

**OneSource Reporting & Data Architecture Strategy
January 2017**

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Overview

This document summarizes the reporting and data architecture strategy in concert with the OneSource project. This document is informed by the work of the Business Intelligence (BI) Assessment (completed 11/2016), a deliverable of the OneSource project, through the work and reports delivered by Collegiate Project Services in 2014 and 2015, and through conversations with functional and technical organizational stakeholders.

Guiding principles:

- To the degree possible, provide a centrally available, single source of the “truth” for commonly used and reported administrative data. These commonly used and reported data include student, finance, HR, faculty, sponsored projects, and facilities.
- Transactional and operational reporting is a higher priority than other reporting approaches.
- Because of the differences in the reporting needs across data domains, a tool box of reporting (presentation) solutions will be necessary.
- An organized data literacy effort is required to support reporting solution success.

A desired outcome of reporting and data architecture initiative is to develop and implement a roadmap to achieve a single set of authoritative data for analytic reporting (transactional reporting will continue to occur through the transactional system e.g. PeopleSoft). The approach should be consistent across data domains and it should allow for a set of tools that can be used to present the data according to the domain-specific needs and the desired use (operational vs analytical) of the report. The authoritative data sources should be used to populate a warehouse environment that will be used across campus to produce these reports. Delivery will be incremental based on institutional priorities.

Institutional Priorities/Strategic Alignment

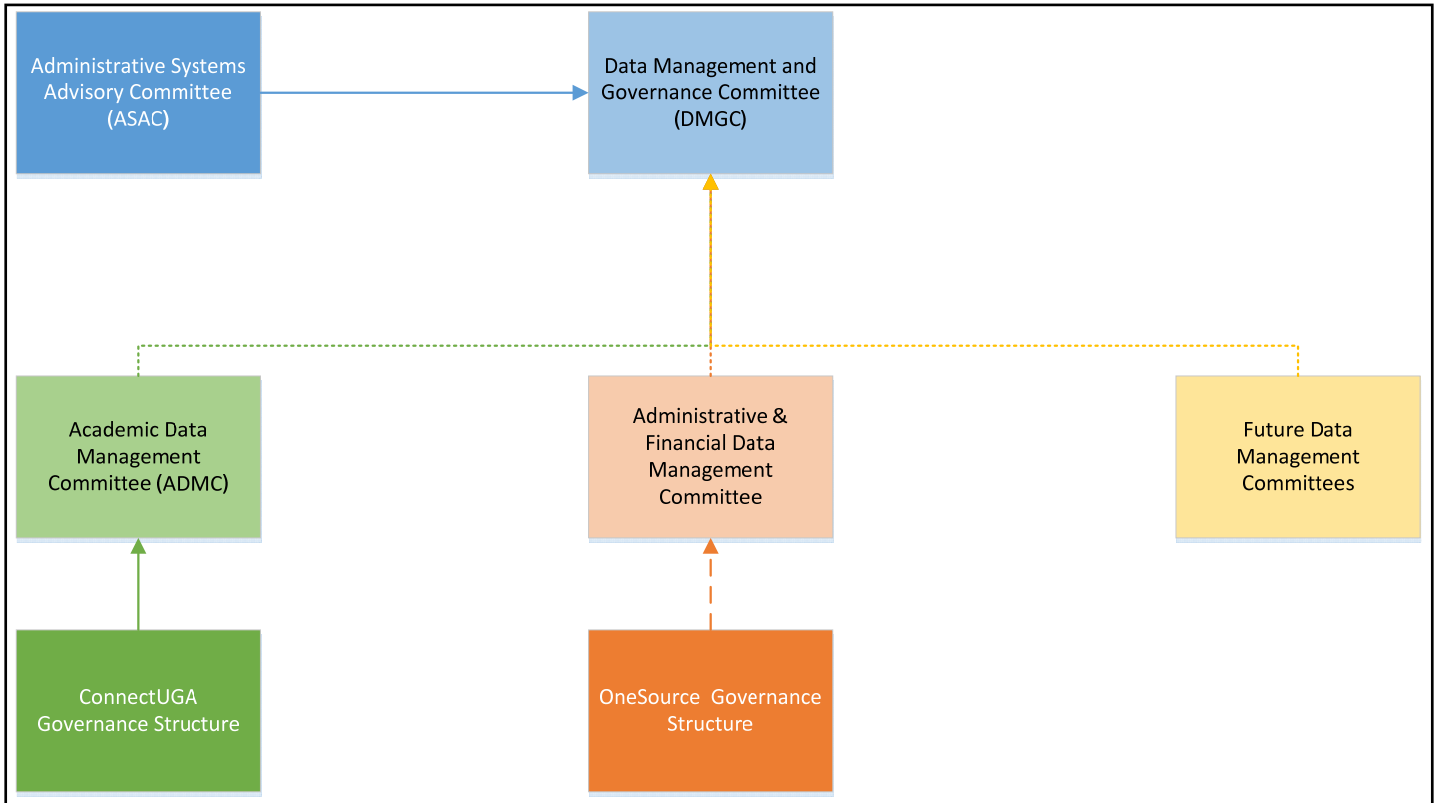
Reporting and business intelligence are in direct alignment with two of the six OneSource strategic objectives:

