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IT Strategic Plan for the Jordan Customs Department

Final Report

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1 EXECUTIVE SUMMARY & RECOMMENDATIONS

This report addresses the need for Jordan Customs Department (JCD) to have an IT Strategic Plan that integrates JCD's major goals, policies and action sequences into a cohesive whole It is designed to guide investment and their sequence in the required resources – human, structural and technological – to drive the IT initiative, and to highlight the skills, the cultural change, management of data and content and the technologies and toolsets required to support the Strategy. This report would not have been possible without the support of the JCD IT Steering Committee, who individually or as a group, devoted considerable time and effort supporting the activities of the consultants

The consultants were asked to address the following terms of reference:

- In cooperation with the Directors IT and ASYCUDA, undertake an IT systems analysis and needs assessment (including hardware & software procurement and maintenance) that will then be incorporated into the Customs business plan and AMIR annual work plans. This is to cover the length of the project.

- Assist Customs to prepare an IT strategic plan, including completion of roll out of existing core ASYCUDA and other system to all major entry processing sites. This will deal with matters such as hardware and software depreciation, disaster recovery, data protection / backup and establishing the needs of a data backbone that has a capacity for increasing demand without frequent failures, establish the needs of risk management personnel for infrastructure and training (i.e. computer hardware, software, training in statistical analysis, etc) and develop a schedule for their introduction that will include any prerequisite training or infrastructure requirements over the short term (one year) and the long term (three years). These will be incorporated in the Customs Center of Excellence arrangements wherever possible.

- Review the need for a Systems Based Audit (including CAATs where appropriate) of the ASYCUDA installation.

- Review and complete the Illustrative work plan and any related Scope(s) of Work in relation to IT matters for the period of the mission required consequent to this SOW.

These requirements have been addressed in this report, and a summary of recommendations from this activity follows:

1. Retain the ASYCUDA team in Amman and establish a regional ASYCUDA Center of Excellence. JCD should continue to lobby UNCTAD to become a beta test site for ASYCUDAWorld, once that application is made available (p.13).

2. Any upgrade to the existing Communications Infrastructure, including VSAT needs to be assessed against the priorities outlined in this IT Strategic Plan and must be presented in the

form of a compelling business case to the IT Steering Committee before any work commences (p.15).

3. The focus of IT spend and effort within the organization needs to be more equally divided between JCD twin objectives of facilitating trade and enforcing better compliance of Customs regulations (p.24).

4. An appropriate governance structure needs to be put in place in order to reorient the IT Steering Committee's focus away from tactical and operational issues to a strategic focus so that resources and initiatives are prioritized and spent appropriately (p.26).

5. That a Program Management Office (PMO) be established managing all operational and day-to-day business of IT initiatives, development and deployment using an appropriately robust methodology, templates and reporting mechanisms (p.26).

6. A detailed Communications Plan needs to be developed to ensure that any claim for IT resources made by either internal or external stakeholders is assessed against the IT strategic priorities in this document and will be made in the form of a compelling business case for consideration by the IT Steering Committee. The Communications Plan will also help better coordinate use of IT resources between JCD and ASEZ Customs. It will also help better coordinate JCD IT activities within a whole-of-government approach to ICT activities within Jordan. It will also provide a channel for JCD business owners to feed back to the IT Steering Committee concerns they may have regarding IT requirements and be better informed about JCD IT priorities and plans (p. 26).

7. Develop on-the-spot training to be delivered outside the Amman Training Centre (p.28).

8. Develop competency profiles for different Customs roles and design a training program supporting and developing identified competencies and skills required to fulfill these roles (p.29)

9. Develop or acquire a Competence Monitoring Database that allows tracking each Custom officer's history of attendance at training programs, successful completion of these programs and schedules for retraining (perhaps to be managed by Human Resources Division)(p.29).

10. Based on the consultants' visits and interviews, it appears that the skill level of Customs officers (Customs-specific, IT and English) is inconsistent across the organization. The basic skill levels required to perform a set of identified roles and functions within JCD to achieve its objectives need to be defined. It is recommended that a Skill and Competency Planning and Tracking System is built as a matter of highest priority (p.29).

11. Any upgrade to existing IT Infrastructure needs to be assessed against the priorities outlined in this IT Strategic Plan and must be presented in the form of a compelling business case to the IT Steering Committee before any work commences (p.31).

12. Work should commence on development of a National Intelligence System that incorporates a collection, analysis and reporting capability, a risk management framework, and a compliance monitoring system. The final user requirements should be the outcome of close collaboration between the four key stakeholders: JCD business owners, JCD IT Department, AMIR IT Consultants and AMIR Business Consultants (p.33).

13. A Performance Management System needs to be developed in order to monitor the progress of IT initiatives development and the contribution of overall IT operations to JCD's objectives and outcomes (p.33).

14. Any further requests for e-enabling Customs processes need to be assessed against the priorities outlined in this IT Strategic Plan and must be presented in the form of a compelling business case to the IT Steering Committee before any work commences (p34).

15. Undertake a detailed analysis of the sensitivity levels of data that JCD manages and a Threat and Risk Analysis (TRA) that addresses the potential consequences of security breach and any compromising of the integrity of data, and develop an appropriate Risk Mitigation Strategy for each level of data identified. An appropriate IT Security Policy needs to be adopted for JCD that complies with a whole-of-government approach (p.36).

16. All of the systems mentioned in Section 9 need to be web-enabled. A suitable Enterprise Architecture needs to be developed in order to accommodate these activities (p.39).

2 PURPOSE OF THE DOCUMENT

The purpose of this document is as follows:

- Provide a context and framework for tactical and operational IT decisions – e.g., to determine the strategic and architectural fit of particular IT projects;
- Serve as a foundation for a more-detailed technical architecture;
- Clearly communicate interrelationships between the organization and the IT environment, and act as a change agent across the organization;
- Provide a platform, in conjunction with more-detailed tactical plans, to obtain funding, adjust staffing levels, and get senior management support for IT organizational and role changes;
- Provide input to the JCD strategic plan and planning process;
- Provide orientation to newcomers about the intent and use of IT in the organization – e.g., new employees within the enterprise, new organizations or other stakeholders;

The document is organized in the following manner. Sections 1 to 3 provide an Executive Summary of the report, a background to the work of the AMIR consultants, and a brief description of the document. Section 4 provides an "as-is" description of the current IT environment within JCD, including a brief description of current applications, technology infrastructure, communications, security, training and resources within the organization. Section 5 considers the vision and mission statement of the organization before evaluating the strategic goals of the organization. Section 6 provides an examination of the strategic context in which the organization works, including a consideration of the environment in which JCD finds itself, and its stakeholders. The current organizational framework used for governance within JCD is then addressed in section 7. Following

from this analysis, and based on the outcome of a workshop held with the JCD IT Steering Committee and AMIR consultants on 13 November 2002, Section 8 provides a list of mission critical initiatives for the organization and a detailed analysis and key IT issues to come out of these. Section 9 provides an overview of JCD IT security policies and section 10 addresses the issue of enterprise architecture.

A list of JCD and AMIR stakeholders interviewed by the AMIR consultants is included at Appendix One. An overview of how IT supports the current initiatives and activities arising out of the JCD Strategic Plan is included at Appendix Two. Appendix Three provides a more detailed overview of IT security.

3 BACKGROUND

Modernization of the Customs IT infrastructure should not be considered in isolation, as a stand-alone project. It also needs to be connected to a number of other initiatives being undertaken by the Government of Jordan (GoJ) to strengthen the Information and Communications Technology (ICT) sector in Jordan and ready Jordan for e-Government capabilities and applications. AMIR – funded by USAID, is also supporting many of these initiatives. This is to ensure that Jordanian Customs develops an IT architecture and infrastructure that are compatible with other whole-of-government initiatives and takes advantage of work already underway in the ICT sector in Jordan.

Some the these initiatives include REACH, Connecting Jordanians, e-Government, e-Commerce, Bridging the Digital Divide, e-Learning, the Secure Government Network, and Higher Education. The GOJ has fully embraced e-Government as part of its overall ICT vision. E-Government initiatives offer an opportunity to automate and streamline services. The aim is to allow Jordanian citizens and businesses to interact more effectively with a transparent, customer-oriented and highly responsive government.

The Jordanian National Customs Department (JCD) IT Directorate has established an Internet Council[1] in order to investigate the potential for using Web technology. The JCD is proud to consider itself as a lead agency within the GOJ in terms of the quality of its IT people, the number of applications developed both in-house and acquired externally, the level of process automation within the Department, and its vision to reach the status of a paperless office and rapidly adopt e-Government processes.

Despite this, there has been some concern within the Department that IT initiatives need to be better coordinated and that a holistic vision for the application of ICT needs to be created. For this reason, it is crucial to develop an IT Strategic Plan.

The intent of this IT Strategic Plan is to focus the attention of JCD management on the impact of ICT on the business of Customs, to outline the potential advantages to JCD that of use of ICT as an organizational change agent, and to prioritize IT activities to be undertaken.

[1] The Internet Council comprises 14 members from each of the Directorates and undertakes regular meetings. There are liaison officers within each of the Customhouses. The Council is supposed to meet on a monthly basis but meets every two months or so.

Introduction of ICT should be used to streamline business processes and information flows, freeing up resources to concentrate on intelligence and compliance requirements and law enforcement needs, while at the same time improving the quality and usability of information.

Better planning of ICT activities will also help JCD achieve compliance with the World Customs Organization (WCO) Kyoto Convention, General Annex Guidelines, Chapter 7 relating to the Application of ICT. The particular objectives of the guideline are:

- to encourage Customs administrations to investigate and make use of ICT solutions to support their current Customs procedures and controls;
- to advise and encourage Customs administrations that are considering the use of automation to follow a pre-defined process/plan that considers all of their administrations needs;
- to promote the use of international standards in the interchange of electronic data among Customs and their trading partners; and
- to advise Customs administrations on existing and new development which may lead to the improvement of existing Customs automated systems.

The IT strategic planning process should be a major activity within JCD, representing the "bonding" of both the JCD IT strategy and business strategy. It addresses two separable yet interrelated sets of issues: the demand side that relates to what the business needs and wants from IT, and the supply side that relates to how the IT business area has to operate in order to satisfy business demand.

3.1 ASEZA CUSTOMS AND JCD

The importance of the Aqaba Special Economic Zone (ASEZ) is shown by the estimation that over 90% of goods coming to Amman for consumption come from Aqaba. Similarly, where containers are concerned, 95% of goods are coming via the Aqaba port. Therefore, there needs to be a proper IT system put in place in order to handle this critical entry point for goods, to make existing processes more efficient and to ensure there is minimal revenue loss due to goods transiting the Zone.

Need to automate the exchange of data between ASEZA Customs and JCD that is currently done in paper form or via the use of floppy disks. King Abdullah II was in Aqaba last August and ordered that a link be built between the two ASYCUDA systems..

While the two ASYCUDA systems at ASEZ Customs and JCD are different (the former is used mainly as a warehousing module that provides a stock take of goods going in the Zone and goods going out), the basic file control systems between the two systems are the same. The tariff tables would need to be updated and ASEZ Customs has a separate file for company numbers. The ASYCUDA team in Amman estimates that to connect the two systems would be a matter of a few days work only.

There is a need to make sure that appropriate training is provided to both ASEZA Customs and JCD Customs officers to use ICT in the support of Customs processes.

There is a need for better support to be provided to ASEZA Customs Officers responsible for the maintenance of IT systems.

We understand that an IT Committee has been recently established to help coordinate computer requirements and initiatives between ASEZ Customs and JCD. Members of the Committee include representatives from the Aqaba Port Corporation, ASEZ Customs and JCD[2]. The Committee will meet on a regular basis to provide technical advice and relevant solutions to problems that arise during implementation of projects common to all three organizations. This initiative is to be commended.

At present there is no integration between the ASEZA Customs ASYCUDA and the JCD ASYCUDA systems. The need to share data has been somewhat resolved by connecting ASEZA Customs ASYCUDA with JCD AYCUDA via a fiber optic link. Data is shared by using an NT server hosted at JCD Aqaba that allows for data exchange between the Aqaba Port Authority, ASEZA Customs and JCD at Aqaba. This is outlined in the figure 3.

The JCD Customs House is currently located 8kms away from the Container Yard. Previous reviews of JCD operations at the Container Yard revealed inadequacies with telephone communications (no spare lines are available for Customs use, having all been claimed by the Port Corporation), no computer connection existing between the Container Yard and the JCD offices in Aqaba, a lack of any dedicated vehicles required to transport inspectors to the yard, inadequate controls over the 7 gates at the Yard (critical in order to determine the time of exit from the Yard and clearance at the ASEZA checkpoints at the Dead Sea road and the Desert Highway) and lack of standard procedures at the gates.

[2] Members of the Committee are Akram Banna, Programmer, Financial Department, Ports Corporation; Abdel Majid Qarala, Head, Container Section, Ports Corporation; Amer Qaisi, Computer Engineer, Development and Training Department, Ports Corporation; Ismail Shaderma, Head, Computer Section, JCD Aqaba Customs House; Mahmoud Wafa, Director, ASYCUDA, JCD; Amer Saleh, Head, Delivery Section, Ports Corporation; Hussein Qasem, ASEZ Customs; Mohammed Kutkut, Head, Goods & Revenue, Ports Corporation; and Somaya Al-wahoush, Director, IT Directorate, JCD.

