain, however, their impact mostly affect the timing of delivery, but not so much toward the success of implementation, particularly related to the organizational aspects. Project management has provided the following summary of technical risks and mitigations:

Risk	Impact on project	Proposed mitigation
Integrate the back-end to the front-end (Connection to the back end and processing of the generated data).	Major delays to the project final deployment And/or major impact on the requested functionalities	More time needs to be provided (14 to 30 working days), for research and solution implementation.
GUI Related issues (such as UTF-8 support, Data	Certain GUI functionalities or features will be missing	More time needs to be provided (5-10 working

binding).	from the project final deployment.	days), for research and solution implementation.
Deployment and configuration of the solution	this issue could span 10 to14 working days beyond the allocated time on the schedule	Several deployments on the test environment are needed, to pinpoint the exact problems and look for resolutions, in order to, reduce the additional time needed.
changing and additions to the project scope and functionalities	Each change will require additional time to implement; depending on the requested change size.	the requested system functionalities needs to be stabilized
high dependency on the back-end	depends on the Back-End risks impact	depends on the back-end related mitigations

Central Bank Jordan Forms Automation (CBJFA)

Background

The Central Bank of Jordan Supervision Department (CBJ-SD) has initiated a comprehensive review of its organizational structure, regulatory activities, on-sight and off-sight supervision activities; information is collected from Economic Banks (EBs) associated information databases and IT systems. As a technical assistance for the Central Bank of Jordan Supervision Department (CBJ-SD), an IT system was recommended by AMIR program to assist the Supervision Department in monitoring the banking sector across Jordan. The main activities of Central Bank of Jordan Supervision Department are:

- Collecting data from all banks in Jordan.
- Monitoring the economic banks financially and regulatory.
- Analyzing the economic banks in Jordan.
- Reporting the status of the banks in Jordan.
- Generating statistical and/or aggregated data reports.

The Central Bank of Jordan has requested assistance in automating and standardizing the reports generated by commercial banks and the Central Bank. The automation envisioned to utilize the wide area network (WAN) for communication purpose and is expected to enhance the Banking Supervision Department ability to monitor and track the practices of Jordan's commercial banks.

The primary objective of this project is to develop an application to automate the data and reports generation and standardization, reports consolidation at the Central Bank, and reports generation and data analysis at CBJ-SD.

The CBJFA system provides the physical link between the economic banks in Jordan and CBJ-SD. It will be the primary component of the real-time astronomical reporting data processing capability. Its primary responsibility is to perform basic data assembly, forma and report services and to support the desire for the real-time inspection of the astronomical data streams reporting activities to and for CBJ-SD.

The major functions that CBJFA system shall perform are as following:

- Receiving standardized formatted electronically data file from the economic banks.
- Loading the data in the received electronic file into a repository database.
- Performing a limited amount of real-time data processing.
- Performing a limited number of additional processes upon user request.
- Delivering suitably standardized reports results to the system end-user.

Current Status

Development of the CBJFA is about 52 percent complete. Production-quality functionality of the completed portions of the system has been given to the CBJ for review and testing. This is an iterative development lifecycle, allowing for immediate review of competed iterations of development. The next module is scheduled for delivery on March 30 (given an aggressive effort). The project has 2 new modules that need to start development and are expected to be completed by April 20. Following the completion of the final modules, the CBJFA is scheduled for 3 weeks of system testing in May before deployment.

Deployment of the CBJFA is anticipated in May, 2006, however, there is not a solid launch date. There are several decisions needed to be made that are on the project's critical path that could affect the deployment date. The main decision revolves around the hardware specifications that are needed to complete the project (AMIR is procuring the hardware). The decision issue revolves around the design scenarios related to integration with other systems which affect the hardware selection. Project Management plans to escalate the decision making process to alleviate the possibility of the project being delayed.

Risks/Recommendations

The risks associated with System Development appear minimal at this point as the requirements are well defined and understood. However, there are several potential areas that could effect the successful deployment of the system:

- Organizational: One of the biggest risks to the success of the project is with the people that will use the system. This means extra effort on behalf of both AlliedSoft and CBJ in promoting the system to those required to use it.

- Sample Data: CBJ has not provided the development team with sample data (due to confidentiality of the data). So far they have been unable to provide even 'dummy' sample data. Though the developer can create their own sample data, there is more risk that errors that would be caught with more realistic data may not be caught by data that does not represent the more common range of data present in the database. This could result in the developer's inability to reproduce errors that CBJ may be encountering. The development team will make a more concerted effort to get sample test data from CBJ to alleviate this concern.
- Decision Making: There has been some concern of Decision Making not happening in a timely fashion. At the current stage of development, and decision delay could delay the project. The Project Manager is currently devising a process to help alleviate the decision making delays that would trigger escalation of delays after a predetermined time lag.
- Scope Creep: There have been several instances in the past where additional functionality has been defined that has required the project scope to increase. The current project schedule is aggressive and it is likely that any additional enhancements would delay the deployment of the project. The recommendation is to postpone any additionally identified functionality unless it is determined vital to the success of the first deployment.