Customs IT Gap Analysis and Modernization Approach

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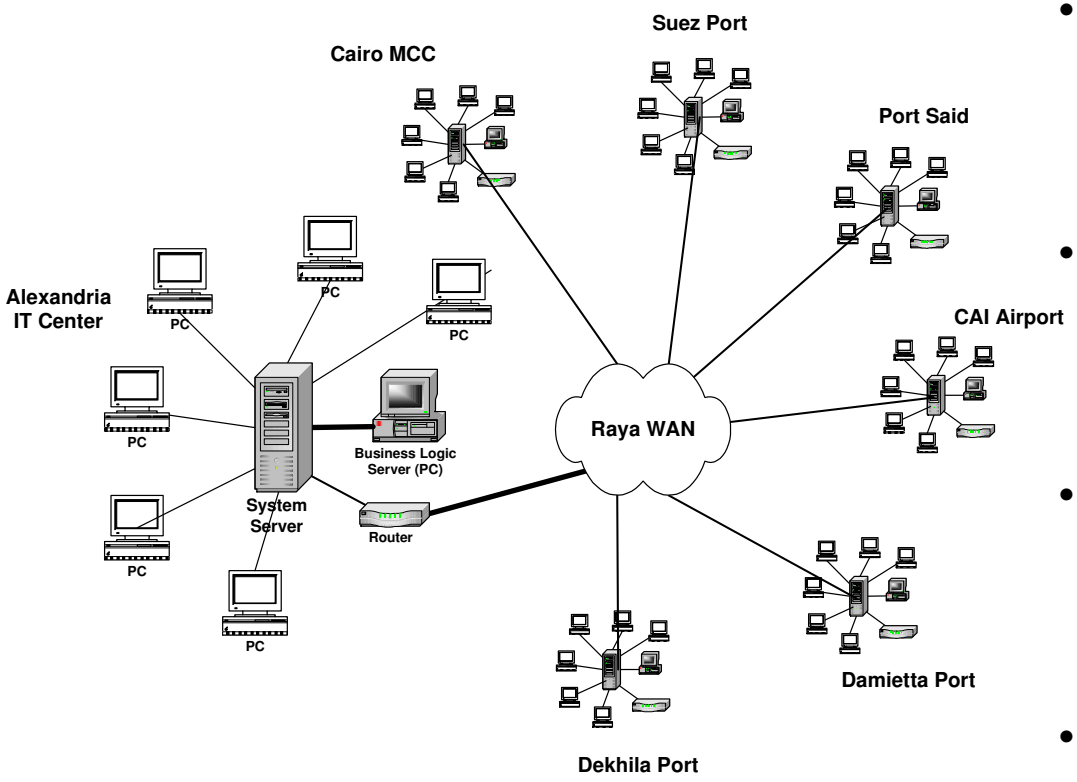
Modernization of Egyptian Customs
Main Conclusions

- Implementing a new Customs Information System (the main task of TAPR-II IT assistance to ECA) will require that key issues, including data quality, management information, system security and IT staffing, are addressed
- A completely new Customs information system needs to be implemented based on a centralized, scalable and web-based architecture
- The new Customs information system must be a comprehensive solution with Single Window capabilities (i.e., document workflow) in order to improve shipment clearance times
- Data quality in the current system is extremely poor and needs further review
- Management does not have access to information from the current system for proper decision making
- Serious IT security issues need to be resolved
- Additional IT professionals need to be hired for implementing a new system
- IT staff need substantial training in order to support a robust Customs Information System
- Consensus estimate is that the transition plan will take 18 to 24 months after completing a 6-month stabilization phase