- 1) Integration of data across areas so that each department will have the information it requires when needed
- 2) Reporting tools that will improve data access and UGA's ability to make data-driven decisions

Because the Office of Institutional Research (OIR) is charged with originating and reporting University data across all areas, coordination with them as the project works toward these objectives will be critical to the success of both the project and OIR.

Governance and Key Staff

Where the development of a reporting and data architecture approach overlaps with the OneSource project (resources, data domains, etc.), the OneSource Project Leadership Team (PLT) provides leadership and final decision-making authority. Because the solution developed for administrative and financial data should be scalable and appropriate to meeting the needs of other data domains, such as student, governance may require input from other data stewards and trustees. The following diagram illustrates the current approach to governing data and reporting related initiatives across domains.



Key staff who will have a role to play in reporting and data architecture delivery:

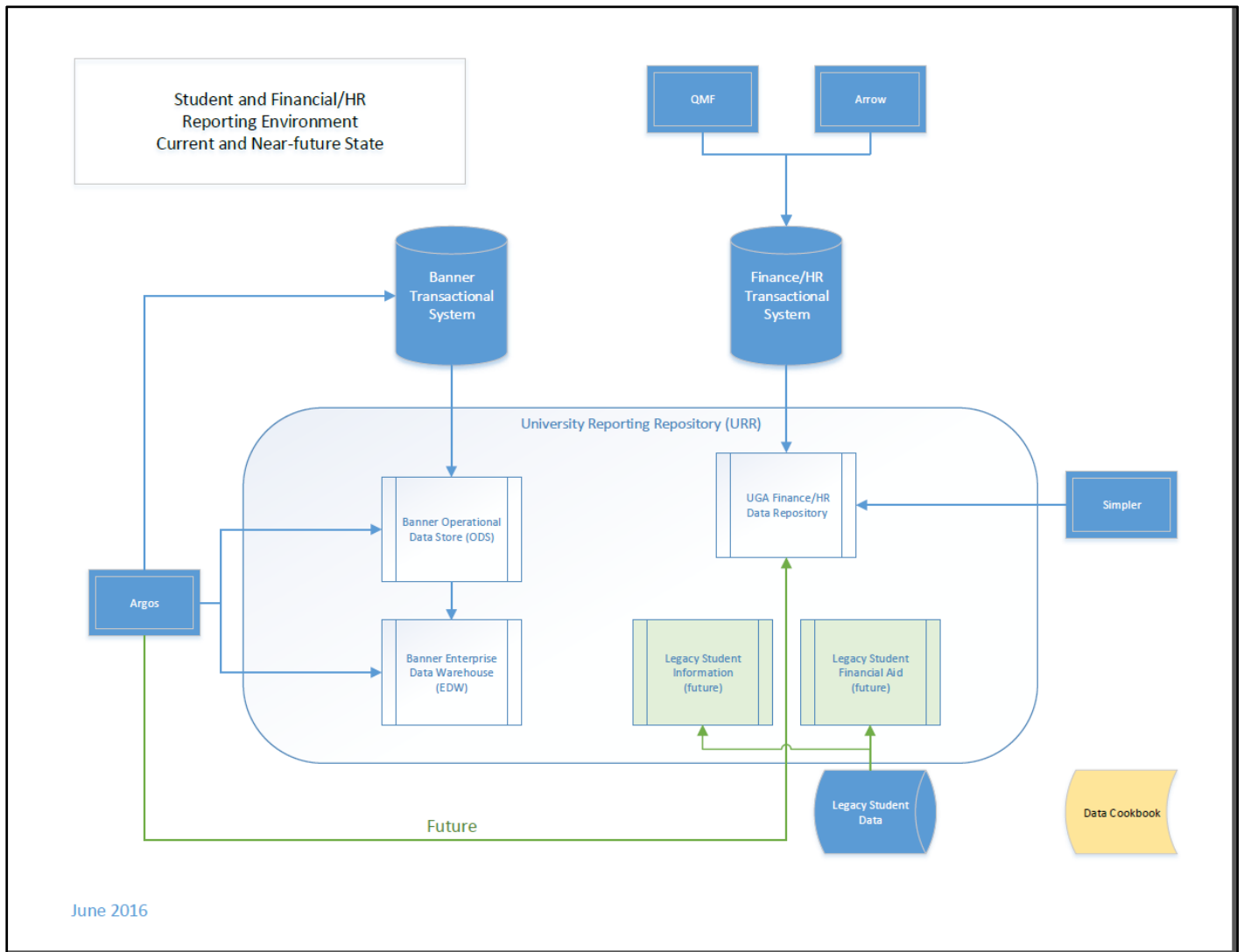
- Reporting and Data Architecture Lead – new position with primary responsibility for creating and overseeing the reporting and data architecture strategy and operations
- Chief Data Officer – facilitation of the Data Management & Governance Committee; works with stewards across data domains on issues regarding governance, management and standardization
- OIR Director – delivery of institutional reports to internal and external stakeholders.
- OneSource Project Director – responsible for the oversight and management of the OneSource project
- Associate CIO of Student Information Services – responsible for the oversight and management of the Student Information System and related services