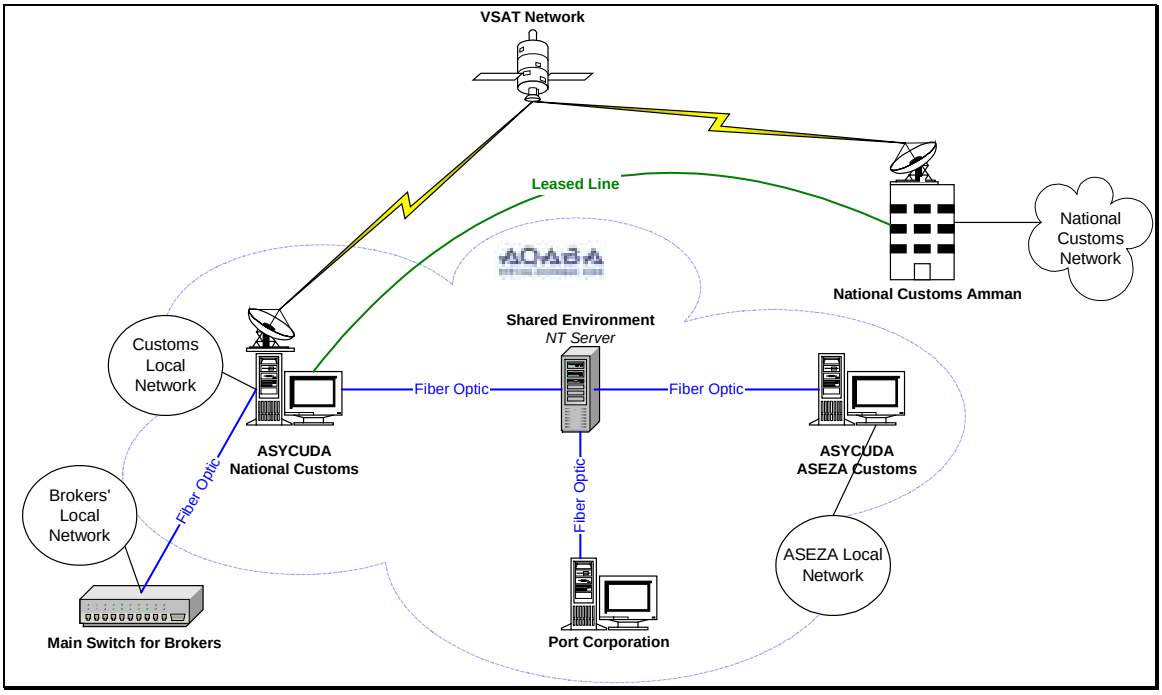

Figure 1 - Connectivity in Aqaba

4 CUSTOMS IT BASELINE

The purpose of this section is to provide a baseline of the current IT environment within JCD at the same time as understanding the business situation.

JCD has made great strides over recent years in terms of the computerization of key business processes. Prior to 2000, many centers in JCD were not computerized. Each center had to develop and depend on its own systems (much of which had been developed in FoxPro). The IT Directorate was established, Oracle licenses purchased and training in Oracle development conducted. The 2001 Strategic Plan called for the computerization of all Customs centers. The Guarantee System is now a centralized system, having substituted a number of locally developed applications (the aim is to retire all FoxPro applications and substitute them with Oracle-based applications by mid-2003). The Seizures system, the Cases system[3] and Passengers system are now all centralized computer applications.

The 2002 Strategic Plan called for all JCD processes and procedures to be studied, and where possible, reengineered. Four to five business processes are currently being evaluated by JCD, with particular focus being given to developing a system for the temporary admission of vehicles.

[3] The Customs Cases system is a Customs-only case management system that is used to combat smuggling. It is now a centralized system (housed with the Anti-smuggling Directorate in Amman) with instances distributed and periodically updated to other JCD Customs Houses. It is used to red-lane companies registered on ASYCUDA and was built using Oracle and Oracle Developer 2000. There are over 1,400 cases on the system with each case being allocated a unique number and are tracked from interdiction through to resolution of the case in the courts.

The 2003 Strategic Plan calls for an upgrade of the JCD website, including the delivery of e-Services, wherever possible, but starting with the Guarantee System, and Temporary Admissions and Duty enquiries. Aligned to the GoJ's vision for e-Government, JCD's vision here is to provide a web-based interface to all JNC applications. The benefits of this will accrue primarily to JCD's clients. For example, providing a web-based Temporary Admissions application will help remove the need to visit Customhouses resulting in 30% less people waiting in Customhouses for their applications to be approved. To that extent, there are plans to take back administration of the JCD website from CNS Primus and training is currently underway in Oracle Developer 6i, and MS Visual Studio.NET.

The priority for the IT Directorate is to completely reengineer all JCD procedures and to consider them as a single entity. So far 66 out of an estimated 2,000 or so process have been mapped out. Reengineering is considered fundamental to devolving authority further down the chain of command within Customs.

4.1 ASYCUDA

ASYCUDA (Automated SYstem for CUstoms DAta) is now used for approximately 85% of foreign transactions within Jordan, mainly related to cargo clearance and passenger control. Prior to ASYCUDA, JCD relied on locally made applications, mostly coded in FoxPro.

JCD say that introducing ASYCUDA works best where no computerized processes were yet in place. However, at the time of introducing ASYCUDA into JCD, some 40 separate applications were already in place. Replacing these systems with ASYCUDA was acknowledged to be something like a "heart transplant". Interfaces with the other systems had to built and ASYCUDA proved to be less flexible than some of the legacy systems that it replaced.

ASYCUDA can now handle most of the IT requirements in JCD. It has bee introduced into all but three Customs locations through Jordan (Jabir, King Abdullah Bridge and Al Hussein). These offices are expected to have ASYCUDA implemented by 31 March 2003, bringing the project to a successful close, and allowing for some 97% coverage of foreign trade within the Kingdom.

The successful implementation of ASYCUDA has been acknowledged by UNCTAD and all the stakeholders interviewed by the authors of this report. The team implementing ASYCUDA in JCD is acknowledged to be highly skilled and maintaining the integrity of the team in the form of Regional ASYCUDA Center of Excellence is highly recommended. Mr. Wafa has kept this team together since 1997 and has used improved salaries and conditions to keep the team intact against competition from other countries in the region and from ASEZA.

JCD acknowledge that there is some potential in establishing a regional Center of Excellence in ASYCUDA in Amman, although some competition from Beirut would be expected. Apparently UNCTAD would support this initiative, but funding would remain a major constraint – UNDP would fund the first year of operation only and the cost for establishing the Center is estimated at US$200k. The ASYCUDA team in Amman has also developed an extensive repository of logged issues and solutions that would be of use to other countries adopting ASYCUDA in the region.

ASYCUDA has been developed by UNCTAD and provides the backbone for most of the JCD processes and ensures compliance with the mandatory international standards set by the World Customs Organizations. ASYCUDA provides a better management of Government finances through an institutional strengthening of Customs Administrations. The main achievements by the system are simplified procedures providing a reliable and efficient environment for Customs itself as well as for the business community involved in international trade.

The system uses all international standards for trade data under the conventions and recommendations of such bodies as the World Customs Organization and the International Standards Organization. Since the system also supports simplified and harmonized Customs procedures as laid down by the Kyoto Convention, and other international instruments, ASYCUDA has become a catalyst for modernization of Customs Administrations as a whole.

ASYCUDA has been specifically designed so that a modification of the source code is not possible. This is done in order to maintain the integrity of the core ASYCUDA system and thus compliance with the WCO standards. The authors received consistent complaints from developers within ASEZA Customs and JCD that ASYCUDA was a "locked system" and that there was a requirement to be able to work with the source code. Any bypassing of the ASYCUDA system by direct interacting with the underlying Oracle database should be treated with great caution.

The ASYCUDA team at JCD has developed their own UNIX-based program to overcome a problem associated with using ASYCUDA ++ Gate for data exchange between various instances of ASYCUDA throughout JCD. Slow response time occurs as a result of ASYCUDA ++ Gate having to map the networks of the various servers being connected. Also, there is a requirement to logout at the end of each session and log back in once transmission has been acknowledged. This is cumbersome and when done out of hours, requires a technician to be available in order to restart the data transmission. The UNIX-based program developed using UNIX World and Oracle Developer 2000 by the ASYCUDA team can talk directly with the backend ASYCUDA Oracle database. This is against the advice given in the previous paragraph and JCD has not told UNCTAD that it is transmitting data by directly interacting with the underlying Oracle database.

This solution allows data to be transferred every five minutes from Customs Houses to the JCD Head Quarters, enabling synchronization of ASYCUDA instances across the whole organization. The solution is also indicative of a more self-sufficient approach to overcoming bugs associated with ASYCUDA by the ASYCUDA team in Amman. Generally, where there are bugs, the team will correspond with Geneva but will mostly try to solve problems by themselves. For example, in ASYCUDA it is possible to delete a Declaration and create another using the same Declaration number. This is a serious problem that has been resolved by the ASYCUDA team developing their own Unix-based program.

4.2 ASYCUDAWORLD

ASYCUDA ++ has been acknowledged by JDC to be out-of-date. ASYCUDAWorld promises to be a major improvement on the previous version. JDC has expressed an interest with UNCTAD in being one of the pilot sites for ASYCUDAWorld and is expected be provided with a beta version of the software by the end of this year for beta testing to begin in March 2003.

Arabization has also been a big problem with ASYCUDA ++ as the current Arabization program used (NAFIDA) is based on DOS and the company that developed the application no longer exists. The ASYCUDA team is looking forward to using ASYCUDAWorld to overcome some of the existing problems (such as not being able to print Arabic documents) as it promises to overcome the DOS-based limitations of Arabization by delivering this component in Java/Windows.

RECOMMENDATION 1: Retain the ASYCUDA team in Amman and establish a regional ASYCUDA Center of Excellence. JCD should continue to lobby UNCTAD to become a beta test site for ASYCUDAWorld, once that application is made available.

4.3 VSAT

The key element of automation within the Customs service is the VSAT communications network. The video system is controlled from a central console in the Amman Customs building. Enforcement personnel on three shifts covering a 24-hour period, staff the console. The fact that the video monitoring system operates in real-time has enabled Customs management to view the work of Customs officers, processing passengers, cargo, and has helped managers to focus on enforcement concerns, including smuggling and theft of goods. The video system is monitored 24 hours a day and provides valuable information concerning activities that occur after hours or in areas that are beyond the normal view of customs officers. The installation of VSAT has increased Customs revenues at some Customs Offices from 30% to 40% and decreased smuggling cases. The new automated complaint system along with the video system has gone a long way to elevate Professionalism among the rank and file Customs officer.

The data channel is presently being used at several locations for ASYCUDA and several other stand-alone data applications such as manifest, guarantees, drawback, temporary admission, penalties, and accounting system. The data channel presently has a bandwidth that allows transmissions of up to 64kb of data per second. As stand-alone applications have been added to the data line the speed and efficiency of the link has experienced some degradation in processing speed. However, the Director of Communication feels that the present data channel could accommodate a transit module that would only be required to move small amounts of data.

VSAT links twenty-five (out of forty) Customs sites together. The video monitoring system is complete and operational at most locations. The video system allows managers to view Customs officers, processing passengers and inspecting cargo. It has helped managers to focus resources on enforcement concerns regarding smuggling, officer conduct, and the theft of cargo. VSAT provides telephone, data, and video (camera) lines to all locations. VSAT includes a 64kbps link for inbound traffic and a 256kbps link for outbound traffic.

At remote locations without ASYCUDA, the standalone ASYCUDA Transit module can be installed on PC terminals within the port and employees will input data elements for transmission via VSAT to the destination port. Customs intend to provide a backup line for each Customs Centre.

However, there was still a perceived need to increase bandwidth, but this was dependent on running costs (approximately US$100k pa) and the cost required to upgrade infrastructure ($75k). Each VSAT station would need to have an additional router. During the period of June 13 through 20, 2001, the Director of Communication conducted a test that increased the VSAT bandwidth to 264 KB. The results of the test indicated that data file transfer was much faster. However, some applications programmed in Oracle did not increase in speed. This was attributed to the programming of the software application, and not to the communication link.

4.4 VSAT PERFORMANCE

There are mixed messages about the performance of VSAT. The Director of Communications said that VSAT has performed extremely well with 95% of problems usually resolved within 10 minutes. He said outages occur very rarely, perhaps only twice a year (September and March) due to solar reflex, which impacts on all international systems, but generally last only 14 seconds or so.

However, the IT Consultants received a consistent message from other officers that outages with VSAT are much more frequent and can last for 20 minutes or more.

There has been talk of introducing fiber optics for telecoms in Jordan (e.g., to connect schools) but this is currently only being used by the military, although coverage is not very wide.

Customs started using VSAT in 1998 and up until now, it has performed very well. Some Customs offices have leased lines - for example Amman Customs have a 127kbps leased line. However, problems with leased lines are either equal to or are experienced more often than with VSAT.

It would be good to transfer from VSAT to landline in theory. However the problems associated with leased lines are greater owing to there being more weak points with landlines and given that solving these problems would take more time. With VSAT there are only 3 breakpoints. For that reason it is being used for audio, video and data transmissions.

