



**CENTRAL BANK OF IRAQ
IT DEPARTMENT
TRAINING NEEDS ASSESSMENT**



USAID | IRAQ ECONOMIC GOVERNANCE II

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1. INTRODUCTION

The Training Needs Assessment document highlights key skill gaps and areas where specific attention should be focused during training. This document provides a high-level overview of the necessary types of knowledge, skills, and training the Central Bank of Iraq IT staff will need to support a complex computing environment. This Assessment provides the foundation for establishing a training plan, creating learning objectives, and identifying appropriate training courses.

2. NEEDS ASSESSMENT PROCESS

Prior to the overthrow of the former Iraq government regime, there were very few IT efforts in Iraq that approached the complexity of modern systems. In general, local IT resources have either engineering degrees from Iraq universities or were self-trained and worked on systems that were based on concepts from the mid-1970's. The CBI will require a sophisticated infrastructure and applications with modern operating systems, network systems, integrated tools, and databases. These requirements were heavily considered while gathering the information for the needs assessment.

The CBI IT Department Training needs assessment was completed using the following components:

2.1. IT Department Management Interviews

The management of the CBI IT Department was interviewed to determine both the strategic vision for the future, as well as IT-related projects in the pipeline. Information was gathered through informal interviews, attendance to staff meetings, and facility visits. Organizational structure, developing IT requirements, and the management's desires for professional advancement of the IT staff were also evaluated.

2.2. IT Staff Interviews

The IT staff was interviewed to determine both current skill sets, and desires for career advancement. Information was gathered through an informal group interview, followed by a formal personal interview. Work experience, desire for advancement, and professional interests were discussed in order to properly match prospective students with the correct learning paths.

2.3. Local Knowledge

BearingPoint has been in Iraq for close two years, implementing IT and policy projects. This experience has provided a good understanding of the general IT skill set of the Iraqi population. As Iraq is a unique environment, the education requirements are unique as well.

2.4. Current IT Environment Assessment

The CBI's operation center was toured in order to determine the current hardware and software technologies being used by production systems. This tour provided insight into the current skill set, burgeoning requirements, and scalability of the CBI.

3. NEEDS ASSESSMENT RESULTS

During the previous regime, IT professionals in Iraq, like their counterparts in other industries, were effectively cut off from developments in their field from the 1970's through the first years of the 21st Century. They were unable to participate in the expanded use of the Internet for day-to-day transactions, the exponential increase in the power of memory chips, the use of broadband technologies, among other advances. Without this everyday experience, they lack a fundamental foundation of working with modern technologies. They must effectively leap from a world where mainframe computers were the norm and the access to the Internet was limited to one where mainframe computers have been replaced with networked servers and the Internet is the preferred medium to transact business. This document identifies training needs which will enable CBI IT staff to support the technical infrastructure of the CBI.

The CBI IT Department can be divided into three major groups. While the CBI does not expressly refer to their staff by these group names, both the desired and current skill sets of the employees fall into the delineated categories. The needs assessment results have been organized according to those groups

3.1. Needs Assessment Results – DBA Group

Due to the historical and environmental conditions in Iraq, the DBA Group has not progressed beyond database concepts and technologies from the early 1990's. The current database environment consists of an Oracle 8i database, served from a Windows 2000 server. This Oracle instance supports various custom databases for warehousing purposes, as well as the backend of a commercial core banking system. There appears to be little management, tuning, and administration of the database beyond simple SQL queries, updates, and deletes. While the role of a DBA is clearly needed, the group's activities appear to remain at the advanced user level.

3.1.1. Skill Gaps

It is important to note that the skill gaps are based on the delta between the group's current skill set and the skill set necessary to maintain an Oracle 9i environment. Although 9i is not the latest database build release, it is the most appropriate choice for both the DBA group, and the CBI itself. This is based on the fact that the group's complete professional experience utilized an Oracle 8i database. The knowledge leap necessary to proceed directly to 10g would be too great to undertake at once.

