Managing Customizations and Change in an EPM 9.0 Warehouse Environment

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Goals

- Familiarize you with FSU’s Implementation and some of our project challenges.

- Engage is a discussion of how customization contribute to the success/failure of EPM/OBIEE deployments.

- Provide real world examples of EPM/OBIEE customizations relevant to Higher Education.

- Make sure that your information needs are met.
Overview

• Introduction
• Background of FSU’s ERP Implementation
• Overview of FSU’s OBIEE Implementation
• Profile of our Customizations
• Our Approach to Development & Customizations
• Our Approach to Change & Issue Management
• Case Studies of Major FSU Customizations
  – Case 1 – Consolidated KK & GL Reporting
  – Case 2 – Inheriting Report Security
  – Case 3 – Reporting in external organization’s terms
• Lessons Learned
• Questions & Comments
Florida State University

...is a premier, comprehensive, graduate research university, with both law and medical schools.

- Annual Operating Budget: $1.1B
- Over 39,000 students
- Over 14,000 employees
- Over 13,000 biweekly paychecks
- Over $18 million in biweekly payroll
FSU’s ERP Implementation

- Implemented Financials 8.4, Portal 8.8, and EPM 8.8 in June 2004
- Implemented HR/Payroll 8.8 in December 2004
- Upgraded HR and EPM Suites to 8.9 in April 2006
- Upgraded FI Suite to 8.9 in November 2006
- Upgraded EPM and Portal Suites to 9.0 in November 2007
- Upgraded HR Suite to 9.0 in October 2008
- Currently Upgrading FI Suite to 9.0 (est. April 2009)
- Currently Migrating from DB2 to Oracle DB for FI (est. April 2009)
- Implemented OBIEE in March 2008
- Go Live for 10.1.3.4 (est. April 2009) to Linux
FSU’s Business Challenges

• Unable to track budget, expended, encumbered, and remaining balances across various levels of the University

• No efficient tools for users to interact with data, view data at different levels, and drill into data without IT help

• Unable to quickly and completely provide HR based data for demographic and regulatory reporting

• Inefficient production of reports for user community

• Requirement for customized data delivery options to provide proactive notification of budgetary or expended overages
FSU’s OBIEE Implementation

- Implementation was broken into phases to achieve early, measurable success

- Phase I
  - EPM 9.0 (on Oracle Database)
  - OBIEE and BI Publisher Deployment
  - Oracle Fusion Intelligence
  - Extensions to data models, maps and metadata
  - Development of 12 key dashboards
  - Training of developers and end users

- Usage Metrics since Go Live
  - 674 Distinct Users
  - 1.2 M Reporting Object Requests submitted
FSU’s OBIEE Implementation

FSCM Reports
- Fin & Budget Position
- Available Balance
- Department Ledger E&G
- Department Ledger C&G/CS
- Department Ledger AUX
- Department Ledger CF

HCM Reports
- Cost Center
- Employee Time Verification
- HR Active Employees
- HR-GL/Payroll Charges
- Position Detail by Dept
- Timesheets by Dept & Empl

Operations Reports
- OBIEE Usage Tracking
- DataStage Operations
- Data Reconciliation

Data Marts
- General Ledger
- Workforce Profile (Job)
- Commitment Control
- Financial Transactions
- HR-GL Transactions
- Payroll Cost Center
- Sponsored Research
- Employee Time
- Usage Tracking
- Data Operations
Key Elements for Success

• Clear Vision that was aligned with the University’s needs.
• Strong Executive Level Support and Commitment
• Long term relationship with Oracle
• Quality, expertise and dedication of the Project Team.
Current Reporting Team

- BI Manager
- BI/Technical Architect
- BI Analyst
- ETL Developer (2)
- Data Analyst/Report Developer (2)
Project Change can affect

- **Quality** of the solution
- **Budget** to deploy the solution
- **Resources** needed to create the solution
- **Time** needed to complete the solution
- **Scope** the was initially agreed upon
Changes and Enhancements are driven by an effective Governance Organization.
Customization Defined

- Customization – Changing delivered software objects or functionality to meet the needs or fit the practices of an organization.