The leased line Customs has between Amman and Aqaba delivers only 19.6kbps and costs JD1,500 per month.. There was some inconsistency regarding the reliability of leased lines from the Customs houses visited by the consultants.

Bandwidth is an important issue. Originally Customs applications were written without consideration for software engineering that would be bandwidth-friendly as well as delivering all the functionality required of the users. The apps developers at Customs are now more cognizant of the need to write software with communications constraints in mind (e.g., Oracle apps used to be very slow, but after some investigation the performance of these apps has improved).

The Director, IT has said that bandwidth constraints with VSAT is not really the issue – only 32% of available bandwidth is being used now. The problem of latency has been due to poor software engineering – for one application alone, 21 separate handshakes were required over VSAT before application connection was enabled. This has been overcome by the better software engineering and the use of Oracle Virtual Server.

VSAT telecommunications has 250-500ms latency between signal transmission and acknowledgement. This is sometimes not understood by those working with the system, particularly from remote sites and is often considered to be a problem.

Work is underway by the Computer Directorate to provide a workaround for VSAT latency by reducing the number of handshakes required using Oracle applications by using Windows 2000 Virtual Terminal. This approach is being watched quite carefully by other Jordanian government entities as it promises to resolve bandwidth problems associated with a number of e-Government initiatives.

Customs plans to reduce its dependence on VSAT in Amman (currently there are 7-8 nodes). JTC are starting to put in place some good infrastructure within Amman and Customs preference would be to use reliable landlines in Amman and free up VSAT for remote sites and to use VSAT as a backup or disaster recovery facility

Customs acknowledge the need to double the bandwidth in order to handle richer applications. At the moment, these include the TAD, ASYCUDA, the Guarantee System, the Transit System, Evaluation and Passenger Monitoring.

Recommendation 2: Any upgrade to the existing Communications Infrastructure, including VSAT needs to be assessed against the priorities outlined in this IT Strategic Plan and must be presented in the form of a compelling business case to the IT Steering Committee before any work commences.

4.5 EGOVERNMENT INITIATIVES

4.5.1 National Initiatives

The GoJ is seeking to implement a Government-wide service, for messaging and directory services that can be used to support all Departments and approved vendors. The Messaging and Directory service (MDS) will allow reliable Department-to-Department communication and workflow, and provide an Enterprise Directory of Government employee information.

There currently exists a mixed messaging environment within the GoJ. Each department has their own solution, with some ministries/agencies having no email solution. There is no inter-department communication except through the Internet and no central enterprise wide directory.

The Government expects all departments to move to the new centralized email system in a phased approach. Initially six government ministries: Ministry of Information and Communication Technology (MOICT), Municipality of Greater Amman (MoGA), Ministry of Industry and Trade (MIT), Ministry of Planning (MOP), Prime Ministry (PM) and Ministry of Finance (MOF)) have been identified to move to the new email system first, and over time it is expected that the centralized service will support all Government Ministries and Agencies.

The first phase of deployment will consist of approximately 700 users. Each of the chosen department will be able to maintain their own identity by providing naming conventions to allow people to easily distinguish individuals in different departments, as well as allow ease of addressing of those departments.

In order to deliver these services, the MDS project will have to integrate closely with the infrastructure deployed as part of the Secure Government Network (SGN) project. SGN will provide the secure, managed connectivity between the government network, the Departments network(s) and the Internet. The Messaging and Directory services will provide the application communication and information repository layer.

4.5.2 Customs Initiatives

In terms of eGovernment initiatives, JCD consider themselves to be ahead of other Jordanian government agencies and due to their use of VSAT. VSAT has enabled Customs IT to be very active over the past 2 years in terms of applications development, including systems put in place for guarantees, transit, ASYCUDA, and temporary admission & duty (TAD - the first computer application put into Customs). JCD

JCD are also examining a range of online service initiatives. While the Ministry of Information and Communications Technology has taken over the e-Commerce and e-Government agenda for whole-of-government initiatives within Jordan, JCD believes that it is leading by example and can't wait until standards are bedded down and guidelines developed. For example, Customs has been the first users of Virtual Server and is being consulted by other organizations in respect to this.

JCD are also working on an e-Payments system and are currently negotiating with banks to allow customers to pay via Internet Banking facilities. This would allow clients to pay via cheque, accountants office, bank or via the Internet. JCD are also wanting to develop a system that would allow a computerized, automated means of allowing the printer of an accountants office to print out

transactions once it is executed at the bank. JCD cannot wait until MICT develops a policy on e-Payments. The expect that a system once implemented at one bank will be copied by others.

Widespread use of personal email by both JCD and ASEZA Customs staff indicates that rollout of email facilities within both organizations is far from complete. For those officers who do have e-mail accounts, anecdotal evidence provided to the IT Consultants suggested that some officers do not regularly check their email and allow an accumulation of unread email to gather on the Departments mail servers. This raises a number of questions concerning the readiness of Customs officers to adopt email and paperless office concepts. Once again training in the use of email, in addition to other computer applications is considered critical. Using personal email accounts risks fragmentation of information across the Department and poses a security risk in terms of confidential information being sent between Departmental officers.

A Microsoft Exchange Server was deployed a number of weeks ago that will be used to allow each employee in JCD to have their own email account. It is intended that email use would be separated into two separate environments – an internal email domain (customs.gov) and an external email domain (customs.gov.jo). However, considerable training is required to avoid abuse/misuse of email (for example, many employees are currently using their email for private use). The aim is to allow email accounts to be available at each Customs House as a minimum.

5 VISION AND MISSION OF CUSTOMS IT

5.1 VISION STATEMENT

The JCD IT Department aims to provide a platform for JCD to become the regional leader in customs administration in the region. This is in line with JCD's ambition to remain the most efficient and best-trained Customs organization in the Middle East.

5.2 MISSION STATEMENT

The JCD IT Department will enable JCD to deliver high quality services to the government, community, industry and commerce, and maximize revenue collection for the GoJ.

5.3 VALUES STATEMENT

JCD is committed to the following values:

- Proud to be a Customs Officer serving Jordan
- Creativity and innovation are our way to globalization
- Persistence, diligence and obligation of responsibility are our banner
- Cooperative, active, flexible, transparent and communicative Customs Department

5.4 STRATEGIC GOALS

The JCD Strategic Plan 2001-2003 lists the following IT-related strategic objectives for the organization:

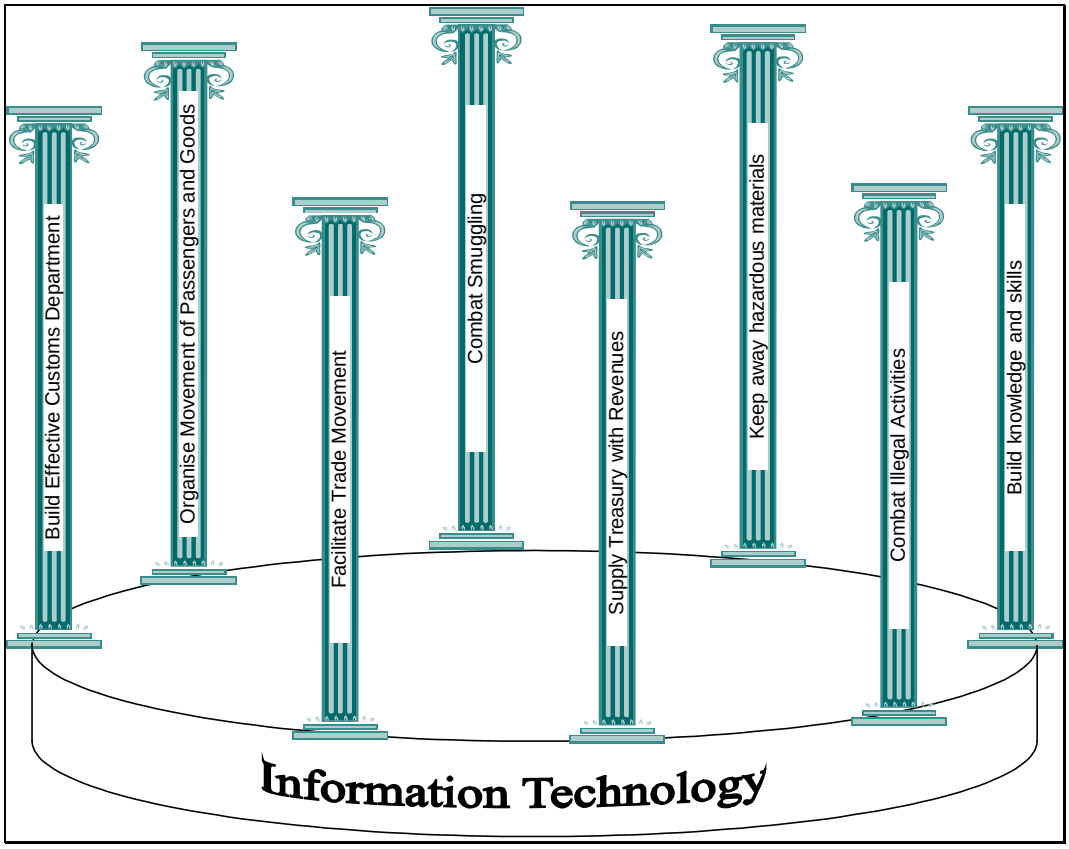

Figure 2 - Eight Pillars of the Customs' Strategic Plan

Promoting investment and enhancing the competency of national industry to improve the national economy

- Facilitate change and modernization of operations and procedures in the Customs Department in accordance with government policies;
- Develop Client Information System;
- Comply with the eCommerce and eGovernment strategies;
- Provide education and training to Customs officers;
- Put in place an Institutional Performance Measurement System;
- Develop a communication and collaboration platform between the Customs Department and clients from the public and private sectors; and
- Develop existing infrastructure.

Facilitating trade between the Kingdom and other countries

- Adoption of international standards;
- Facilitate policies, procedures and legislation to shorten client processing time;
- Streamline and simplify customs processes and procedures;
- Modernize equipment in the Customs department;
- Increase the bandwidth between the Customs departments; and
- Use information and communications technology as a change agent.

Providing national treasury with revenues

- Improve performance and collecting mechanism;
- Electronic connection between the Financial Directorate and Customs Offices;
- Electronic connections between Financial Directorate and banks; and
- Advanced paying systems.

Monitoring the movement of passengers, commodities and means of transport crossing the borders of the kingdom in accordance with the powers of the department to enforce legislation

- Coordination with other Government departments, such as Ministry of Industry and Trade, Ministry of Health, Ministry of Agriculture and the Communications Sector;
- Provide the infrastructure necessary to organize the movement; and
- Provide the ministries with data concerning the external trade movement.

Combating smuggling

- Intelligence database to enable the proactive combating of smuggling and to provide a platform for information exchange with security forces in other countries;
- Computerize transit procedures and their monitoring; and
- Improve efficiency and effectiveness of the Intelligence, Control and Audit Sections.

Protecting public security from hazardous items

- Combat smuggling and illegal trafficking in dangerous wastes, radioactive and perished items; and
- Coordinate with the Directorate of Public Security and Customs organizations in neighboring countries.

Enforcing legislation to prevent illegal commercial activities

- Improve Customs' anti-fraud activities and coordination with other government departments.

Establishing an efficient human resources management framework in the Customs department

- Design and provide technical and administrative training;
- Establish effective vertical and horizontal communicating channels; and
- Implement knowledge management framework.

5.5 IT ACTIVITIES

The Customs Strategic Plan 2001-2003 includes a large number of activities designed to support and achieve the strategic goals mentioned in the previous section. The majority of these activities relate to existing or proposed IT infrastructure, indicating how important IT is in terms of overall JCD aims and objectives (refer Appendix Two). For this reason, it is essential to have an appropriate IT Strategic Plan in place which mirrors the broader JCD aims and objectives.

6 STRATEGIC CONTEXT

6.1 ENVIRONMENT & STAKEHOLDERS

JCD interacts with an array of stakeholders. These are described in Figure 2 below. The JCD IT infrastructure should help support the interaction and interoperability between these stakeholders, from both a business, functional and technical perspective.

