OP Tableau User Group
UC Davis Tableau Program Overview
Agenda

1. Data Analyst Community Engagement Strategies
2. Tableau Server (AggieDash) Architecture
3. Partner Program and RDOH
4. Tableau Prep Use Case Example
5. Tableau Dashboard Example (LOD / Context filters)
Data and Donuts
Engaging the Distributed Community of Expertise

1. Presentations on data analysis projects and processes

2. New dashboards developed by BI and Partners
   a) Design Tips and Tricks

3. Data requests and requirements
   a) I manually get this data now, how can it be automated?
   b) Security / FERPA guidance for data handling
Data and Donuts

March 12, 2018

128 + 0 + 0 + 16 + 8 + 0 + 2 + 1 = 155
Today’s Agenda

Erika Jackson  
Gradation / Retention

Nick Barbulesco / Maksym Monastyrs’kyy  
BI Program Update and Discussion Groups

John L. King  
Measuring the Economic Value of Research
On February 8th, 2017, I presented at the first Data and Donuts…

1. What is Tableau and why Tableau?
2. Tableau Server is coming!
3. Business Intelligence Overview
   a) Facilitate a network of Tableau developers on campus
   b) Engage with Tableau developers – consult on data sources, design dashboards, style guide, etc.
   c) Explore consolidation solutions for Institutional Data Areas (ex. Student, Research)
   d) Integrate Institutional Data (ex. Student with Study Abroad, Research Awards with Expenditures)
Our original sketch of the components and requirements from a meeting with IET in March 2017…
Over the last 9 months, what have we (a small, cross-functional team) achieved?

**Business Intelligence**
- Greg Siino
- Nick Barbulesco

**Institutional Analysis**
- Thomas Campbell & ETL Developers

**Information and Educational Technology**
- Quico Gonzales
- Kevin Murakoshi
- Justin Woods
- Rick Leos
AggieDash Architecture implemented by BI / IET
Design as of 7/28/2017
The AggieDash Delivery Platform

*Tableau Server* – Share Data Visualizations with *your* audience

*University Data Warehouse* – Migrate and Transform Data Sources for Analytics and Visualization

*Tableau Desktop* – Create Data Sources and Visualizations
Part 1: Tableau Server

*Tableau Server* – Share Data Visualizations with *your* audience

*Tableau Desktop* – Create Data Sources and Visualizations

*University Data Warehouse* – Migrate and Transform Data Sources for Analytics and Visualization
Business Intelligence and IET deployed AggieDash!

**Tableau Server at UC Davis**

- Flexibly designed to meet or exceed FERPA access control and security requirements
- BI engaged Chief Information Security Office in design reviews
- Login with Campus Computing Account / Duo Dual Factor Authentication
- Secure Network Placement
- Encryption
  - Data Connections and Refresh Processes
  - Application Server is encrypted-at-rest
AggieDash Service Components

- AggieDash is on status.ucdavis.edu
- ServiceNow integrated support model
- Auditable Access Control Change Management
- Custom Documentation about Dual Authentication
- IT Express Support for Duo
- RDOH for quick onboarding of visualization content
First, check out, businessintelligence.ucdavis.edu
AggieDash User Experience

1. Obtain a Campus Computing Account

2. Configure Duo (Dual Factor Authentication) for Campus Computing Account

3. AD Groups:
   
   A) Proxy Access Group
   
   All customers of AggieDash must be in this AD Group to access the Tableau Server via the O365 / Azure AD Proxy Authentication.

   B) Content-Specific AD Group
   
   Once the AggieDash user is authorized by the AggieDash Content Owner / Data Steward, the Business Intelligence Office will place their campus computing account in one or more AD groups. This AD group membership will allow the user to access certain dashboard/data/content once logged into AggieDash.
Part 2: Data - RDOH, ETL, Modelled for Analytics

**Tableau Server** – Share Data Visualizations with your audience

**Tableau Desktop** – Create Data Sources and Visualizations

**University Data Warehouse** – Migrate and Transform Data Sources for Analytics and Visualization
Business Intelligence **Core** indicates that the visualizations are *developed by Business Intelligence* and sourced from *institutional data sources*.

Business Intelligence **Partner** indicates that the visualizations are *developed by the Partner Organization* in collaboration with Business Intelligence and sourced from *partner data sources via RDOH*. 
Bi-Modal Business Intelligence Deployment Model

Onboard Now -- Optimize and Operationalize on a Planned Release Schedule

University Data Warehouse

Integrated & Modeled Data

Mode 1: Hardened, secure, shared, integrated, sustainable, reliable, defined, repeatable

Long-Term

Rapid Data Onboarding Hub (RDOH)

Mode 2: Quick time to delivery, exploration, custom, may have redundant data, may have local “business” rules and field definitions

Short-Term

ISODS

Local Data Store

Department/Functional User Data Integration

Tableau University Reporting & Analytics Delivery Platform

Separate back-end development timeline from initial deployment when needed for a select number of use cases