- Chief Technology Officer – provides stable and standard architectural solutions to meet the reporting and data strategy needs

Current Reporting Environment

In the current environment, finance, HR, budget, and student data are reported on using a combination of legacy and new solutions. This reporting environment addresses operational or transactional reporting needs; however, it does not account for shadow systems and reporting databases that are maintained across the campus.

See the diagram, below.



June 2016

OIR maintains a separate set of tables used for reporting on behalf of the University. In most cases, such as the case of student data, the OIR tables are copies of the authoritative data sources. In the case of faculty data, however, OIR maintains the authoritative data.

One output of the BI Assessment was a comprehensive discovery effort around administrative data sets. See [Appendix A](#).

Authoritative Source Systems

In the future state, the authoritative sources for the data warehouse will be inclusive of systems identified in the table, below.

Source	Data
Legacy Mainframe	Financial & Payroll transaction and summary balances
Banner	Non- Personally identifiable information (PII) student data
PeopleSoft Finance	Summary and detailed finance and budget transactions
PeopleSoft HCM	Summary and detailed payroll and HR transactions

Other data domains and related source systems (such as facilities and room scheduling) will be added incrementally based on institutional priorities.

Data Literacy

Data literacy will be critical to the success of any central reporting solution. The data governance framework illustrated on page 2 of this document will have a key role to play in providing content and leadership in developing and delivering the following resources to the institution:

- **Data Dictionary:** A top priority for promoting and facilitating a culture of commonly understood definitions and uses for data elements is the development of a centrally accessible data dictionary. The stewards of student data have built a foundation of the most commonly reported on student data elements in the Data Cookbook. This effort should be resumed in earnest in order to build a more comprehensive set of student definitions. Finance and HR data stewards should develop a similar dictionary, ideally using the same tool ([The Data Cookbook](#)) for consistency.
- **Master Data:** Stewards should develop a list of master data elements and publish these in a place that is easily accessible to all institutional stewards and data users.
- **Data Management Roles and Responsibilities:** Continue to develop roles and responsibilities documentation for all institutional resources with data management responsibilities. Publish this documentation in an easy to access location.
- **Standards Documentation:** Develop, publish, and train report developers and consumers on institutional standards for the presentation of data based on best practices and the toolbox for reporting.

Reporting Tools

Transactional reporting

Transactional reporting is typically executed against the transactional application or another environment that mirrors or closely reflects the transactional data architecture. PeopleSoft delivers several reporting tools as a part of the operational solution, and it is expected that most of the daily operational reporting needs of the University will be met using these tools:

- PeopleSoft Query
- nVision
- Hyperion

Analytic reporting

Analytic, trend, and predictive reporting is best suited for a warehouse environment. Reporting tools will be used by campus stakeholders for the development and consumption of reports that use the central data warehouse as the source. Centrally supported tools will be considered a part of the reporting toolbox. While the contents of this toolbox will change, currently supported reporting tools include the following:

- Simpler (Finance and HR)
- Tableau (Cross domain)
- Argos (Student)

In addition to the current reporting tools, we expect that new tools will be added to the existing set. These will likely be determined through an evaluation of initial reporting needs and tools that meet these needs.