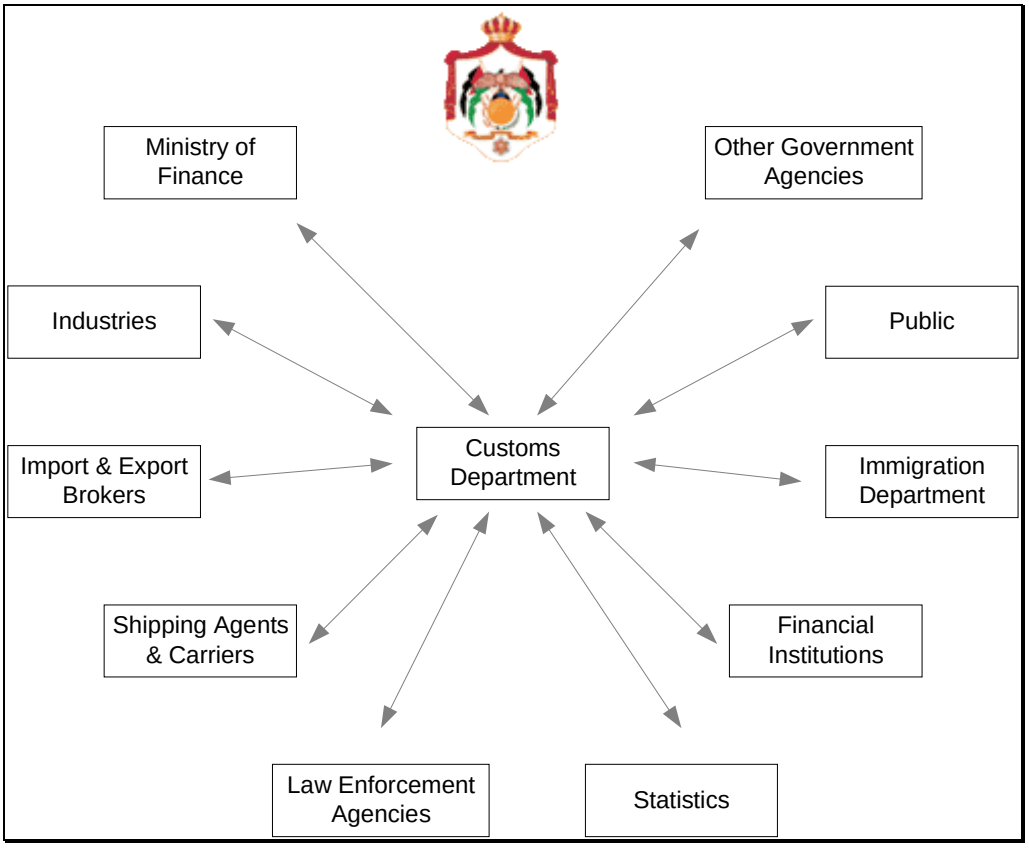

Figure 3 - Customs Environment

Links with other agencies are not well developed – for example, there is no data exchange with Immigration at this stage. There are no overarching plans for data coordination and exchange at this stage. Much of this is being done in an ad hoc fashion. There are some links to law enforcement agencies (e.g., the Government Intelligence Directorate and the Anti-Smuggling unit of the Jordanian Police) and some initiatives are underway to exchange data with the Vehicle Inspection Authority.

There is currently no standard mechanism within JCD to inform others within Customs of new processes, new information or new policies (e.g., on smuggling). The web site doesn't appear to be used for this purpose, and as discussed above, email is not used extensively throughout JCD.

There is no coordination or communication between each of the Customs Houses. They tend to build and modify their own systems, meaning standardization is difficult to achieve. No user requirements for this are undertaken and no common business processes are documented. This all

needs to be centralized and resources need to be better coordinated. This will be one of the recommendations of the ASYCUDA review.

6.2 CUSTOMS FUNCTIONS

Following is the JCD's high level business model.

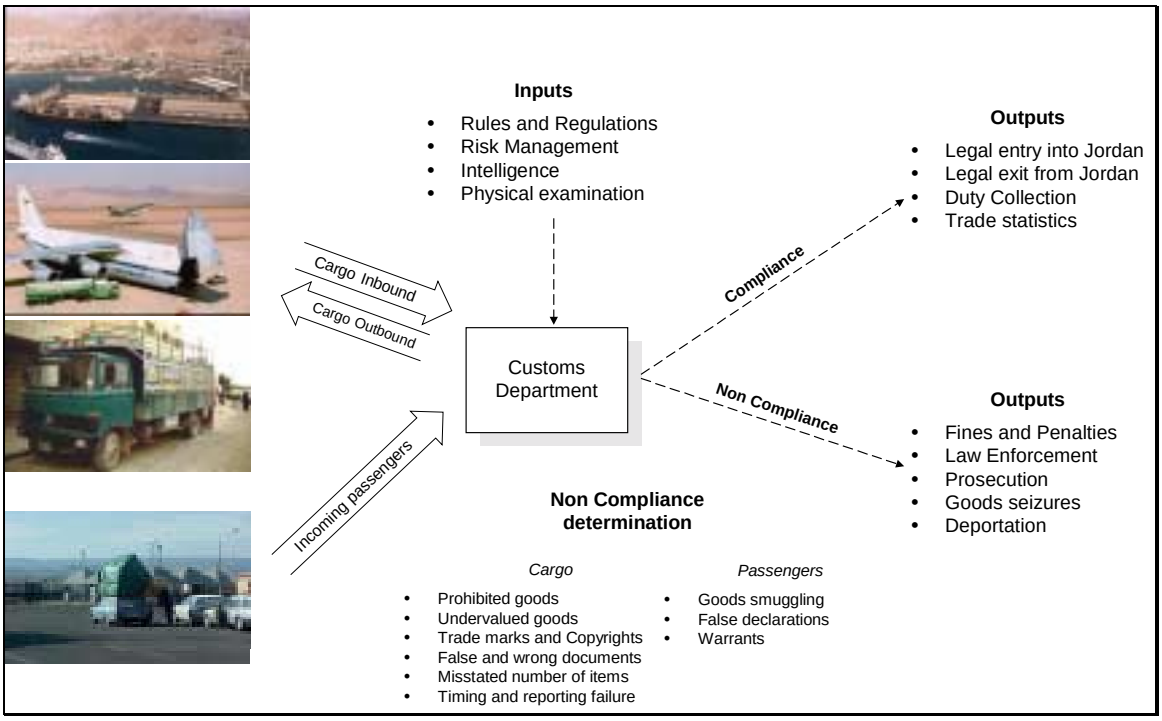

Figure 4 - Customs Business Model

The twin aims of any Customs organization, including the JCD, is to facilitate trade while at the same time enforce better compliance of Customs regulations. These twin aims can often be contradictory – better compliance can inhibit trade where inspection is undertaken without an appropriate risk management framework in place; whereas too lenient an inspection regime can result in lost revenues to the Government as duties go unpaid. The aim of any Customs organization is to establish an appropriate tradeoff between these two goals.

The World Customs Organization, Kyoto Convention, has a section that outlines this conundrum clearly:

Effective Customs control in order to prevent duty/tax evasion, fraud and smuggling is Customs' main aim. Given limited resources it is not possible, or indeed feasible, to examine every consignment that enters a country. Thus, in carrying out their control function, Customs must be selective.

Risk assessment and selectivity criteria, in order to identify consignments for examination and documents for checking can be applied in a manual system. Where, however, the functions of cargo control and/or goods declaration processing as well a passenger processing have been automated such selectivity can be carried out on a much more informed and thorough basis. Intelligence gathered by Customs can be fed into the computer system and be taken into account when selectivity

processing is taking place. The probability of uncovering fraudulent practices is therefore increased in an automated environment, where selectivity profiles can be analyzed more systematically, accurately and in a more timely manner.

A review of the current capability and future direction for JCD in respect to risk management, intelligence and investigations activities has already been undertaken elsewhere.[4] A number of recommendations have already been presented to JCD relating to how an appropriate IT platform and IT systems can contribute to future developments in this area.[5]

A review of the existing focus of IT activities included in the JCD Strategic Plan showed an over-preponderance towards trade facilitation via the adoption of web-enabled processes as part of JCD's eCustoms iniatives (e.g., the TADD and Guarantees System being available from the JCD website, and plans to enable electronic transfer of funds from banks, brokers access to systems and data entry, etc).

[4] Refer to ***Development and Integration of Risk Management, Intelligence and Investigation Capabilities within Jordan Customs, Final Report***, Deliverable for PSPI Component, Task No. 555.1 Contract No. 278-C-00-02-00210-00, September 2002.

[5] These recommendations include the following:

- Monitor and assess the value of IT data management systems for intelligence and risk management areas to identify non-compliant targets;
- An integrated approach be applied to current and planned data management systems including the national rollout of ASYCUDA and related information technology developments;
- It is recommended a centralized information collation, analysis and dissemination system be developed national risk assessment and targeting, whist providing a service to regional Customs functions;
- Information dissemination and analysis is required to be reciprocal in nature to ensure a coordinated, integrated system, allowing for evaluation and feedback;
- It is recommended a coordinated approach be applied to all national and regional operational areas dependent on timeframes of intelligence database design and implementation, and training and development of analysts and relevant personnel;
- Concurrent to database system development, introduction of a standard Information Report with appropriate operational procedures and policies developed and distributed;
- Introduction of enhanced software, including analyst software tools, will be assessed for feasibility and implementation in late 2002/early 2003 by Jordan Customs stakeholders as part of the AMIR 2.0 program;
- As part of an IT Development Plan, assess the viability of integrating and linking Jordan Customs, as well as ASEZA Zone Customs, computer systems to facilitate access and disclosure to streamline information transfer;
- Implement a centralized investigation case management system. This will allow for case management, statistical reporting, and external access to case data, etc (subject to security control); and
- The short-term IT consultants in conjunction with Jordan Customs examine the feasibility of investigation computer software such as the proposed case management system and associated platforms.

It is the consultants' view that insufficient attention has been given to better compliance at this stage. This may well be addressed once the recommendations included in previous reports addressing risk management, intelligence and investigations capabilities are adopted.

RECOMMENDATION 3: The focus of IT spend and effort within the organization needs to be more equally divided between Jordan Customs Department (JCD) twin objectives of facilitating trade and enforcing better compliance of Customs regulations.

7 IT STRATEGIC PLAN IMPLEMENTATION - GOVERNANCE

Figure 3 shows formal structure for how JCD's strategy can be translated into IT projects and initiatives, which can help the Department achieve its objectives. The proposed structure is not simply a top-down hierarchy. It will also facilitate the raising of initiatives from right across the organization, while at the same time providing management with a structure to help manage programs and associated projects.

The proposed model will also ensure that overall IT standards and enterprise architecture are adhered to and priorities are met and resources targeted more efficiently based on these priorities.

7.1 IT STEERING COMMITTEE

To some extent this framework has begun to be built with the formation of an IT Steering Committee within JCD. This consists of the following people:

- Mahmoud Quteishat, Director-General (Chairman of Steering Committee)
- Eng. Marwan Gharaibeh – Director of Planning & Organization
- Somaya A. Al-wahoush – IT Manager
- Mahmoud Wafa, Director of ASYCUDA
- Khaled Ali Al-Zoubi, Director of Computer Affairs
- Eng. Arif A. Alfitiani, Director of Communication and Electronic Directorate
- Walid Alijel, Head of Analysis and Programming

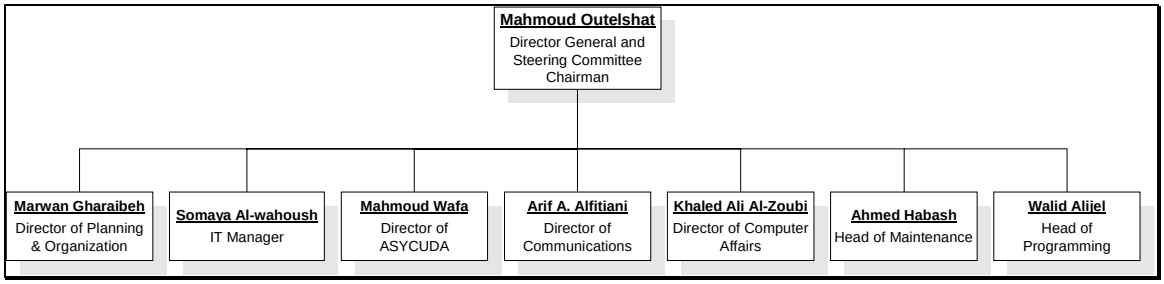

Figure 5 - IT Steering Committee

IT Planning Committee Meets on ad hoc basis (bimonthly) – prepares and checks the progress of the IT annual plan

(The steering committee members should have decision-making responsibility for the business units and enterprise functions addressed by the ITSP. The committee members set the tone, scope and direction of the strategy.)

IT Steering Committee should have approval to expend a budget.

ASYCUDA have their own budget, drawn from many sources

Communications Division has their own budget

JDC usually ask for US$0.5 million to be allocated for IT budget, but rarely get this amount. JCD have obtained donations from a variety of sources including Cisco, Intel, Sun, the King's Court and AMIR.

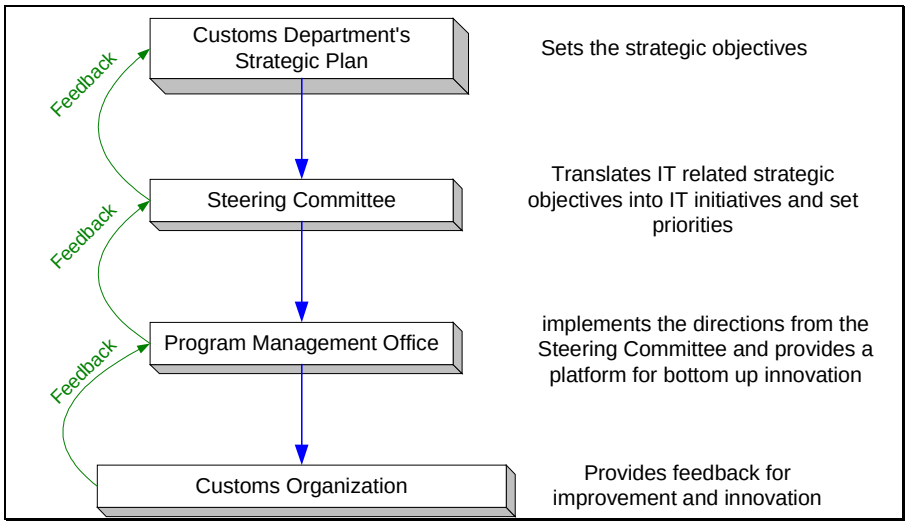

Figure 6 - Governance Structure

The Steering Committee translates the strategic objectives set by the Executive into specific IT initiatives and makes sure that appropriate priorities are set.