The assessment highlighted gaps in the following functional DBA responsibility areas:

- Oracle DBA Fundamentals I
 - Understanding of Oracle architectural components
 - Database administrative tools (OEM)
 - Management of an Oracle instance
 - Maintenance the control file
 - Maintenance of redo log files
 - Maintenance of tablespaces and datafiles
 - Storage hierarchy
 - Storage structures and relationships
 - Management of undo data
 - Management of tables

- Creation and maintenance of tables using appropriate storage settings
- Management of indexes
- Oracle DBA Fundamentals II
 - Oracle Networking
 - Basic Oracle Net architecture and configuration
 - Backup and recovery
 - Transporting data between databases

The aforementioned list gives the fundamental skill gaps between the group and a certified Oracle DBA. The complete job responsibilities of a DBA extend beyond this list, but as the group has little or no skills in the field, it is implied that anything beyond these skills is missing as well. After students receive a firm grounding in these concepts, the group and the IT department would need to be assessed again in order to determine advanced topics to be covered

3.1.2. DBA Group Learning Plan – Addressing the Skill Gap

By analyzing the results of the assessment it has been determined that training needs to address the full responsibility set of an Oracle DBA. It is recommended that the DBA Group take the following courses and exams either online, or in one of the many Oracle University Training Centers located in the Middle East.

Courses

- Introduction to Oracle9i: SQL
- Oracle9i Database Administration Fundamentals I
- Oracle9i Database Administration Fundamentals II
- Oracle9i Database Performance Tuning

Exams (resulting in certifications)

1. **Exam #1Z0-007 Introduction to Oracle9i: SQL** (This is an online exam. It is also available at Oracle University or Authorized Prometric Test Centers.) **OR Exam #1Z0-001 Introduction to Oracle: SQL and PL/SQL** (If student previously passed exam #1Z0-001, student will not be required to pass exam #1Z0-007.)
2. **Exam #1Z0-031 Oracle 9i Database: Fundamentals I** (This is a proctored exam that is only available at Oracle University or Authorized Prometric Test Centers)
3. **Exam #1Z0-032 Oracle9i Database: Fundamentals II**
4. **Exam #1Z0-033 Oracle9i Database: Performance Tuning**

The aforementioned courses and successful examinations will result in the DBA Group becoming Oracle9i DBA Certified Professionals.

3.2. Needs Assessment Results – Developer Group

The CBI IT Management is somewhat confused on what Oracle Developers actually do. There are many different types of developers, ranging from Portal and Java to Forms and Reporting. Many of the tasks referred to as “programming in Oracle” at the CBI were actually just SQL script development for simple reporting purposes. Application development is not currently occurring within the group. However, as the CBI matures, the need for a trained group of Oracle developers will become more apparent. More than likely the areas of focus will be within Oracle Forms and Oracle Reports.

There are a few web developers at the CBI, but their skill sets are limited to markup languages and graphic design. They are currently used to maintain the CBI website, which has no application-like functionality

3.2.1. Skill Gaps

It is important to note that the skill gaps are based on the delta between the group’s current skill set and the skill set necessary to develop applications in an Oracle 9i environment. Although 9i is not the latest database build or application server release, it is the most appropriate choice for both the Developer group, and the CBI itself.

The skill gaps highlighted within the Developer Group are:

- Declaration of variables
- Executable statements
- Interaction with the Oracle server
- Writing control structures
- Working with composite data types
- Writing explicit cursors
- Advanced explicit cursor concepts
- Exception Handling
- Procedures
- Functions
- Subprograms
- Packages
- Oracle-Supplied Packages
- Database Triggers
- Dependencies
- Large Objects

3.2.1.1. Forms Developer Skill Gaps

- Oracle Forms Developer and Oracle Forms Services
- Running a Forms Developer Application