Technical Architecture

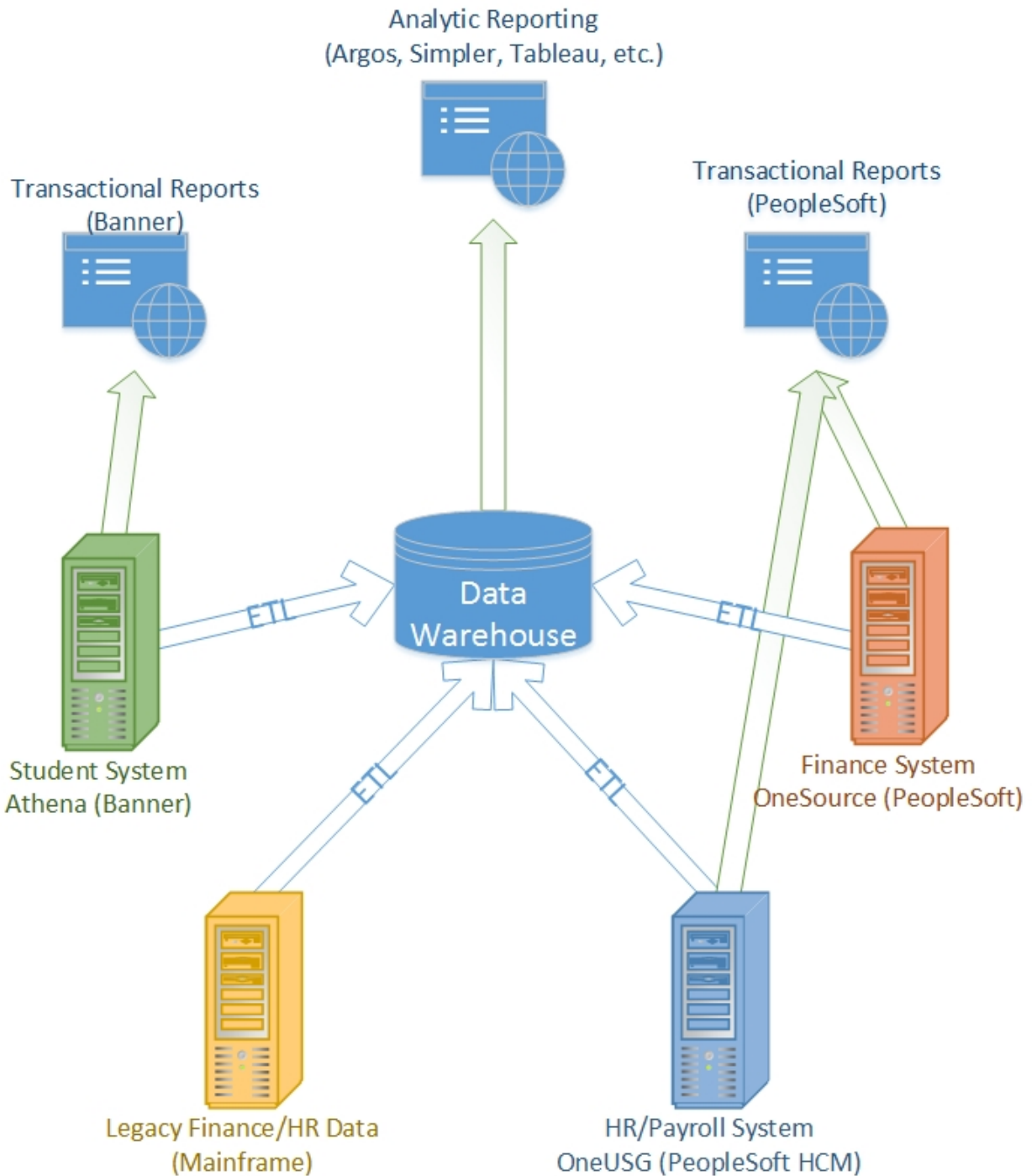
The intent of this section is to describe the technical architecture at a high level, establishing guiding principles. The technical architecture design will occur over time and will include:

- the current proof of concept is the University Reporting Repository (URR) and will need to be replaced
- a reporting repository that is housed outside the transactional/operational systems (outside Banner & PeopleSoft)
- fully described ETL (extraction, transformation, and loading) process
- clearly defined owner

The URR is currently a proof of concept data warehouse that is used as the primary data source for Simpler query and reporting. There are challenges with the URR, including that it is constrained by the technical infrastructure supporting the Banner systems. This infrastructure was designed for transactional processing and not a cross data domain enterprise data warehouse.

The technical infrastructure will be under the control of the Chief Technology Officer (CTO). The data warehouse will be used across data domains and therefore should not be owned by any specific group associated with a subset of the data domains represented in the warehouse. Separating the data warehouse from the operations associated with the transactional system processing also simplifies the operations of these units.

Reporting & Data Architecture Visualization



Roadmap

To operationalize and execute the reporting and data architecture strategy outlined above, the following tasks will need to be completed:

1. OneSource Project Leadership Team reviews and approves the approach and framework, including the data literacy deliverables
2. Data Management and Governance Committee is engaged and provides leadership on data literacy and governance objectives
3. Hire reporting and data architecture lead
4. Develop and begin execution of communication plan to promote campus buy in
5. Document and prioritize transactional reporting requirements (Business Intelligence Assessment and the Collegiate Project Services report is a starting point for this)
6. Document data and mappings for the reporting requirements
7. Design technical architecture of data repository and the ETL processes
8. Data stewards document data definitions for those data elements included in initial roll out
9. Deliver proof of concept for initial analytical reports from the warehouse
10. Production roll out

Systems