RECOMMENDATION 4: An appropriate governance structure needs to be put in place in order to refocus the IT Steering Committee's focus away from tactical and operational issues to a strategic focus so that resources and initiatives are prioritized and spent appropriately.

7.2 PROGRAM MANAGEMENT OFFICE (PMO)

The PMO is responsible for planning and overall harmonization of JCD information systems.

The PMO, in close collaboration with the business owners, evaluates, plans and executes the replacement of IT systems that do not align with agreed business processes or the JCD enterprise architecture.

The PMO is responsible for the design, development, programming, testing, implementation and maintenance of Customs automated information systems using appropriate project management methodologies to ensure the delivery of high quality outcomes.

The PMO is responsible for the management of all JCD computer facilities, hardware, software, data, telecommunications, and related financial resources.

The PMO is further responsible for:

- Identifying and evaluating new technologies for application to JCD automated systems;
- Developing and maintaining all operational aspects of the JCD Computer Security Program;
- Establishing requirements for computer-to-computer interfaces between JCD and various industry and business groups and government agencies; and
- Implementing a practical and viable knowledge management (KM) program.

RECOMMENDATION 5: That a Program Management Office (PMO) be established managing all operational and day-to-day IT initiatives, development and deployment using an appropriately robust methodology, templates and reporting mechanisms.

RECOMMENDATION 6: A detailed Communications Plan needs to be developed to ensure that any claim for IT resources made by either internal or external stakeholders is assessed against the IT strategic priorities in this document and will be made in the form of a compelling business case for consideration by the IT Steering Committee. The Communications Plan will also help better coordinate JCD IT activities within a whole-of-government approach to ICT activities within Jordan. It will also provide a channel for JCD business owners to feed back to the IT Steering Committee concerns they may have regarding IT requirements and be better informed about JCD IT priorities and plans.

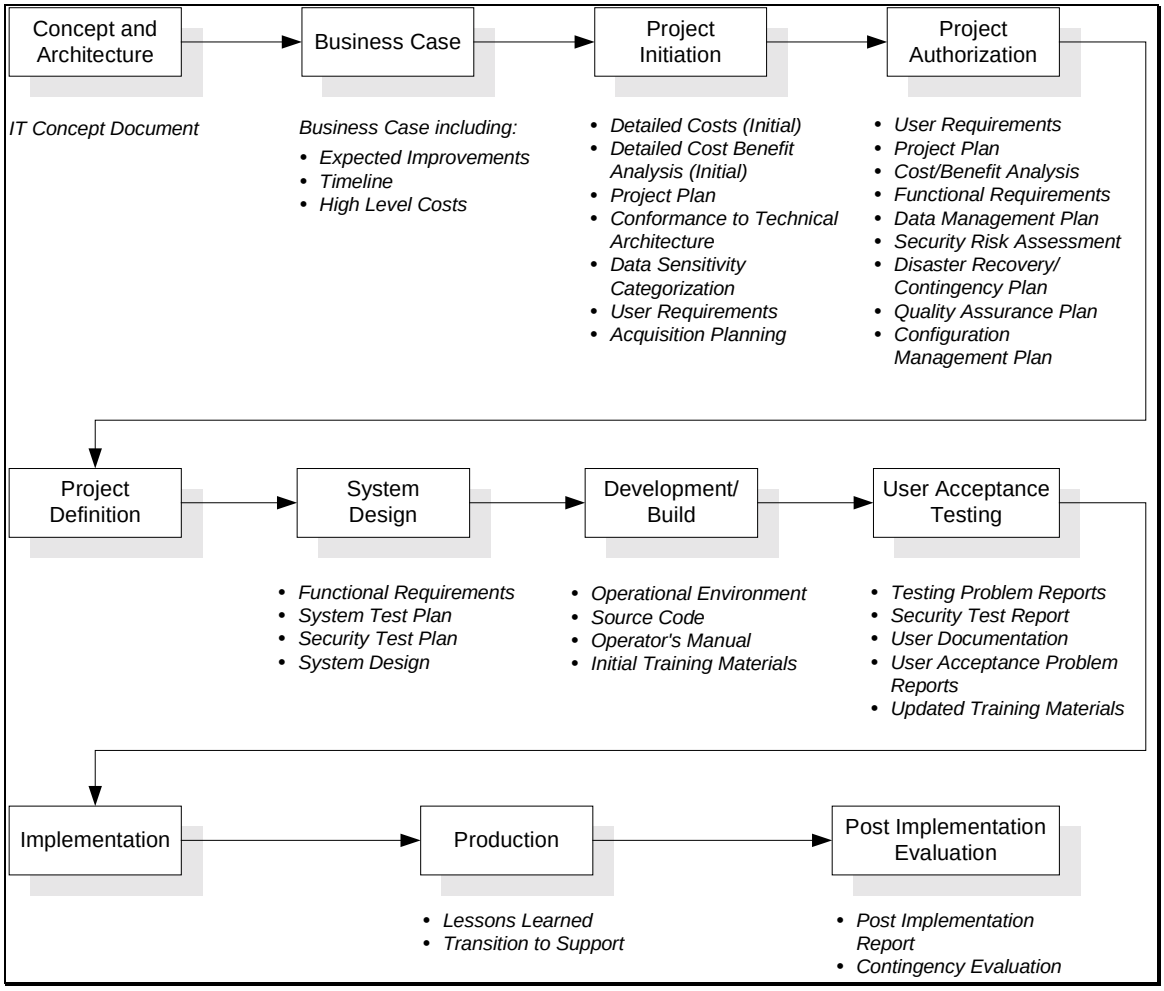

Figure 7 - IT Initiative Life Cycle

7.3 KEY SUCCESS FACTORS FOR GOVERNANCE

How do you measure success of governance?

- Business objectives are aligned with IT Strategic Plan
- System and process harmonization (uniformity across parts of the organization)
- High quality of solutions being provided
- Top down and bottom-up innovation throughout the organization
- Possible revenue enhancement
- Client satisfaction – internal and external
- Systems performance

7.4 ORGANIZATION & MANAGEMENT

In order to achieve the objectives of the JCD it is essential to understand the interrelationship of people, skills, and competency within the organization. It is also important to streamline processes supported by appropriate technologies. This is illustrated in figure 4.

7.4.1 Skills Acquisition and Development

Jordan has a powerful human resources capacity in IT. While it is often conceded that Dubai is the hub of IT capability within the Middle East, 3-4 out of every 10 IT professionals in Dubai are likely to be Jordanian. Therefore, there is considerable IT experience and expertise that can be relied on in Jordan.

JCD have a good training center in Amman with all of the necessary hardware and software infrastructure in place, and a competent training staff under the direction of Mr. Khaled, Head of Training. (put in screen shot of http://www.customs.gov.jo/e_training_center.asp). An internationally-recognized standard is being used for accreditation purposes – the Internet Driving License developed by UNESCO and 30 of the courses available have examinations that can be taken online. An Annual Training Plan is prepared, in consultation with staff, and made available to staff via the Internet. The Plan is updated on a monthly basis.

Common complaint from Customhouse Directors – "our people don't have enough training" Customs tries hard to train its officers, but some people don't know how to use computer at all. Director, Jabir Customs House says that training processes are not very efficient. While there are a large number of courses available, they don't meet the requirements of all.

Training in Customs processes & procedures – ability to follow processes depends greatly on the experience of the officer as well as the degree to which they get trained. Normally, processes and procedures are covered in the first year of an officer's training; but after that most officers only get 1 week of training per year on average.

JCD has been going through radical changes over the last few years. Many processes have been changed, IT systems have been introduced and processes automated, and many processes and systems are being developed. It is essential to understand the limitation of users ability to absorb all of these changes and ensure that both IT and human resource development progress are at the same pace. While change is necessary, inevitable and constant, periods of consolidation are just as important, where skills across the organization can be made consistent.

One of the features in the Training Strategy developed by JCD is that it reflects the aims of the Department regarding the implementation of decentralization, not only in its basic functions, but also in the supporting ones.

It was acknowledged in the Training Strategy that it was problematic for Customs officers outside of Amman to participate in training programs, since it was impacting on Customhouse resources and functioning. There is a requirement to bring training out of Amman to the Customs officers, rather than have them come to a centralized training center. Where training facilities are not available at the Customhouses where the training is to be delivered, alternatives, such as a specially equipped vehicle (mobile training center) should be considered.

RECOMMENDATION 7: develop on-the-spot training to be delivered outside of the Amman Training Center.

RECOMMENDATION 8: develop competency profiles for different Customs roles and design a training program supporting and developing identified competencies and skills required to fulfill these roles.

RECOMMENDATION 9: develop or acquire a Competence Monitoring Database that allows tracking each Custom officer's history of attendance at training programs, successful completion of these programs and schedules for retraining (perhaps to be managed by Human Resources Division).

RECOMMENDATION 10: Based on the consultants' visits and interviews, it appears that the skill level of Customs officers (Customs-specific, IT and English) is inconsistent across the organization. The basic skill levels required to perform a set of identified roles and functions within JCD to achieve its objectives need to be defined. It is recommended that a Skill and Competency Planning and Tracking System is built as a matter of highest priority.

8 MISSION-CRITICAL INITIATIVES

This part of the document addresses the problem-solution stage of the engagement, by developing a future-state model that details how deficient domains of change should operate in the future. During this activity, the challenge has been to envision how IT could change to address the deficiencies identified in the assessment. Depending on the nature of the deficiencies identified, the future-state model may focus on critical applications and technologies needed to support strategic imperatives, or it may focus on operating structures and practices within the IT organization. These are addressed in further detail below

Regardless of the area of emphasis, it needs to be remembered that the future-state model needs to be implementable. While thinking outside of the box is encouraged during the early stages of envisioning the future-state model, the final future-state model must reflect the organization's particular business context (business strategy, industry, and economic situation) and its organizational values, priorities, and culture.

The Consultants held a Workshop with members of the JCD IT Steering Committee on 13 November 2002 in order to better distil and prioritize IT requirements arising from the JCD Strategic Plan. Each participant was asked to provide three initiatives that they felt were urgently required. These were then clustered into subject groups and a general discussion then took place around each of these clusters. The following priorities were highlighted. These have been grouped into a set of meaningful criteria for discussion below. Some additional points to those discussed at the Workshop have also been added here.

Cluster	Proposed Initiative
Training	• Increase the number of IT-educated Customs employees to be two-thirds of the total number of Customs employees • Improve staff qualifications by training and the use of incentives

Cluster	Proposed Initiative
	and supporting the Department by new people able to deal with computers • Employee better quality officers (graduates, and people with training) • Establishment of a National Training System
Customs Procedures Improvement	• JCD should establish a Customs Brokers Licensing System which ensures the upgrading the qualifications of brokers in Jordan • Integrated Customs procedures and eliminating duplication • Establishing electronic links with other Government departments so the clearance procedures are simpler and streamlined • Jordan is a transit point for passengers in the Middle East – therefore more streamlined services should be provided to allow easier transit
Communications Infrastructure	• Better connectivity between Customs points of presence • Stable communications between all Customs Houses to enable fast and reliable data exchange • Increase the bandwidth of telecommunications links between JCD HQ and Customs centers all over Jordan
Collaboration with Other Agencies	• Getting best practice from other administrations • Study other Government departments processes and procedures • Better collaboration with other agencies
Law Enforcement and Intelligence	• Providing an electronic Customs border surveillance system using airplanes and satellites. • Establishment of a National Intelligence System • Create a Risk Management Framework to allow for improved operations and providing a Risk Management Directorate with appropriate information management systems.
IT Systems Upgrade	• Replacing redundant systems • Improving high technology infrastructure

Cluster	Proposed Initiative
Web-Enablement of Customs Activities	• Implementation of eCustoms • Allow Customs clients to undertake all of their transactions on the Internet (allowing 24 by 7 service)

RECOMMENDATION 11: Any upgrade to existing IT infrastructure needs to be assessed against the priorities outlined in this IT Strategic Plan and must be presented in the form of a compelling business case to the IT Steering Committee before any work commences.