Transactional Applications / Source Data

Banner

Kuali

PPS

Cayuse

Etc. ...
University Data Warehouse vs. RDOH (Rapid Data Onboarding Hub)

In the short-term - RDOH:
• Tableau Server can securely connect to migrated, partner-developed, data
• Scheduled refreshes of data from partner sources
• No data transformations or models created by BI

In the long-term – UDW Data Integration:
• Business Intelligence and Institutional Analysis will transform and model data for a variety of analytics use cases
• First subject area: Student Data Model
Part 3: Securely Developing Dashboards

**Tableau Server** – Share Data Visualizations with your audience

**University Data Warehouse** – Migrate and Transform Data Sources for Analytics and Visualization

**Tableau Desktop** – Create Data Sources and Visualizations
Secure Development Environments

Tableau Desktop installed on a secure, remote desktop:

1. Protect sensitive data sets from exposure on developer’s local machine
2. Authenticate through Bastion Host – similar to Banner Connectivity
3. DUO dual-authentication
4. Connect to Data Sources (RDOH and CORE) via encrypted Oracle connections
5. Develop and publish dashboards to User Acceptance Testing (UAT) Tableau Server
How do these 3 parts fit together?

**Tableau Server** – Share Data Visualizations with your audience

**University Data Warehouse** – Migrate and Transform Data Sources for Analytics and Visualization

**Tableau Desktop** – Create Data Sources and Visualizations
BI Initiative #1: Core Student Data Model(s)

• Institutional Analysis ETL Developers - delivered the first dimensionally modeled enrollment and demographic data!

• In collaboration with the Office of the University Registrar (OUR) and Enterprise Student Applications, we are developing Tableau Dashboards for student data request fulfillment

• Three main goals:
  • Expand the OUR governed student data model
  • Create self-serve reports (access control governed by OUR/ESA)
  • Author aggregated data marts for various reporting and analytics use cases
BI Initiative #2: **AggieDash Partners**

When we meet with potential partners, we are looking for:

1. A team with enthusiastic data analysts willing to learn and develop Tableau skills
2. IT / DBAs willing to distill their data sources into Tableau-friendly formats for proof of concept development
3. Leadership commitment to contribute to long-term design and convergence of a campus-wide, curated, and integrated data model
BI Partner Projects – In Progress

- Office of Research
- Institutional Analysis (example: Grad/Retention)
- Office of the University Registrar – Live Student Data Model
- Procurement (AggieBuy / AggieTravel)
- Center for Student Affairs Assessment
- Center for Educational Effectiveness
- University Extension
- Financial Aid
Partner Program – Local Data Sources

Partner Organization Data Sources

- Operational Database
- Local Reporting Database
- File Server with Excel Data

Partner Scope

Business Intelligence Scope
- Network Share Folder
- RDOH – BI-Managed
- Rapid Data Onboarding Hub
- Mirrored Consolidated File

- Migrate to Production
- Production Audience
- Partner Approved Access
- AD Controlled Access
Partner Program – Local *Distilled* Data Sources

**Partner Organization Data Sources**

- Operational Database
- Local Reporting Database
- File Server with Excel Data
- Consolidated Table(s)

**Partner Scope**

- Business Intelligence Scope
- Network Share Folder

**RDOH – BI-Managed Rapid Data Onboarding Hub**

- Mirrored Consolidated File
- Migrate to Production

**Production Audience**

- Partner Approved Access
- AD Controlled Access

**UAT Audience**

- Partner Approved Access
- AD Controlled Access
Partner Program – Local **Tableau Development**

1. Local Dashboard Development

Partner Organization Data Sources

- Operational Database
- Local Reporting Database
- File Server with Excel Data
- Consolidated Table(s)

1. Local Development POC
   - Tableau Desktop

Partner Approved Access
- AD Controlled Access

Production Audience
- Partner Approved Access
- AD Controlled Access

UAT Audience
- Partner Approved Access
- AD Controlled Access

Prod Tableau Server

Published TDE

Published Dashboard C (TWBX)

Migrate to Production

RDOH – BI-Managed

Rapid Data Onboarding Hub

Mirrored Consolidated File

Simple ETL to RDOH

Connect to RDOH and Extract

Publish Dashboard C (TWBX)
Partner Program
RDOH Distilled Data and Transfer Tableau Files

1. Local Dashboard Development
   - Operational Database
   - Local Reporting Database
   - File Server with Excel Data

2. Simple ETL to RDOH
   - RDOH – BI-Managed Rapid Data Onboarding Hub

3. Transfer Tableau Dashboard File(s)
   - Local Development POC Tableau Desktop
   - Network Share Folder

Partner Scope
Business Intelligence Scope

Partners Scope

Network Share Folder

Partner Organization Data Sources
Consolidated Table(s)

Published TDE Published Dashboard C (TWBX)

Prod Tableau Server

Partner Approved Access
AD Controlled Access

UAT Audience
Partner Approved Access
AD Controlled Access

Operational Database
Local Reporting Database
File Server with Excel Data
Consolidated Table(s)
Dashboard POC
Migrated to Production
Production Audience
Partner Approved Access
AD Controlled Access