<table>
<thead>
<tr>
<th>OBIEE</th>
<th>ETL</th>
<th>EPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adding/Modifying Fields in any layer</td>
<td>Adding/Modifying Sequence Jobs</td>
<td>Adding/Modifying any Peopletools object</td>
</tr>
<tr>
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<td>Adding/Modifying Server Jobs</td>
<td>Adding/Modifying Materialized Views</td>
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- Is it possible to implement EPM Vanilla and be successful?
- What factors should be considered before customizing?
Factors to Consider
Key Drivers to Customize

- Public Sector vs. Private Sector differences
  - Commitment Control
  - Commitment Accounting
  - Grants Analysis
- Specialized Reporting Needs of the University
  - View detailed Financial data across account types
  - Historical Reporting
- Increased Efficiency
  - ETL Performance
  - Use DB specific functionality
- Bug Fixes/Workarounds
- Improved Data Integrity
Key Drivers to Customize

- Sector Differences: 50%
- Special Univ. Needs: 20%
- Performance: 10%
- Fixes/Workarounds: 10%
- Data Integrity: 10%
# Common Areas for Customization

## OBIEE
- Dashboards
- Presentation Layer
- Logical Layer
- Physical Layer

## ETL
- Master Sequences
- Job Sequence
- Server Jobs

## PeopleSoft EPM Foundation
- Components
- Records
- Fields
Common Areas for Customization

OBIEE
- Dashboards
- Presentation Layer
- Logical Layer
- Physical Layer

ETL
- Master Sequences
- Job Sequence
- Server Jobs

PeopleSoft EPM Foundation (57.9%)
- Components
- Records
- Fields
Common Areas for Customization

OBIEE

Dashboards  Presentation Layer  Logical Layer  Physical Layer

ETL (63.3%)

Master Sequences  Job Sequence  Server Jobs

PeopleSoft EPM Foundation (57.9%)

Components  Records  Fields
Common Areas for Customization

- **OBIEE (60.5%)**
  - Dashboards
  - Presentation Layer
  - Logical Layer
  - Physical Layer

- **ETL (63.3%)**
  - Master Sequences
  - Job Sequence
  - Server Jobs

- **PeopleSoft EPM Foundation (57.9%)**
  - Components
  - Records
  - Fields
Overall Distribution

- OBI: 16%
- ETL: 44%
- EPM: 40%
Development Steps

Analysis
- Requirements
- Technical Direction
- Data Analysis

Design
- Data Modeling
- ETL

Construction
- DB Objects
- ETL
- OBI MetaData
- Report/Dashboard

Deployment
- Test/Validation
- Implement
- Support
Development Steps

Analysis
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Deployment
- Test/Validation
- Implement
- Support

**Analysis**
- Functional/Tech Requirements
- Logical Data Model

**Design**
- Technical Specification
- Physical Data Model
- Source Target Mapping
- ETL Design Flow
- Reconciliation Design

**Construction**
- App Designer Projects
- DB Objects
- Metadata
- ETL Process(es)
- ETL Job Report
- Reconciliation
- Report
- Testing Plan

**Deployment**
- Migration Requests
- Security Provisioning
- End User Testing
- Training
Customizing EPM

• Leverage from deep knowledge of People Tools Development
• Add, Delete, or Modify any of the following objects
  – Menus, Components, Pages, App Messages
  – Records, Fields
• Primary Approach
  – New objects: Prefix FSU_ (ex. FSU_F_ENC_DTL)
  – Delivered Objects: Modify object and fully document
• Upgrade Impact
  – For modified delivered objects special care must be given during maintenance processes.
Customizing ETL

- Add, Delete, or Modify any of the following objects
  - Server Job, Sequence Job, Master Sequences
- Primary Approach
  - New objects: Prefix FSU_ (ex. FSU_XXXXXX)
  - Delivered Objects: Clone with new “FSU_” name into FSU_Custom category and fully document
- Upgrade Impact
  - No risk of losing customizations
  - Evaluation of existing customizations during maintenance processes
EPM/ETL Change Control Process