- Working in the Forms Developer Environment
- Data Blocks and Frames
- Text Items
- LOVs and Editors
- Windows and Content Canvases
- Triggers
- Runtime Messages and Alerts
- Query Triggers
- Validation
- Navigation
- Transaction Processing
- Sharing Objects and Code

3.2.1.2. Reports Developer Skill Gaps

- Designing and Running Reports
- Working in Oracle9i Reports Developer
- Paper Reports
- Report Templates
- Web Reports
- Enhancing Reports Using the Data Model
- Enhancing Reports Using the Paper Layout
- Web Reporting
- XML
- Reports Parameters
- SRW Package
- Oracle9iAS Reports Services

3.2.2. User Group Learning Plan – Addressing the Skill Gap

By analyzing the results of the assessment it has been determined that training needs to address the skills necessary to become Forms and Reports Developers. It is recommended that the Developer Group take the following courses and exams either online, or in one of the many Oracle University Training Centers located in the Middle East.

Courses (Oracle9i Reports-Developer)

- Introduction to Oracle9i: SQL Basics

- Oracle9i: Program with PL/SQL
- Oracle9i Reports Developer: Build Reports

Courses (Oracle9i Forms-Developer)

- Introduction to Oracle9i: SQL Basics
- Oracle9i: Program with PL/SQL
- Oracle9i Forms Developer: Build Internet Applications

Exams (resulting in certifications)

1. **Exam #1Z0-007 Introduction to Oracle9i: SQL** (This is an online exam. It is also available at Oracle University or Authorized Prometric Test Centers.) **OR Exam #1Z0-001 Introduction to Oracle: SQL and PL/SQL** (If student previously passed exam #1Z0-001, student will not be required to pass exam #1Z0-007.
2. **Exam #1Z0-141 Oracle Forms Developer: Build Internet Applications**

The aforementioned courses and successful examinations will result in the Developer Group becoming Oracle PL/SQL Developer Certified Associate and Forms Developer Certified Professionals.

3.3. Needs Assessment Results – Infrastructure and Network Administration Group

As the CBI's computing environment matures, the need for trained network administrators will increase. While the CBI provisions Windows Workgroup capabilities, there are currently no network services in production. There are staff members that call themselves network engineers but their job duties are limited to printer maintenance and cabling tasks.

3.3.1. Skill Gaps

It is important to note that the skill gaps are based on the delta between the group's current skill set and the skill set necessary to maintain the infrastructure environment for a mid range network and database/application services.

As the Group has little to no experience with Infrastructure and networking services, it can be assumed that the skill gap is the complete curriculum for a certification like MCSA, MCSE, CCNA, RHCT, etc. The CBI is currently a Windows Environment, so it is assumed that the skill gaps will be within the Microsoft family of products. Furthermore, the impending implementation of the Inter-Bank Payment System is based on a Linux Environment. They are as follows:

- Implementing, Managing, and Maintaining a Microsoft Windows Server 2003 Network Infrastructure
- Managing and Maintaining a Microsoft Windows Server 2003 Environment
- Installing, Configuring, and Administering Microsoft Windows XP Professional
- Implementing, Managing, and Maintaining a REDHAT (example) Linux Environment

3.3.2. User Group Learning Plan – Addressing the Skill Gap

By analyzing the results of the assessment it has been determined that training needs to address the skills necessary to become MCSA certified and RHCT certified. It is recommended that the Infrastructure and Network Administration Group take the following courses and exams either online, or in one of the many Microsoft Certified or RADHAT Certified located in the Middle East.

Microsoft Learning Track

<http://www.microsoft.com/learning/mcp/mcsa/windows2003/>

REDHAT Learning Track

<https://www.redhat.com/training/rhce/courses/>

4. ADDITIONAL INFORMATION

4.1. References

All Oracle information gathered from:

http://education.oracle.com/web_prod-plq-dad/plsql/show_desc.redirect?redir_type=3

All Microsoft information gathered from:

<http://www.microsoft.com/learning/default.asp>

All REDHAT information gathered from:

<https://www.redhat.com/training/>