UC DAVIDS BUSINESS INTELLIGENCE
Partner Program
Reconnect Tableau Files to RDOH Datasource

1. Local Dashboard Development
   - Local Development POC
   - Tableau Desktop

2. Simple ETL to RDOH
   - Mirrored Consolidated File
   - RDOH – BI-Managed Rapid Data Onboarding Hub

3. Transfer Tableau Dashboard File(s)

4. Connect to RDOH and Extract
   - Data Extract
   - Dashboard C (TWBX)
   - RDP Server (Behind Bastion) Tableau Desktop

Partner Organization Data Sources
- Operational Database
- Local Reporting Database
- File Server with Excel Data
- Consolidated Table(s)

Partner Scope
- Business Intelligence Scope
- Network Share Folder

Partner Approved Access
- AD Controlled Access

Business Intelligence Scope
- RDOH – BI-Managed Rapid Data Onboarding Hub
- Mirrored Consolidated File
- Simple ETL to RDOH

Transfer Tableau Dashboard File(s)

Partner Scope
- Business Intelligence Scope
- Network Share Folder

Partner Approved Access
- AD Controlled Access

UAT Audience
- Partner Approved Access
- Partner Approved Access

Production Audience
- Partner Approved Access
- Partner Approved Access
Partner Program
Publish to User Acceptance Testing (UAT) Server

1. **Local Dashboard Development**
   - Local Dashboard Development
   - Local Development POC
   - Tableau Desktop

2. **Partner Organization Data Sources**
   - Operational Database
   - Local Reporting Database
   - File Server with Excel - Data
   - Consolidated Table(s)

3. **Business Intelligence Scope**
   - Data Extract
   - Dashboard POC
   - Transfer Tableau Dashboard File(s)
   - Network Share Folder

4. **Partner Scope**
   - Connect to RDOH and Extract
   - Simple ETL to RDOH
   - Published Dashboard C (TWBX)
   - TDE Refresh Schedule
   - "Run As" Data Mart Credentials

5. **Publish to User Acceptance Testing (UAT) Server**
   - UAT Tableau Server
   - RDP Server (Behind Bastion) Tableau Desktop
   - Published Dashboard C (TWBX)

6. **Partner Scope**
   - Business Intelligence Scope
   - Network Share Folder
   - Published TDE
   - Partner Approved Access
   - RDOH – BI-Managed Rapid Data Onboarding Hub
   - Mirrored Consolidated File

7. **Partner Scope**
   - Migrate to Production
   - Production Audience
   - Partner Approved Access
   - AD Controlled Access
   - UAT Audience
   - Partner Approved Access
   - AD Controlled Access
Partner Program
User Acceptance Testing (UAT) Complete!

Partner Scope

1. Local Dashboard Development
   - Local Dashboard POC
   - Tableau Desktop

2. Mirrored Consolidated File
   - Simple ETL to RDOH
   - RDOH – BI-Managed Rapid Data Onboarding Hub
   - TDE Refresh Schedule
   - “Run As” Data Mart Credentials

3. Transfer Tableau Dashboard File(s)
   - Consolidated Table(s)

4. Connect to RDOH and Extract
   - UAT Tableau Server
   - Published Dashboard C (TWBX)

5. Publish
   - Published Dashboard C (TWBX)

Business Intelligence Scope

Partner Organization Data Sources

- Operational Database
- Local Reporting Database
- File Server with Excel Data
- Local Development POC Tableau Desktop

- Partner Approved Access
- AD Controlled Access

Network Share Folder

- Partner Approved Access
- AD Controlled Access

Dashboard POC

- Partner Scope
- Business Intelligence Scope

OK!
**Partner Program**

**Go Live - Publish to Production AggieDash!**

1. **Local Dashboard Development**
   - Local Dashboard POC
   - Tableau Desktop

2. **Partner Organization Data Sources**
   - Operational Database
   - Local Reporting Database
   - File Server with Excel - Data
   - **Consolidated Table(s)**

3. **Local Development POC**
   - Transfer Tableau Dashboard File(s)

4. **Business Intelligence Scope**
   - **Dashboard POC**
   - **Network Share Folder**
   - RDP Server (Behind Bastion) Tableau Desktop
   - Data Consolidated Table(s)
   - Data Extract
   - Connect to RDOH and Extract

5. **Partner Scope**
   - **Published TDE**
   - Published Dashboard C (TWBx)
   - Published Dashboard C (TWBx)
   - Migrate to Production

6. **Prod Tableau Server**
   - Published TDE
   - Published Dashboard C (TWBx)
   - Production Audience Partner Approved Access AD Controlled Access

**UAT Audience Partner Approved Access AD Controlled Access**

- RDOH – BI-Managed Rapid Data Onboarding Hub
- TDE Refresh Schedule "Run As" Data Mart Credentials
- **Migrated to Production**

**OK!**
Questions?
Thank you!