**EPM Change Control**
- Custom Objects organized in Projects
- Migration done through PeopleTools

**ETL Change Control**
- Custom Objects organized into Named Batches
- Migration done through DS Version Control
Customizing OBIEE

- Add, Delete, or Modify any of the following repository objects
  - Physical/Logical Tables, Physical/Logical Joins, Init Block/Variables
- Custom Reports are created and stored in functional business area folders.
- Primary Approach
  - New repository objects: Prefix FSU_ (ex. FSU_XXXXXX)
  - New Reports: Prefixed with <Dashboard Name>_<Dashboard Function> and saved in custom folders
  - Delivered Web Catalog Objects: Not modified.
- Upgrade Impact
  - No risk of losing customizations
Change Control for Reports

- Use 4 standard environments to migrations
- Use catalog manager to move objects between environments
- Document/Performance driven process (Issues, Specifications & Change requests)
- Moves are coordinated and scheduled
- Backup/restore enabled
  - SubVersion
  - Short term/Revision history managed by Volume Shadow Copy services/Change capture script
  - Long term by Tivoli Hot Storage Solution
Change Control for Repository

- Metadata changes are primarily driven by reports
- Variety of methods are used to migrate metadata
  - Copy UDML from Source to Target
  - Manual development in target
  - Scripted full repository copies from source to target
- Backup/restore enabled
  - SubVersion
  - Short term/Revision history managed by Volume Shadow Copy services
  - Long term by Tivoli Hot Storage Solution
  - Migration scripts to create backups
OBIEE Change Control Process

Development Complete ➔ Identification of Object Type ➔ Repository
XMLP
Identification of Affected Objects ➔ Copy XMLP Objects to SVN ➔ Validate SVN TEST Copy with Diff ➔ Remove Affected XMLP Objects ➔ Copy XMLP Documents from SVN to TEST

WebCat(Answers/Dashboards)
Identification of Affected Objects ➔ Archive Identified Objects From DEV WebCat to SVN

Validate SVN TEST "Shared" Copy of WebCat ➔ Delete Affected Objects from TEST WebCat ➔ UnArchive SVN copy of DEV to TEST

Take Offline Copy of Dev (Place in SVN) ➔ Copy/Paste Logical/Presentation Object(s) from Offline copy of Dev ➔ Re-Create Joins in Offline TEST

New Physical Object?

NO

Take Offline Copy of Dev (Place in SVN) ➔ Copy/Paste Physical Table from Offline copy of Dev

YES

Promote SVN TEST WebCat/XMLP to QNA/PROD ➔ Copy Repository(RPD File) to QNA/Production(Copy to SVN)

Migrated Objects Brought Online in TEST(Copy to SVN)

Issue Resolution Process

NO

Functional Approval?

YES

QNA/Production Migration
Case 1 – KK to GL Reporting

Scenario

• The University needs the ability to track budget, expended, encumbered, and remaining balances across various levels of the University.
• Information is needed for the Financial management of the University and the EPM Warehouse is expected to provide this insight.
• As delivered EPM 9.0 only captured the expended balanced, not the other necessary components.
• To meet this need we customized the delivered EPM Product.
Case 1 – KK to GL Reporting

Analysis Highlights

• Budget and Encumbrance Balances are stored in the Commitment Control Module.

• Available Balance = Budget-Encumbrance-Expenses

• For the current reports only data from specific ledgers are necessary.

• For Project-based reporting data must be shown since the inception of the project (“Life to Date”). For Non-Project based reports data must be shown from a “Year to Date” perspective.

• To report across various levels the OLTP Trees for Department, Fund Code, and Account are needed.

• Needed for Production and Adhoc Reporting.
Case 1 – KK to GL Reporting

Analysis Highlights (Cont.)