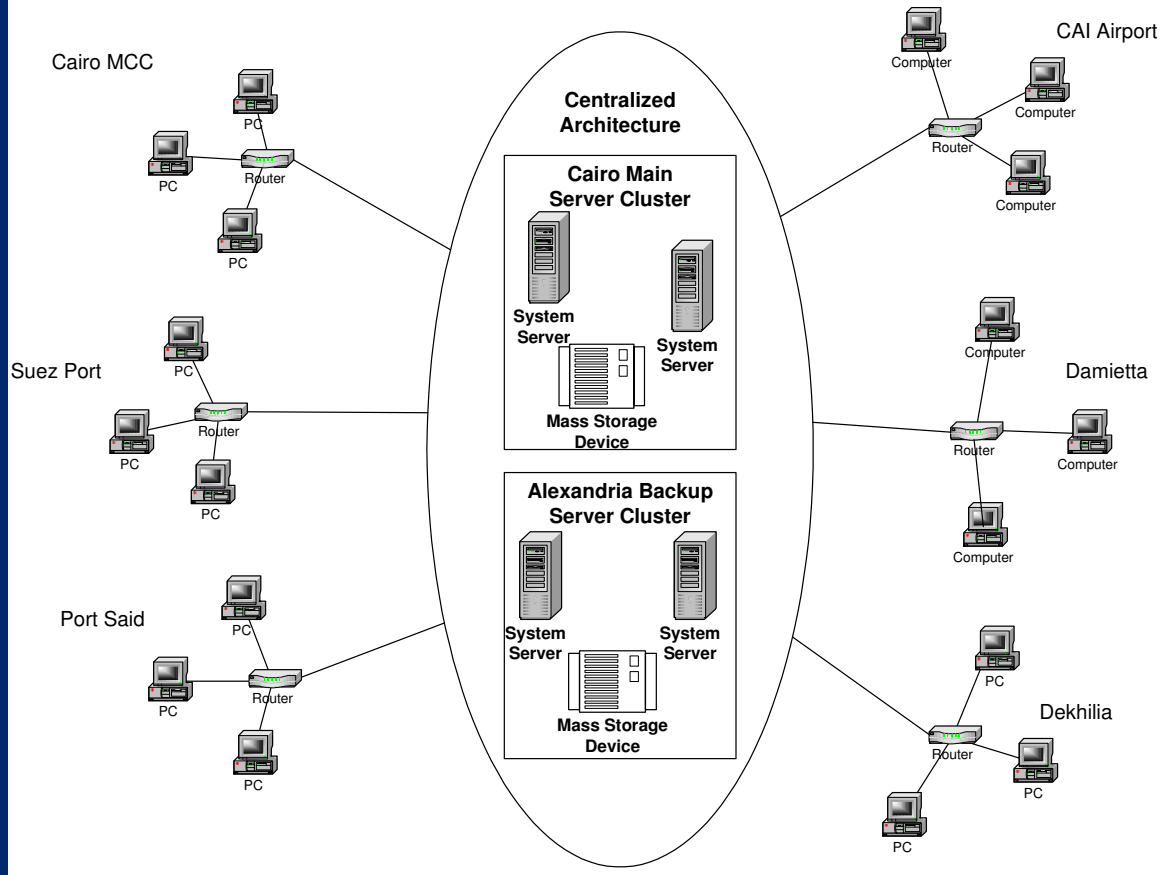
The Current System Must Be Replaced

The Current Architecture and Technology Are Not Suitable For Modern Customs Administration:



- Distributed design makes it very difficult to ensure that the same version is being used in all locations
- Data must be consolidated in a central location for management reporting, which is time consuming and error prone
- The architecture does not allow the processing capacity to be easily expanded (i.e., limited scalability)
- Web-based applications would be difficult to manage and secure with a distributed architecture

New System Strategy: COTS Customs System That Is Centralized, Scalable and Based on Web Technologies



- A centralized system will simplify maintenance and improve data quality
- N-tier architecture is scalable, i.e., processing capacity can easily be increased by adding servers to the clusters
- Web-based system only requires a Web browser to access to the system
- XML compatibility is an additional requirement for sharing data with other government agencies
- Single window and document workflow capabilities must be part of the Customs IT solution—Singapore's TradeNet is the model solution promoted by the World Bank and IMF

Results of IT Gap Analysis: Data Quality in the Current Customs Information System is Extremely Poor and Unreliable

Background:

- Both the Customs Commissioner and Head of the Customs Reform Unit in Alexandria have highlighted the poor quality of data
- The distributed architecture of the current system contributes to poor data quality because data is manually consolidated for management reporting
- Some data quality problems are attributable to inconsistently applied data entry procedures and/or user behavior

Recommendations:

- Analyze and identify the source of data quality problems (interim)
- Implement a data quality improvement program to address the identified problems, specifically behavioral problems (interim)
- Transfer data entry responsibilities to operations—IT should only provide the tools and maintain systems (long-term)

Action Items:

- TAPR-II will conduct a data quality review by May 2006
- ECA must monitor and ensure proper data entry procedures are followed

Results of IT Gap Analysis: Management Does Not Have Access to the Proper Information for Decision Making

Background:

- Standard reports for managing and monitoring operations are not produced
- No decision support systems are available for generating ad hoc reports
- A data request made by the TAPR-II project to test the capabilities of management reporting was never satisfied

Recommendations:

- Procure reporting tools in order to generate reports from the central database currently under construction (interim)
- Coordinate the implementation of a data warehouse with the rollout of a new Customs Information System (long-term)

Action Items:

- ECA should create standard reports and generate them on a weekly basis
- TAPR-II will train IT staff on basic data warehousing techniques and technologies for reporting, after Customs identifies suitable staff