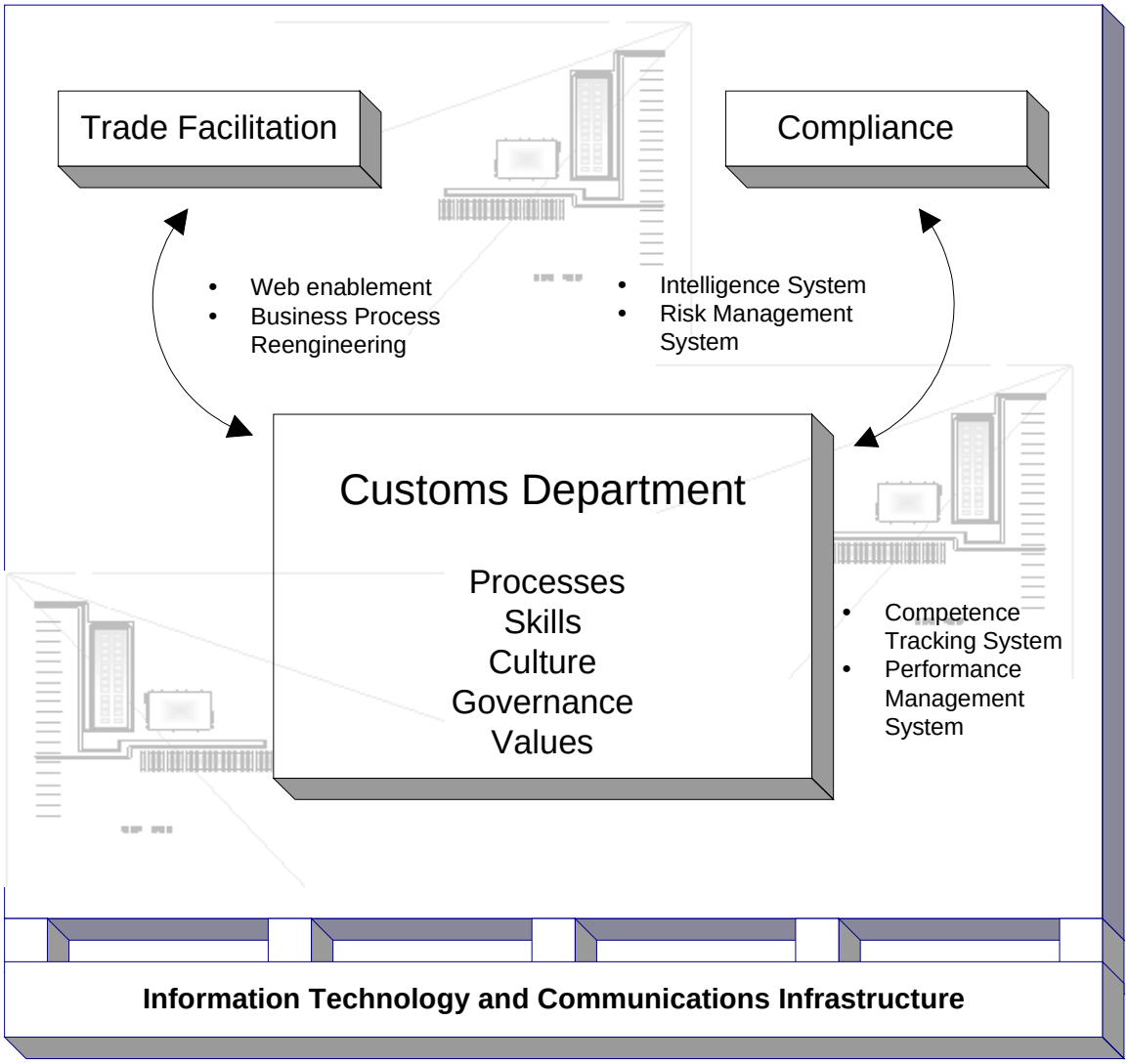

Figure 8 – Customs IT Systems

8.1 INTELLIGENCE AND RISK MANAGEMENT SYSTEMS

The report by John Howard, Michael Krstic and Phillip Hoskin in September 2002 showed that current software deployed within JCD relating to intelligence was unconnected, non-integrated and was not leveraging the data currently being stored within ASYCUDA, the Data Seizure Collection System, the Cases System and other databases. There was also no integration with external agencies, including the Jordan Institute of Standards and Metrology, and law enforcement entities.

- Follow standard IT procedures for the creation of a business case and project management for implementation of an Intelligence System as per Figure 7 above.
- Detailed intelligence processes needs to be defined that mimic best case practices (US and Australian systems) and JCD-specific requirements. The intelligence system developed needs to be developed/customized to support these processes.

- Evaluate technologies – a detailed set of user requirements need to be developed for an Intelligence system and an assessment needs to be conducted to ascertain whether this system should be acquired as a commercially available product or developed using internal resources. The development of user requirements needs to be undertaken by representatives of JCD Business, JCD IT, AMIR IT and AMIR business consultants.
- Commence training of staff scheduled to coincide with UAT and deployment of the intelligence system.

RECOMMENDATION 12: Work should commence on development of a National Intelligence System that incorporates a collection, analysis and reporting capability, a risk management framework, and a compliance monitoring system. The final requirements should be the outcome of close collaboration between the four key stakeholders: JCD business owners, JCD IT Department, AMIR IT Consultants and AMIR Business Consultants.

8.2 COMPETENCE TRACKING SYSTEM

A Competence Tracking System needs to clearly define the roles required for Customs officers. It should also encompass and track the following elements:

- Set of skills and competencies- for each role within the organization, a set of appropriate skills and competencies needs to be clearly defined. For example, a Customs officer at a border checkpoint needs to have knowledge of a set of standard Customs procedures in order to fulfill his functions.
- Training programs required - in order to maintain the required competence for this officer to achieve his functions, a set of training requirements needs to be developed and the frequency of this training needs to be determined and monitored.
- Training delivery mechanisms
- Database of each officers' development

As mentioned in 7.4.1, it appears that the skill level of Customs officers is inconsistent across the organization. The primary benefit of a Competence Tracking System is more accurate planning and better focused spend of training resources.

8.3 PERFORMANCE MANAGEMENT SYSTEM

Two management systems need to be put in place. The first one will measure the contribution of the IT business to the overall business of the business. It will measure the level of achievement and progress of the initiatives set in the IT Strategic Plan. The second system is a performance management system for the overall Customs organization. It should measure the level of organizational development, competence levels in the organization, efficiency and effectiveness of business processes, financial performance, and the satisfaction of internal and external clients.

RECOMMENDATION 13: A Performance Management System needs to be developed in order to monitor the progress of IT initiatives development and the contribution of overall IT operations to JCD's objectives and outcomes.

RECOMMENDATION 14: Any further requests for e-enabling Customs processes need to be assessed against the priorities outlined in this IT Strategic Plan and must be presented in the form of a compelling business case to the IT Steering Committee before any work commences.

Eight Pillars of Customs Strategy and IT initiatives and systems	Promoting investment and enhancing the competency of national industry to improve the national economy	Facilitating trade between the Kingdom and other countries	Providing national treasure with revenues	Monitoring the movement of passengers, commodities and means of transport and enforce legislation	Combating smuggling	Protecting public security from hazardous items	Enforcing legislation to prevent illegal commercial activities	Establishing an efficient human resources management framework in the Customs department
Training								
Facilitate change and modernization of operations and procedures in the Customs Department								
Provide education and training to Customs officers								
Establish effective vertical and horizontal communicating channels								
Design and provide technical and administrative training								
Implement knowledge management framework								
Improvement of Customs procedures								
Put in place an Institutional Performance Measurement System								
Adopt international standards								
Facilitate policies, procedures and legislation to shorten client processing time								
Streamline and simplify customs processes and procedures								
Use information and communications technology as a change agent								
Improve performance and collecting mechanism								
Provide the ministries with data concerning the external trade movement								
Intelligence and law enforcement								
Intelligence database to enable the proactive combating of smuggling and to provide a platform for information exchange with security forces in other countries								
Computerize transit procedures and their monitoring								
Improve efficiency and effectiveness of the Intelligence, Control and Audit Sections								
Combat smuggling and illegal trafficking in dangerous wastes, radioactive and perished items								
Coordinate with the Directorate of Public Security and Customs organizations in neighboring countries								
Improve Customs' anti-fraud activities and coordination with other government departments								
Communications infrastructure								
Increase the bandwidth between the Customs departments								
IT systems upgrade								
Develop existing infrastructure								
Modernize equipment in the Customs department								
Provide the infrastructure necessary to organize the movement								
Web enabling of Customs procedures								
Advanced paying systems								
Collaborating platform with clients and other agencies								
Develop Client Information System								
Electronic connections between Financial Directorate and banks								
Electronic connection between the Financial Directorate and Customs Offices								
Coordination with other Government departments								
Develop a communication and collaboration platform between the Customs Department and clients from the public and private sectors								

Figure 9 - Alignment of IT Activities against JCD Strategic Plan

9 SECURITY

Since this has not yet been addressed, appropriate policies, procedures etc need to be developed prior to, or alongside the development of the systems mentioned above. Refer to Appendix Three.

RECOMMENDATION 15: Undertake a detailed analysis of the sensitivity levels of data that JCD manages and a Threat and Risk Assessment (TRA) that addresses the potential consequences of security breach and any compromising of the integrity of data, and develop an appropriate Risk Mitigation Strategy for each level of data identified. An appropriate IT Security Policy needs to be adopted for JCD that complies with a whole-of-government approach.

10 ENTERPRISE ARCHITECTURE

10.1.1 Overview

An Enterprise Architecture is a strategic information asset base which defines the mission, the information necessary to perform the mission, the technologies necessary to perform the mission and the transitional processes for implementing new technologies in response to the changing needs of the mission.

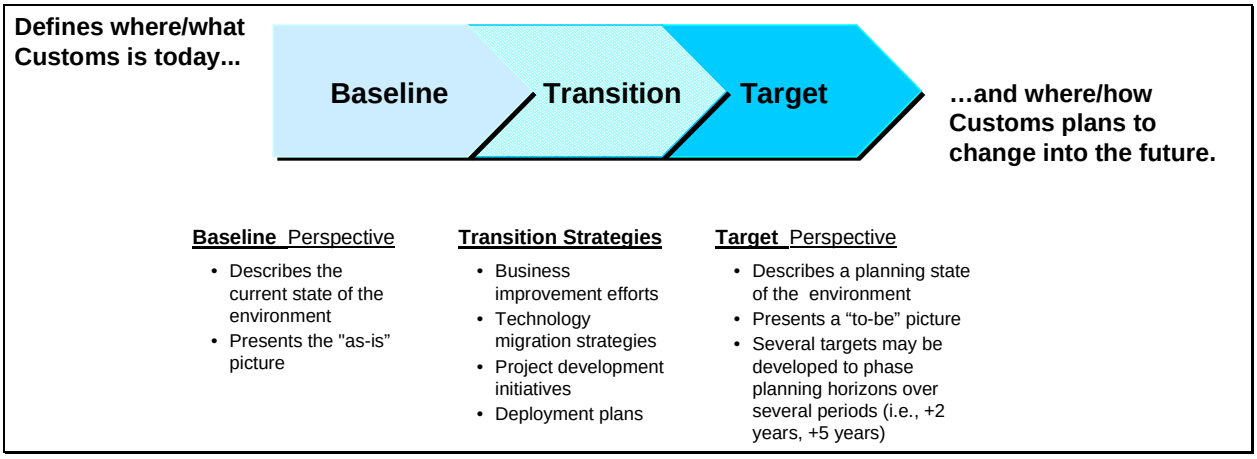

Figure 10 - Customs Enterprise Architecture Overview

An Enterprise Architecture:

- Captures facts about the business in an understandable manner to enable better decision-making;
- Improves communication between the IT organization and the business units;
- Reduces the risk of building systems that do not meet business needs;

- Eliminates false starts;
- IRB decision support tool used in IMP; and
- Highlights opportunities for building greater quality and flexibility into applications without increasing the cost.

The broader the scope of the architecture across the enterprise and the deeper its levels of detail, the greater the potential benefit.