• Technical Direction
  – Need Fact table for Commitment Control Summary data
  – Need Consolidated Fact table (GL & KK)
  – Will use incremental loading techniques
  – Need to create Fund Tree Hierarchy
  – Due to the volume of data special consideration must be given to optimizing query performance.
  – Load data from all KK Ledgers into fact table
Scenario – With the implementation of the OMNI Financial Application in 2004, the University’s financial transactions were no longer stored in the

Case 1 – KK to GL Reporting

Data Model
Projects are used to organize objects.
Case 1 – KK to GL Reporting

ETL Design

- Location of Custom Processes
  - FSU_Custom\FMS_E\Custom_Facts\Commitment_Control

- Three custom tables to load:
  - FSU_S_LEDKK_TMP (OWS)
  - FSU_F_LEDKK_SUM (MDW)
  - FSU_F_LEDCONSOL (MDW)

- No new dimension ETL are necessary. Mart will use the delivered Global Dimensions.

- Leverage the design of the delivered GL Summary ETL Process.

- Load data incrementally from OWS and Base Fact table
Case 1 – KK to GL Reporting

ETL Design

- PS_LEDGER → ETL → PS_S_LEDGER_TMP → ETL → PS_F_LEDGER
- PS_LEDGER_KK → ETL → PS_FSU_S_LEDKK_TMP → ETL → PS_FSU_F_LEDKK_SUM → ETL → PS_FSU_F_LEDCONSOL
Case 1 – KK to GL Reporting

ETL Development
Case 1 – KK to GL Reporting

ETL Development
Case 1 – KK to GL Reporting

ETL Development

B. Munchion - Custom ETL process for Commitment Control - FMSIE

Server Job. This job takes data from staging table PS_LEDGER_KK and populates the temporary table PS_FSU_S_LEDKK_TMP.
Case 1 – KK to GL Reporting

ETL Development
Case 1 – KK to GL Reporting

ETL Development

[Diagram showing a dialog box for GetLastUpDateTime - Routine Activity with a routine name and arguments for JobName and Value Expression]

OK | Cancel | Help
Case 1 – KK to GL Reporting

ETL Development

[Diagram of ETL process]

Server

This job loads incremental data from OWS - PS_LEDGER_KK to MDW - PS_F_LEDGER_KK after looking up into various PS-related tables.
Case 1 – KK to GL Reporting

ETL Development
Case 1 – KK to GL Reporting

ETL Development

PS_FSU_F_LEDKK_SUM_UPDATE2 → Trans_Assign_values_out → DRS_FSU_F_LEDGER_KK_UPDATE

PS_FSU_F_LEDKK_SUM_INSERT → Trans_PS_FSU_F_LEDKK_SUM → DRS_PS_FSU_F_LEDGER_KK_INSERT
Case 1 – KK to GL Reporting

ETL Development
Case 1 – KK to GL Reporting

ETL Development

R. Mencion 11/2/2007 Process loads the last update time into the hashed file.

CONTAINER_Load

PS_FSU_F_LEDGER_KK_LASTUPD_STAMP  StoreMaxLastUpdDtm
Case 1 – KK to GL Reporting

ETL Development
Case 1 – KK to GL Reporting

ETL Development

Diagram:

- B. Mention 4/14/2008 Process loads the data into the Consolidated KK and Actual fact table.
Case 1 – KK to GL Reporting

ETL Development
Case 1 – KK to GL Reporting

ETL Development
Case 1 – KK to GL Reporting

OBIEE Metadata Physical Layer

File>Import>From Database
Import DB Object into Physical Layer to save time and insure consistency
Case 1 – KK to GL Reporting

OBIEE Metadata
Physical Layer

Once filtered import the definition(s). Key are imported as well. Now joins can be established.
Case 1 – KK to GL Reporting

OBIEE Metadata
Physical Layer
Case 1 – KK to GL Reporting

OBIEE Metadata
Logical Layer
Case 1 – KK to GL Reporting

OBIEE Metadata
Logical Layer
Case 1 – KK to GL Reporting

OBIEE Metadata
Logical Layer

- Dimension FSU Fund Tree
- Dimension Project
- Dimension Chartfield1
- Dimension Business Unit
- Dimension Chartfield2
- Dimension Account Tree
- Dimension Chartfield3
- Dimension Budget Reference
- FSU Fact GL and KK Ledger
- Dimension Department Tree
- Dimension Det Period
Case 1 – KK to GL Reporting

OBIEE Metadata Presentation Layer
Case 1 – KK to GL Reporting

OBIEE Embedded BI Publisher Content

For Departmental Ledger Details Report please click on the above Details tab and click 'Go' after selecting the prompted values and click on the 'View' button to see the report.