Results of IT Gap Analysis: IT System Security Has Not Been Adequately Addressed

Background:

- With a distributed architecture and no Internet connections IT security risks were not a major concern
- Not even anti-virus software is being used by Customs
- Security risks are growing at an alarming rate and must be addressed before Customs locations connect to the Internet or provide Web-based services

Recommendations:

- Address security risks highlighted in the gap analysis immediately (interim)
- Resolve Internet security problems before connecting Customs locations to the Internet and introducing Web-based services (interim)
- Conduct a comprehensive system security review for Customs (interim)

Action Items:

- ECA and TAPR-II should develop an action plan to address security before the implementation of a new Customs Information System

Results of IT Gap Analysis: There are Not Enough Trained IT Professionals to Support a Robust Customs Information System

Background:

- The Booz Allen assessment identified 17 existing IT professionals, and TAPR-II believes that approximately 90 IT professionals are required for the rollout of a new Customs Information System
- A recruitment plan for 50+ additional IT professionals has been approved
- Minimal IT training has been provided to IT staff, and training provided is usually not from certified training providers

Recommendations:

- Recruitment of new IT staff needs to begin as soon as possible (interim)
- New staff will need to go through a thorough training program (interim)
- Annual recruitment and training plans need to be developed for IT staff (long-term)

Action Items:

- ECA needs to identify IT positions to be filled, develop a recruitment plan and start the recruitment process ASAP
- TAPR-II will prepare a training plan to upgrade the skills of existing staff by March 2006

Four Main Options for the Customs Information System Modernization Approach

- **Build** – Developing a new Customs Information System will take too long and is high risk
- **Buy** – Robust Customs Information Systems are available on the market, but Customs does not have the staff to implement and run any of these systems properly
- **Turnkey Solution** – Proper implementation, training, support, operation and transfer are critical for a turnkey solution, and the major players in this market will provide this type of service
- **Outsource** – The major market players could implement, operate, support and maintain a Customs Information System, but the cost would be high and Customs would lose control of its systems

Turnkey Solution is the Best Approach

Key Factors for Selection:

- Satisfying critical functionality and meeting international standards, such as WTO requirements and WCO data model
- Probability of successful implementation
- Stability and sustainability
- Total cost of ownership

Advantages of Turnkey Approach:

- Overcomes the immediate IT staffing problems that prohibit implementation of a new system
- Increases probability of successful implementation and long-term sustainability through proper installation, training and technical support
- Allows a transitional period in which the Customs IT Department is built up before the system is transferred to Customs (Note: This was not managed properly with NCR.)
- A vendor will be more responsive to management's concerns and information needs

Key Steps before a Vendor Contract Can Be Issued

- Prepare Customs Information System requirements specification
- Approval of Customs Information System requirements specification
- Prepare a human resources plan for IT staff
- Address critical security issues
- Hire qualified professionals ASAP—in particular project managers, system administrators and technical support staff
- Develop an IT training program and start training staff
- Identify hardware and software needs and obtain concurrence from Customs and USAID
- Complete implementation of the central database
- Build out the central processing centers in Cairo and Alexandria
- Prepare and issue tender documents
- Evaluate proposals and select a vendor for a comprehensive Customs IT solution

Key Next Steps If Approach is Agreed

TAPR-II:

- Prepare a training plan to upgrade skills of existing IT staff – target March 30
- Complete preparation of the Customs Information System requirements specification – **April 30**
- Conduct a data quality review – May 31
- Identify main hardware and software requirements for a new Customs Information System – May 31
- Prepare and issue tender documents for a new Customs Information System (pending Customs approval of requirements specification) – **June 29**
- Evaluate vendor proposals and make recommendation to the system selection committee – **August 31**

ECA:

- Recruit new IT staff ASAP
- Start generating weekly operational reports immediately
- Create review committee to approve the requirements specification for the new Customs Information System and to evaluate vendor proposals – March 30
- Approve the new Customs Information System requirements specifications – **May 31**
- Finish the implementation of the main data processing center in Cairo – **June 29**
- Select the vendor for the new Customs Information system – **September 30**

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Critical Decisions and Support

- Agreement on the approach—turnkey solution—because it must be incorporated in the tender documents and implementation plan
- An evaluation committee needs to be created to review and approve the system requirements and evaluate proposals submitted by vendors
- Data entry staff have to be transferred to operations—the users of information must also be the owners
- Need to start recruiting and training IT staff ASAP—a key dependency for implementing a new system
- If the approach is agreed, TAPR-II and the Minister's advisors need to start developing a detailed preparation plan to ensure Customs is ready for the implementation of a new system