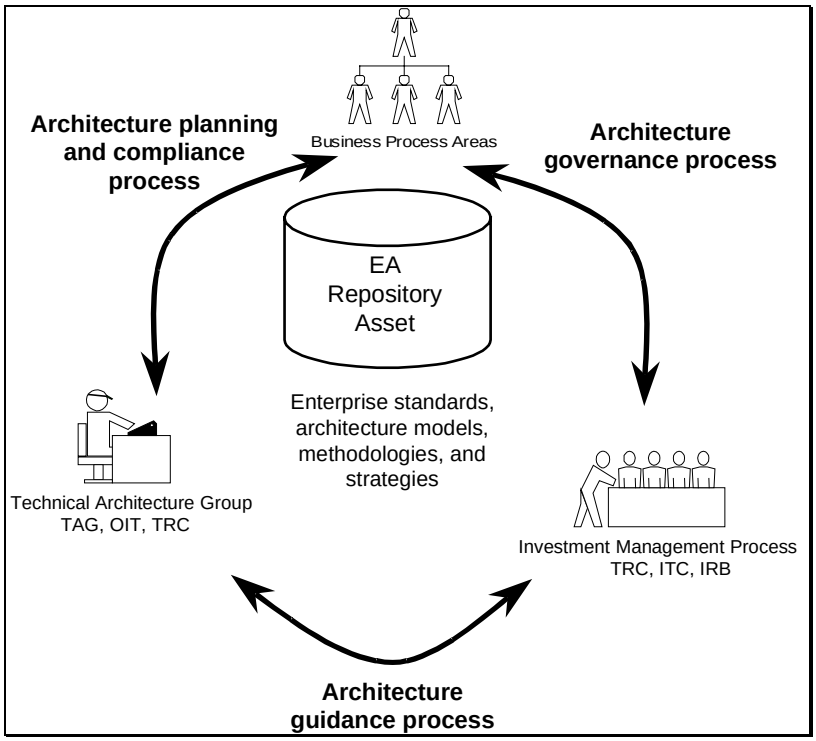

Figure 11 - Benefits of an Enterprise Architecture

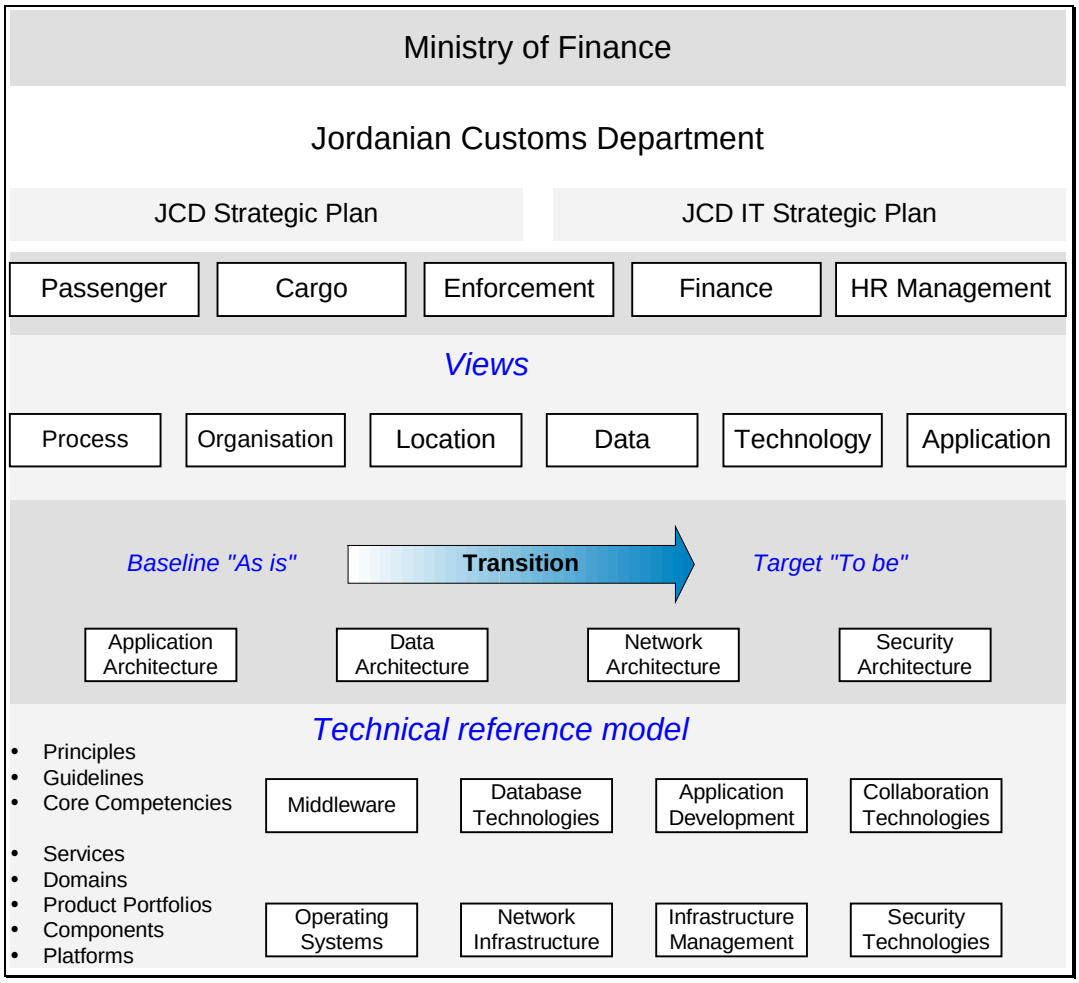

Figure 12 - Customs Enterprise Architecture Framework

A four-step process of alignment and assessment is required.

1. Assess business alignment

Determine if the project proposal submitted by the business process area is in alignment with strategic plans, goals, and objectives.

2. Assess business case proposal

Examine the proposed solution, at a high level, to determine the level of impact on the Customs technology environment. In a high-level review to determine feasibility, it is important to assess the proposed project costs, resources, materials needed, and scheduled completion timeframe.

3. Assess technical compliance

Determine if the technology architecture of the solution proposed complies with enterprise standards and methodology as defined by the approved IT standards and products in use at JCD.

4. Evaluate Architecture compliance

Determine whether the developed system complies with the architecture components. It is important to review the project once it is complete and determine whether the finished project meets the requirements and was completed in a timely manner.

RECOMMENDATION 16: All of the systems mentioned in Section 9 need to be web-enabled. A suitable Enterprise Architecture needs to be developed in order to accommodate these activities.

APPENDIX ONE – LIST OF STAKEHOLDERS INTERVIEWED

5. **Bashar Abied**, Senior Software Engineer, Javna, Amman
6. **Wa'el A. Akayleh**, Director, Employment, Visas & Residency Directorate, ASEZA, Aqaba
7. **Arif A. Alfitiani**, Director, Communications & Electronic Directorate, Jordan Customs Department, Amman
8. **Nabeel M. Al-Hindawi**, Director, ASEZA Customs, Aqaba
9. **Amjad Al-Majdoubeh**, Head of Follow-up Section, Jordan Customs Department, Amman
10. **Hassan Aloreidi**, Software Architect, Javna, Amman
11. **Ahmed Al-Refai**, Commissioner of Customs & Revenue, ASEZA, Aqaba
12. **Mohammad Al-Revati**, Director of Taxation, ASEZA, Aqaba
13. **Somaya A. Al-wahoush**, IT Manager, Jordan Customs Department, Amman
14. **Khaled Ali Al-Zoubi**, Computer Affairs Director, Jordan Customs Department, Amman
15. **Jim Barnhart**, Acting Director, Economic Opportunities, US Embassy in Jordan, Amman
16. **Greta Boye**, Team Leader, Private Sector Policy Initiative, AMIR, Amman
17. **Garland D. Boyette**, Legal & Regulatory Advisor, Aqaba Technical Assistance Support Project, Aqaba
18. **Jean Garunlian**, Director, Division for Services Infrastructure for Development on Trade Efficiency, UNCTAD, Geneva
19. **Marwan Gharaibeh**, Director of Planning and Organization, Jordan Customs Department, Amman
20. **Mohannad Itayem**, Manager, Software Development, Management Information Systems, ASEZA Customs, Aqaba
21. **Andrew Kaiser**, Center of Excellence Program Manager, AMIR, Amman
22. **Linda N. Faris Kawar**, Information Manager, CDG Engineering & Management Associates, Amman
23. **Jim King**, Long-term Customs Component Leader, Aqaba Technical Assistance Support Project, Aqaba

24. **Khaldoon**, IT Manager, Amman Customs House, Jordan Customs Department, Amman

25. **Muwaffa Lahham**, President, Apexion International, Amman

26. **John Mack**, Senior Leader, ICTI Component

27. **Mansour Mansour**, CEO, Javna, Amman

28. **Khalid I. Merei,** Sales & Marketing Executive, Javna, Amman

29. **Fabrice Millet**, ASYCUDA Program Coordinator, UNCTAD, Geneva

30. **Mahmoud Salim Mobaideen**, Communications Engineer, Aqaba Customs House, Aqaba

31. **Amer Nasereddin**, Director of Sales and Marketing, Computer Networking Services, Amman

32. **Jamal Olaimat**, Customs Specialist, AMIR, Amman

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34. **Hussein M. Qasem**, Computer Section Manager, Special Zone Customs, ASEZA Customs, Aqaba

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36. **Maher Abu Saadeh**, Manager, IT Operations, Management Information Systems, ASEZA Customs, Aqaba

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42. **Oraib Toukan**, MIS Specialist, ICTI Component, AMIR, Amman

43. **Mahmoud T. Wafa**, National Project Director, ASYCUDA Project, Jordan Customs Department, Amman

44. **Alan Wilson**, Long-term Customs Component Leader, Aqaba Technical Assistance Support Project, Aqaba

45. **Glenn Wood**, Customs Reform & Modernization Advisor, AMIR, Amman

46. **Bara' Zeidan**, IT Manager, AMIR, Amman

47. **Reema Zumot**, Manager, Food Management Information System, ASEZA Customs, Aqaba

APPENDIX TWO – IT INITIATIVES SUPPORTING THE JCD STRATEGIC PLAN

Customs Department Strategic Plan 2001 - 2003

IT-related initiatives and tasks identified in the Strategic Plan

Id No.	Initiative	Duration	Start	Finish	Element	Responsibility	Remarks
A1	Conduct a comprehensive study on the duties and tasks implemented in Customs departments in developed countries to serve investment in their countries	52.2 weeks	1-Jan-01	31-Dec-01	Promoting Investment and Enhancing Industry Competence	PLAN;GTZ;COMP;EXEMP	
A2	Computerizing customs procedures in the directorate of exemptions: Exemptions Division and Investment Promotion Division	52.2 weeks	1-Jan-01	31-Dec-01	Promoting Investment and Enhancing Industry Competence	EXEMP;COMP	
A3	Establishing the Electronic Complaints Reception System (Hotline)	52.2 weeks	1-Jan-01	30-Jun-01	Promoting Investment and Enhancing Industry Competence	COM	COMP not identified
A4	Establish a rich database for Customs agents (Client Needs Information System CNIS) to be available 24X7 and provide conventional & modern means and techniques	156.6 weeks	1-Jan-01	31-Dec-03	Promoting Investment and Enhancing Industry Competence	??	COMP not identified
B1	Improve procedures for temporary admission & drawback system and authorize approvals to Customs House upon providing agents with the database, and enable members to inquire electronically about their funds.	52.2 weeks	1-Jan-01	31-Dec-01	Facilitating Trade Between the Kingdom of Jordan and Other Countries	DUTIES;COMP	
B2	Extending the computerization of Customs procedures	156.6 weeks	1-Jan-01	31-Dec-03	Facilitating Trade Between the Kingdom of Jordan and Other Countries	??	COMP not identified
B3	Implementation of ASYCUDA at all Customs Houses and for all Customs statuses	91.2 weeks	1-Jan-01	30-Sep-02	Facilitating Trade Between the Kingdom of Jordan and Other Countries	ASYC:CH	COMP not identified
B4	Implementation of Computer Plan for 2001-2003	156.6 weeks	1-Jan-01	31-Dec-03	Facilitating Trade Between the Kingdom of Jordan and Other Countries	COMP	Can we get this?
B5	Implementation of e-Customs, as well as Reengineering Customs processes	109 weeks	1-Jan-01	31-Dec-03	Facilitating Trade Between the Kingdom of Jordan and Other Countries	COMP; All Dir	Can we get a brief on this?
B6	Change towards a paperless Customs by abolishing manual records and enhancing email	156.6 weeks	1-Jan-01	31-Dec-03	Facilitating Trade Between the Kingdom of Jordan and Other Countries	COMP	
B7	Use the VSAT effectively to server the computerization process	156.6 weeks	1-Jan-01	31-Dec-03	Facilitating Trade Between the Kingdom of Jordan and Other Countries	COMP;COM	
B8	Upgrade the efficiency of computer uses	156.6 weeks	1-Jan-01	31-Dec-03	Facilitating Trade Between the Kingdom of Jordan and Other Countries	COMP;HR	
B9	Updating operation systems, MS Access, computers, programming & maintenance	156.6 weeks	1-Jan-01	31-Dec-03	Facilitating Trade Between the Kingdom of Jordan and Other Countries	COMP;ADMIN	
B10	Attaching the Tariff, Customs Law, Instructions, Bilateral Agreements, WCO decisions related to goods and their value in a comprehensive computerized and E-Customs project	56.8 weeks	2-Jan-01	31-Dec-02	Facilitating Trade Between the Kingdom of Jordan and Other Countries	COM;PLAN;TCAFRS	COMP not identified
B11	Updating Customs website and expanding e-mail among officers	156.6 weeks	3-Jan-01	31-Dec-03	Facilitating Trade Between the Kingdom of Jordan and Other Countries	Internet Council	Internet Council - what is this?
B12	Computerizing Transit System between Customs Department and Customs Offices available from the satellite network	52.2 weeks	1-Jan-01	28-Dec-01	Facilitating Trade Between the Kingdom of Jordan and Other Countries	COM;COMP	
B13	Using updated electronic communications system to follow up trucks' movements instead of Customs escort	52.2 weeks	2-Jan-02	31-Dec-02	Facilitating Trade Between the Kingdom of Jordan and Other Countries	COM	COMP not identified
B14	Appropriateness of Customs Law and issued Instructions with e-trade requirements	117.2 weeks	3-Jan-01	31Ma03	Facilitating Trade Between the Kingdom of Jordan and Other Countries	LEGAL;COMP	
B15	Setting up a framework for common cooperation between Customs Department and industry & trade sectors to construct a comprehensive electronic system to simplify procedures, client satisfaction, and the immediate provision of important statistics	56.8 weeks	2-Jan-01	31-Jan-02	Facilitating Trade Between the Kingdom of Jordan and Other Countries	PLAN;COMP	
B16	Providing books, brochures, & hard disks including tariff, Customs Law instructions, bilateral & multilateral agreements and WCO decisions concerning goods	39.0 weeks	2-Jan-01	30-Sep-01	Facilitating Trade Between the Kingdom of Jordan and Other Countries	PLAN;COMP:PUB REL	
B17	Updating Customs website as a source of Customs information and processing Customs procedures	26.0 weeks	2-Jan-01	30-Jun-01	Facilitating Trade Between the Kingdom of Jordan and Other Countries	PUB REL	COMP not identified