Data contained within this report was last loaded on 3/19/2009 5:41:41 AM.
Case 2 – Security Solution

Scenario

- FSU maintains a small support group to administer all PeopleSoft based applications. This team is responsible for building, upgrading, and patching environments, performing Peopletools based migrations and administering security.
- E-ORR was developed to automate the role assignments within the transactional system.
- Minimize the report security management effort.
- Need to derive report security from functional roles in the transactional system in an automated fashion.
Case 2 – Security Solution

Analysis Highlights

- Functional roles will have to be assigned prior to report availability.
- There will be a one day lag before report access is granted or revoked.
- Role Mapping is defined by Functional teams. ERP Reporting team perform the necessary configuration change.
- Multiple transactional system roles can map to one OBIEE Dashboard.
Case 2 – Security Solution

Analysis Highlights (Cont.)

- Technical Direction
  - PeopleTools based page is needed to configure the role mapping.
  - ETL process will map the OLTP roles to the EPM roles and populate the PSROLEUSER table. Security will be rebuilt nightly.
  - OBIEE will enforce security to Dashboards components, Answers subject areas based on initialization block results.
Case 2 – Security Solution

Security Architecture Design

Diagram showing PeopleSoft EPM 9, IBM Data Stage, PeopleSoft EPM 9 PSROLEUSER, LDAP AUTHENTICATION, OBIEE 10.1.3.4, Repository PORTALPATH INIT Block, Repository LOG LEVEL INIT Block, Repository AUTHORIZATION INIT Block, Application Variable GROUPS, WEBGROUPS, BI Server Security REPOSITORY BI PUBLISHER, Presentation Server Security ANALYTICS ANSWERS DASHBOARDS MARKETING DELIVERS(BOTS) DISCONNECTED ORACLE BI OFFICE.
Case 2 – Security Solution

DB Object Development
Case 2 – Security Solution

ETL Design

- Location of Custom Processes
  - FSU_Custom\EPM_OBI_SEC_LOAD\n- Use load 1 custom stage table to load:
  - FSU_PSROLEUSER (OWS)
- Use load 1 delivered stage table to load:
  - PSROLEUSER (OWS)
- Rebuild security nightly
Case 2 – Security Solution

ETL Design
Case 2 – OBIEE Storage Structure

- All Structured Reporting areas have the same folders for document storage
  - Dashboards
  - Filter
  - Prompt
  - Request
- Provides Separation of documents based on type regardless of report being developed
- Each Deployed PeopleSoft Functional Area has Parent Folder for Document Storage
- All Shared Document Storage is consistent in Design/Naming/Security/Structure of Objects
Case 2 – OBIEE Storage Structure

• Default Dashboard is Set via Init Block and Allows for Setting of Default based on:
  • Location
  • Department
  • Referring Application
  • Variable known as “PORTALPATH”
• Allows for Announcements about upcoming events such as system outages.
Case 2 – OBIEE Storage Structure

- Security is Set at each Dashboard/Object Level
- Developer Prompt (Allows Developers to turn on/off Logging Level of a dashboard for troubleshooting)
- Dashboard Main/Pages are used for securing who can “See” what dashboards
- Prompt/Request/Filter are all set to “Read Only” for All Groups which have rights within the Deployed PS Functional Area
Case 2 – Security Solution
Case 3 – External Reporting

Scenario

- With the implementation of the OMNI Financial Application in 2004, the University’s financial transactions were no longer stored in the State Of Florida’s accounting system (FLAIR).
- The State of Florida still requires the University to provide Financial data for State Reporting purposes using the State’s coding structure.
- To support DW reporting that would allow the University to review and analyze financial data in the State’s coding structure, a customization was made to include CF attributes in the data warehouse.
Case 3 – External Reporting

Analysis Highlights

- Account Code structure in new system is different from FLAIR.
- Legacy equivalents are stored as attributes to Chartfields.
- Attributed exist for GL Account, Fund Codes, and Departments.
- The information must be available in the MDW Layer to be used for external reporting and internal analysis.
Case 3 – External Reporting

Analysis Highlights (Cont.)

