

## **EXECUTIVE SUMMARY**

---

**ACTION ITEM:** Institutional Data Warehouse Upgrade

**ISSUE:** The University of Arizona seeks the Board's approval to upgrade its Institutional Data Warehouse at an estimated cost of \$503,625 over a five-year period.

### **BACKGROUND:**

For the past 15 years, our architecture has been based on flat file processing using the Oracle\Rdb database platform on servers running the VMS Operating System. Flat files are generated each day by the source systems and transferred to our servers. Once there, specialized Build scripts are executed to load the data into our UIS databases. There are daily, weekly, monthly, bi-annual and annual build schedules depending on user requirements. Data from UIS as well as other places are then coded, filtered, and summarized to load into IIW.

### **DISCUSSION:**

The current data base platform (Oracle/Rdb) does not have an abundance of skilled people in the marketplace. There are two technical personnel that currently support our data warehouse and if one were to leave we could not maintain an appropriate level of service. In addition the VMS operating system is not one that CCIT Computing Services will support in the future.

### **APPROVALS:**

This project was reviewed by UA's Information Technology Policy Group on April 9, 2007, and recommended for approval by the President.

### **RECOMMENDATION:**

That the Board approve the University of Arizona's Institutional Data Warehouse Upgrade project.

CONTACT: Rick Hargis, UA CCIT, 520-621-6319, rhargis@u.arizona.edu

## University IT Project Justification SUMMARY SHEET

<i>Institution</i>	<i>Contact Name and Phone</i>
The University of Arizona	Rick Hargis, 621-6319
<i>College or Unit</i>	<i>Date Submitted</i>
CCIT-Administrative Computing	April 9, 2007

### **Project:**

UIS/IIW Re-Architecture (UIS is the University Information System and IIW is the Integrated Information Warehouse)

### **Project Overview:**

The project objectives are to move our Data Warehouse (UIS & IIW) to a supported platform where people with the needed skill sets are more abundant and to position us to move into the realm of Business Intelligence and Decision Support making it easier to use this data for meaningful fact-based decisions.

For the past 15 years, our architecture was based on flat file processing using the Oracle/Rdb database platform on servers running the VMS Operating System. Flat files are generated each day by the source systems and transferred to our servers. Once there, specialized Build scripts are executed to load the data into our UIS databases. There are daily, weekly, monthly, bi-annual and annual build schedules depending on user requirements. Data from UIS as well as other places are then coded, filtered, and summarized to load into IIW.

The current data base platform (Oracle Rdb) does not have an abundance of skilled people in the marketplace. There are two technical personnel who currently support our data warehouse and if one were to leave we could not maintain the appropriate level of service. Another reason for moving off the current platform is that the VMS operating system is not an architecture that CCIT Computing Services will support in the future.

The Information Warehouse Office (IWO) is addressing data related problems identified by the Focused Excellence Study Team on Data Analysis and Planning. These problems deal with making data more accessible and easier to understand for our users. The IWO is looking into Business Intelligence and Decision Support to provide help in this area. These tools and processes would provide data marts, multi-dimensional reporting, and other aids that would eliminate the need for end users to understand the data relationships and to possess the technical expertise needed to structure queries. Since the current data base platform (Oracle/Rdb) is not supported by the major Business Intelligence vendors, it is necessary to move to a supported platform.

**Deliverables:**

- **Convert Oracle/Rdb to Oracle 10g** - Skill sets for Oracle 10g are plentiful both within and outside the University. Converting UIS and IIW databases to Oracle 10g includes the entire load and build scripts as well as the data. This will be done in two phase – UIS conversion will be done first by IWO personnel to gain experience and then the more difficult IIW conversion will be done using outside help.
- **Hardware & Software Platform** – Move to a Linux environment with Computing Services managing the resources. This also includes designing a staging environment and a process to keep UIS/IIW available while updating. By doing this, it frees up IWO people from providing this hardware and software support.
- **ETL Tool Selection and Use** – Extract, Transformation, and Load Tools make it easier to manage loading data into the Data Warehouse. They allow for data transformations to be handled as part of the tool use and creates data lineage allowing us to track where the data came from and what happened to it along the way. This useful information could be stored in our Meta Data Repository for others to use.
- **Consultant Review and Training** –We would engage a consultant to review our proposed Data Warehouse Architecture and our plans for Decision Support. The training includes dimensional modeling to better structure the data in UIS and IIW as well as a methodology for working with our customers to document and translate their business practices into data and reporting requirements.

**Service and Economic Benefits:**

- By moving to a supported platform, we mitigate the risk of not finding affordable people with the necessary skills to support the Data Warehouse
- By moving the hardware and operating system support to computing services, we free up two people to work on other IWO priorities
- By using an ETL tool, we better manage and maintain the UIS and IIW Build scripts
- By doing this project, we can position ourselves to look at Business Intelligence and Decision Support for the University in the future.
- By converting off of the Oracle/Rdb data base platform, we would eliminate approximately \$360,000 annually from our Oracle Site License.

**Project Roles and Responsibilities:**

Project management will be done within the IWO. Project lead and developers will also be from the IWO and Computing Services. The IIW Build scripts will be completed by outside sources under control of the IWO.

**Sources of Funding:**

Administrative System Replacement Funds

**Project Management Timeline:**

The initial planning phase has been completed (8/06 - 3/07). Implementation is expected to require approximately 12 months. Acquisition of hardware and software will take place during the May through July timeframe. CCIT personnel will work throughout the project and contracting work will run from 9/07 through 3/08.

**Summary of Proposed Costs (5 years)**

Software - ETL Tool	\$230,000
Hardware	48,525
Training	40,000
Personnel Services	31,500
Consulting Services	153,600
	-----
Total	\$503,625

**Approval History:**

This project was reviewed by UA's Information Technology Policy Group on April 9, 2007, and recommended for approval by the President.