B22	Ideal use of ICT to support & identify priorities related to developing operations and reconstructing plans	156.6 weeks	3-Jan-01	31-Dec-03	Facilitating Trade Between the Kingdom of Jordan and Other Countries	??	COMP not identified
B23	Conducting alternative approaches to develop and replace the applied technology in Customs Department to cope with continuous developments in this field	156.5 weeks	1-Jan-01	29-Dec-03	Facilitating Trade Between the Kingdom of Jordan and Other Countries	COMP;ADMIN	
B24	Preparing and developing a comprehensive database for Customs clients to identify their activities and needs	104.5 weeks	1-Jan-02	31-Dec-03	Facilitating Trade Between the Kingdom of Jordan and Other Countries	VALUE;CASES ;COMP;PLAN; Partner	
B25	Increasing computerized communication networks speed between Customs Department and offices from 64kbs to 256kbs	78.2 weeks	1-Jan-01	27-Jun-02	Facilitating Trade Between the Kingdom of Jordan and Other Countries	COM	COMP not identified
B26	Including the remaining Customs offices in the computerized networks to ensure the availability of necessary infrastructure to enable e-Customs	26.0 weeks	2-Jan-01	30-Jun-01	Facilitating Trade Between the Kingdom of Jordan and Other Countries	COM	COMP not identified
B27	Installing simplified monitoring systems in Directorates that have direct relations with customers so Directors can supervise work procedures and provide support to others	52.3 weeks	1-Jan-02	31-Dec-02	Facilitating Trade Between the Kingdom of Jordan and Other Countries	COM	COMP not identified
B28	Providing adequate training to Communications Engineers studying the alternative updated means to develop communications networks in Customs Departments and other offices to cope with continuous development in this area	156.7 weeks	1-Jan-01	30-Dec-03	Facilitating Trade Between the Kingdom of Jordan and Other Countries	COM	COMP not identified
B29	Modernizing Customs equipment	156.6 weeks	1-Jan-01	31-Dec-03	Facilitating Trade Between the Kingdom of Jordan and Other Countries	??	COMS not identified
B30	Resume modernizing computer networks in Customs Department and all other offices	156.6 weeks	1-Jan-01	29-Dec-03	Facilitating Trade Between the Kingdom of Jordan and Other Countries	COMP;ADMIN	
C1	Computerizing and developing procedures of the Financial Affairs Directorate	156.8 weeks	2-Jan-01	31-Dec-03	Providing National Treasury with revenues	??	COMS not identified
C2	Fulfilling electronic connection between Financial Directorate and Customs offices	26 weeks	1-Jan-01	28-Jun-01	Providing National Treasury with revenues	FINANCE:COM P;COM	
C3	Fulfilling electronic connection between Financial Directorate and banks, or any other related party	56.8 weeks	1-Jan-01	30-Jan-02	Providing National Treasury with revenues	COM;COMP;FI NANCE	
C4	Computerizing all manual procedures and developing new systems to meet work requirements	78.0 weeks	1-Jan-01	26-Jun-02	Providing National Treasury with revenues	COMP	
D1	Increasing the application of computerized statistical systems to include the non-computerized Customhouses	26.0 weeks	2-Jan-01	30-Jun-01	Monitoring Passengers, Commodities and Means of jTransport	PLAN	COMS not identified
D2	Installation of TV monitoring systems in Customs Clearance (Airport), northern entry point, King Hussein Bridge, Al Karamah, Al Mizfir, Wadi Araba Customhouses	52.4 weeks	1-Jan-02	31-Dec-02	Monitoring Passengers, Commodities and Means of jTransport	COM	COMS not identified
D3	Introducing a modern communications system to follow up the movement of transit trucks through the Kingdom	156.8 weeks	2-Jan-01	31-Dec-03	Monitoring Passengers, Commodities and Means of jTransport	COM	COMS not identified
D4	Operating a computerized transit system in border entry points and the Department	104.5 weeks	1-Jan-01	31-Dec-03	Monitoring Passengers, Commodities and Means of jTransport	COM;ASYC;C OMP	ASYCUDA Involved. More details required
E1	Computerization of the procedure of Judicial Affairs Directorate and to provide for a database to perform its duties	52.2 weeks	1-Jan-01	28-Dec-01	Combatting Smuggling	ADMIN	COMS not identified
E2	To increase the use of TV monitoring cameras	56.2 weeks	1-Jun-01	27-Jun-02	Combatting Smuggling	COM	
F1	To raise the efficiency of information systems through coordinating with Customs organizations in neighbouring countries and world Customs organizations	157 weeks	1-Jan-01	31-Dec-03	Hazardous Materials		COMS not identified
G1	Provision of necessary databases	157 weeks	1-Jan-01	31-Dec-03	Compliance with WTO legislation (IPRs etc)	PLAN;COMP	
H1	Improving human resources management by using a Personnel Information System (PMIS)	156.9 weeks	1-Jan-01	31-Dec-03	Human Resources Strategy		COMP not identified
H2	Providing Directors with software and equipment for information management	157 weeks	1-Jan-01	31-Dec-03	Human Resources Strategy	HR;TC	COMP not identified
H3	Linking the Directorate of Human Resources with an up-to-date computerized communication network with all Customhouses and Directorates	157 weeks	1-Jan-01	31-Dec-02	Human Resources Strategy	HR;COMP	

H8	Undertake a joint survey with the Computer Directorate to illustrate the mechanism of applying e-Government and identifying the basic equipment required for officers to adopt it	13 weeks	1-Jan-01	31-Mar-01	Human Resources Strategy	HR;COMP	

LEGEND

PLAN	Directorate of Planning
GTZ	Customs Modernization Project
COMP	Computer Directorate
EXEMP	Exemptions Directorate
DUTIES	Suspending Duties Statuses Directorate
MOIT	Ministry of Industry & Trade
HR	Human Resources Directorate
TC	Customs Training Centre
VALUE	Value Affairs Directorate
DEPT	Customs Department
INVEST	Investment Promotion Corporation
LEGAL	Legal Affairs Directorate
ORG	Organisation Section
PUB REL	Public Relations
DG OfC	Director General's Office
ALL DIR	All Directorates
COMP	Communications Unit
CH	Customhouses
ADMIN	Administration Directorate
TRF SEC	Tariff Section
AGRE	Agreements Section
TC AFRS	Directorate of Technical Customs Affairs
FINANC	Directorate of Financial Affairs
SP-COM	Special Committee
ASYC	ASYCUDA Project
INTERT	Internet Council
CASES	Cases Directorate
CLEAR-ASO	Customs Brokers Association
REG.OFC	Regional Representative Office
CUST-MAG	Customs Magazine Board
PARTNER	Partnership Council
SUP	Supplies Section
ENFO	Enforcement Directorate
WT	Working Team
H-INVEST	Head of Investigative Committee
INCENT	Incentives Section
LAB	Customs Laboratories
PLAN COM	Planning and Coordination Committee
CONT	Control Directorate

APPENDIX THREE – SECURITY

A detailed analysis needs to be undertaken of the sensitivity levels of data that JCD is dealing with and the potential consequences of breaches of security and any compromising of the integrity of data. Based on this, an appropriate risk management approach for each level of sensitivity needs to be determined and necessary security measures put in place. An appropriate quantification of the risks identified, its likelihood of happening, and a strategy for mitigating these risks needs to be undertaken.

It appears that information and data security at both JCD and Customs at the Special Zones has not been thoroughly addressed.

Casual observations by the IT Consultants during visits to some of the Customhouses indicated weaknesses in physical security that could be potentially exploited by intruders. Examples of this included servers with sensitive ASYCUDA data and associated communications infrastructure not being adequately secured, entry and exit to server rooms not being controlled, swipe card readers either nonfunctional or not used. These issues will become more pressing once additional risk management and intelligence systems are developed and put in place.

A formal IT Security policy needs to be developed and implemented by JCD to address the issues mentioned above. This policy should address the following components:

Organization. Detail the relationships and responsibilities for security in the organization. Describe how security policy is formulated, with particular regard to which formal groups or staff or consultative process is required by the agency before endorsing the policy. Describe the relationship with outside agencies that have a responsibility for providing security advice and assistance. Describe the relationships (if any) with service providers or other agencies where cooperation on security matters is required, or refer to legal or other documents that detail these relationships. Describe those responsible for undertaking security reviews or audits of the information systems.

Risk Assessment. Include a reference to the risk assessment that will form the basis for this security policy. If possible, include the risk assessment as an annex to the policy, or include a summary of the findings as an annex to the policy.

Access Control. Detail the maximum classification of data that will be handled, or could be accessed by staff in the organization's information systems. This section should detail some objectives for controlling access to key information resources (i.e. the start of an 'access control matrix'). The major data owner(s) should also be identified, where appropriate.

Personnel Security (relating to IT Security). Detail the requirement for staff security clearances, and how this will be achieved. If no formal security clearance is required, detail the policy for background checking of staff to ensure inappropriate staff is not employed in positions of trust. Provide policy direction on which staff/contractors/consultants/auditors are allowed to enter the organization's premises, be given accounts on internal systems etc. Also of importance is a plan for which particular staff or appointments may be granted super user or privileged access to specified systems. Privileged access is defined as access which may give the user the ability to change key system configurations, have access to audit or related information, or have access to data streams, files and accounts owned by other users. This section should also detail the responsibilities associated

with the use of the organization's systems and the requirements for ensuring that users are made aware of their responsibilities, and penalty or breach clauses.

Physical Security. Detail the physical security objectives including, but not limited to, waste disposal, guarding, physical security alarms and response times, physical locks and physical security structure of all relevant premises.

Network and Communications Security. Detail how network connections to outside agencies and organizations are to be approved and managed. This section should detail the policy objectives for handling and storage of cryptographic keys, such as those used in software or hardware based encryption systems.

Equipment Maintenance and Disposal. Detail the policy objective for ensuring integrity of the system hardware and software, and that data confidentiality is maintained when equipment is replaced, decommissioned or serviced. Policy objectives should include whether non-cleared staff are allowed to maintain equipment, and if so how this would be achieved. The handling, control and disposal of storage media are important components of the overall security policy.

Configuration and Change Control. Detail the responsibilities for approving changes to systems, and the process by which these changes should be approved. Stakeholders in the change process should be defined.

Contingency Planning. Detail the critical management objectives for a contingency plan. A clear link between the risk assessment and the contingency objectives need to be established, so that the contingency policy objectives correspond to the level of required risk. The policy should define an "incident" and an "outage", and the authority responsible for declaration of an incident or an outage. An incident may not necessarily directly lead to an outage, but may require judgment to be exercised by a responsible authority. Policy guidance on recovery time objectives for the various grades of outages may be appropriate. Some guidance on the testing regime objectives and reporting of status of backup systems may also be required. This section may include reference to an organization's Business Continuity Plan.

Incident Response. Detail clear definitions on the types of incidents that are likely to be encountered, so that a documented plan can be derived to alert management to the expected response. Security objectives for real-time reporting should be detailed, and needs to include when and how executive management should become involved. Detail the authority(s) responsible for initiating an internal investigation and police investigation of an incident. Note that this will link with contingency provisions as well as the organization's fraud control plan. It would also be useful to include the criteria by which the responsible authority(s) would initiate a formal or police investigation of an incident. This section should also detail which agencies or authorities should be informed in event of an investigation being undertaken. Specific reference to anti-virus measures and viral incident response from a policy viewpoint should be addressed in this section.

Intrusion Detection and Audit. Detail the intrusion detection objectives, incorporating the requirement for managing and maintaining intrusion detection tools and techniques, and management and review of audit trails. There should be an association between the objectives of intrusion detection, and the objectives of the incident response component (see above).

Storage Media. Detail the objectives for managing storage media containing classified data. This includes management of media for backup and recovery.

There is no IT security and something needs to be done. To be cut and pasted in document.

RECOMMENDATION: That this be treated as a project on its own.

Security mechanisms are in place to protect access to key databases (e.g., the Cases System). Administration of passwords is done from the central office – temporary passwords are provided until the user changes them. But there is no forced expiry of passwords.

To determine a client's security needs and develop an acceptable security plan, you must evaluate risk, assess the operational costs of increased security, identify underlying assumptions about how the network will be used, and consider future network changes.

Assessing security needs must also include the business processes that are outside the software system. For example, it may be possible to print documents that include credit card information and passwords and then just throw them away. Any unprotected source of information about a company or its customers can be a security risk.

When assessing software security needs, consider the following categories:

- Authentication to determine whether information is genuine, whether the source and destination entities are what they claim to be
- Privacy, or confidentiality control, to make information available only to authorized entities and ensure communication privacy
- Access control to permit or deny access based on parameters that include but are not limited to identity of source and destination
- Encryption to protect sensitive data from being observed as it travels over a network.
- Intrusion detection/incident response to detect and report attempts to invade a computer session.

No repudiation to provide proof of transmission and reception.