• Technical Direction
  – 3 Delivered Dimensions will be customized to include the Charfield Attributes.
    • Account Dimension
    • Fund Code Dimension
    • Department Dimension
  – New fields will be added to the existing records.
• Transactional tables that contain the Chartfield Attributes will have to be created in the OWS.
• Appropriate business names will have to be defined and exposed in the OBIEE Metadata.
Case 3 - External Reporting

DB Object Development
Case 3 – External Reporting

DB Object Development
Case 3 – External Reporting

ETL Design

- Location of Custom Processes
  - OWS
    - FSU_Custom\FMS_E\OWS\Base\Load_Tables\Sequence
  - MDW
    - FSU_Custom\Global_Dimensions_E\OWS_To_MDW\Base\Load_Tables\Sequence
- Process Additions for the OWS tables
- Customize delivered MDW Global Dimension processes
Case 3 – External Reporting

ETL Development
Case 3 – External Reporting

ETL Development

DataStage Designer - 10:146.6.198 (FSCM90_EPM9_SPREAD - [Sequence - FSU_SEQ_J_Dim_PS_D_ACCOUNT_OWS *])

Sequence

- EPM Dimension Sequencer
- This Sequence job calls FSU_J_Dim_PS_D_ACCOUNT_OWS server job
- Incremental Load

GetNewBatchNumber2

GetLastUpdateDateTime

Incremental_Load

Write_Error_ToLog

Write_Warning_ToLog

ForceAbort

ForceWarn
Case 3 – External Reporting

ETL Development
Case 3 – External Reporting

ETL Development
Case 3 – External Reporting

OBIEE Metadata
Case 3 – External Reporting

OBIEE Metadata
Physical Layer
Case 3 – External Reporting

OBIEE Metadata
Logical Layer

Business Model and Mapping
- Dimension Department
  - Sources
    - D_DEPT
      - Department Sid
      - Budget Year End Date Sid
      - Department Company Sid
      - Department Government Sub Agency
      - Department Location Sid
      - Manager Person Sid
      - Manager Position Sid
      - Tax Location Sid
      - Source System Id
      - Source Set Id
      - Set Id
      - Department Id
      - Performance Department Id
      - Department
        - Department Desc
      - FSU Budget Manager Sid
      - FSU Tenure CIP
      - FSU CIP Description
      - FSU Program/Activity/EP
      - FSU PCS Description
      - FSU Waiver Charge Method
      - FSU Waiver Charge Method Description
      - Department IU and Name

Logical Column - FSU Tenure CIP
- Data Type: String
- Length: 8
- Nullable: Yes

Data Type derives from physical sources:
- D_DEPT FSU_CIP
- Show all logical sources
Case 3 – External Reporting

OBIEE Metadata
Presentation Layer

Presentation

- Dimension Department Tree
  - Department Sid
  - Department Id
  - Setid
  - Source Setid
  - Department Tree Name
  - Source System Id
  - Department Desc
  - Budget Level Code
  - Budget Level Desc
  - Budget Level
  - Budget Year End Date Sid
  - FSU Budget Manager Sid
  - FSU Tenure CIP
  - FSU CIP Description
  - FSU Program/Activity/EP
  - FSU PCS Description
  - FSU Waiver Charge Method
  - FSU Waiver Charge Method Description
  - Department Detail Id
  - Department Detail Desc
  - Department Level 1 Id
  - Department Level 1 Desc
  - Department Level 2 Id
  - Department Level 2 Desc
  - Department Level 3 Id
  - Department Level 3 Desc
  - Department Level 4 Id
  - Department Level 4 Desc

Presentation Column - FSU Tenure CIP

- General
  - Name: FSU Tenure CIP
  - Use Logical Column Name
  - Custom display name: FSU CIP Id
  - Logical Column: "Enterprise Warehouse"."Dimension Department Tree"

- Description:
  - This code indicates the classification of instructional program -- only used for Academic departments.
Case 3 – External Reporting

OBIEE Report
## Case 3 – External Reporting
### OBIEE Report

<table>
<thead>
<tr>
<th>Group</th>
<th>Division</th>
<th>School</th>
<th>Area</th>
<th>Fund Code</th>
<th>Fund Desc</th>
<th>Budget Amount</th>
<th>Encumbrance Amount</th>
<th>KK Expense Amount</th>
<th>Available Balance</th>
<th>% Avail Bal</th>
</tr>
</thead>
<tbody>
<tr>
<td>University</td>
<td>Academic Affairs</td>
<td>Strozier Library</td>
<td>Strozier Library</td>
<td>110</td>
<td>E &amp; G General Revenue</td>
<td>879,413.00</td>
<td>76,782.58</td>
<td>415,346.28</td>
<td>187,284.16</td>
<td>27.57%</td>
</tr>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Library Resources</td>
<td>5,583,865.00</td>
<td>0.00</td>
<td>3,810,422.71</td>
<td>1,773,442.29</td>
<td>31.76%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OCO</td>
<td>115,000.00</td>
<td>5,444.06</td>
<td>72,642.03</td>
<td>56,913.31</td>
<td>32.10%</td>
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<td></td>
<td>OPS</td>
<td>475,338.00</td>
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<td>331,703.03</td>
<td>13,549.39</td>
<td>2.85%</td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td>Salary</td>
<td>6,565,220.00</td>
<td>1,950,535.57</td>
<td>4,252,620.12</td>
<td>262,064.31</td>
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<td>110</td>
<td>Strozier Library Total</td>
<td>13,418,834.00</td>
<td>2,162,846.37</td>
<td>8,882,734.17</td>
<td>2,373,263.46</td>
<td>17.69%</td>
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<td>Strozier Library Total</td>
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<td>University Total</td>
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<td>8,882,734.17</td>
<td>2,373,263.46</td>
<td>17.69%</td>
</tr>
</tbody>
</table>

### Query

```
Department Name is equal to DEPT_LEVELS
and Department ID and Name is equal to 066000 - Strozier Library
and Level 2 Code is equal to Expense Accounts
and KK Expense Amount is not equal to / is not in 0
or Encumbrance Amount is not equal to / is not in 0
or Budget Amount is not equal to / is not in 0
and Accounting Period is less than or equal to 0
and Fiscal Year is equal to 2009
and Av Bals Fund Grouping is equal to E & G - FSU - CURRENT YEAR
```
## Case 3 – External Reporting

### OBIEE Report

### Available Balance

<table>
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<tr>
<th>Group</th>
<th>Budget Entity</th>
<th>State Fund</th>
<th>Fund Code</th>
<th>Fund Desc</th>
<th>Budget Amount</th>
<th>Encumbrance Amount</th>
<th>KK Expense Amount</th>
<th>Available Balance</th>
<th>% Avail Bal</th>
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<tbody>
<tr>
<td>University</td>
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<td>000210</td>
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<td>E&amp;B General Revenue</td>
<td>679,413.00</td>
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<td>17.65%</td>
</tr>
</tbody>
</table>

**Accounting Period is less than or equal to 9**

**and Fiscal Year is equal to 2009**

**and Department Tree Name is equal to DEPT_LEVELS**

**and Department ID and Name is equal to 069900 - Strozier Library**

**and Level 2 Desc is equal to Expense Accounts**

**and KK Expense Amount is not equal to / is not in 0**

**or Encumbrance Amount is not equal to / is not in 0**

**or Budget Amount is not equal to / is not in 0**

**and Av Bal Fund Grouping is equal to E & G - FSU - CURRENT YEAR**
Lessons Learned

1. Keep scope small and manageable.
2. Provide conservative estimates to compensate for leading edge technology.
3. Define the customization strategy & development standards early in the project.
4. Engage “power users” and business analysts throughout the BI Lifecycle.
5. Establish trust in the warehouse early and NEVER underestimate the importance of DI/DQ.
6. Focus on data reconciliation early and consistently.
7. Follow proven PeopleSoft and Warehousing development methodologies.
8. Leverage available database technology options even if they are not supported by PeopleTools.
9. Always look for ways to improve your processes.
Questions and Comments?

Thank You!