

University of Houston  Clear Lake

Institutional Research

Attaining Clarity:
**Best Practices of Information Management
and Data Governance**

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Session Outline

During the presentation, we will...

- ▶ Share our institutional data management and data governance framework
- ▶ Explore what Clarity offers in Data Governance, Project Management, Data Warehouse, Data Analytics, and its future developments.
- ▶ Assess the impact data sharing and management has on accuracy and efficiency.



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Session Outcomes

Participants will...

- ▶ Have an enhanced understanding of implementing a robust Data Management Plan and Governance Framework
- ▶ Incorporate collected information to improve processes at a departmental or institutional level.



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Data Warehouse Initiative

Guided by the UHCL Strategic Plan

- ▶ Improve Business/Academic Operations (with improved)
 - Access to data warehouse
 - Access to data visualization tools
- ▶ KPI Collection Methods:
 - The Data Management Officer will maintain a record of all individuals accessing the data warehouse and the data visualizations as part of UHCL's data management protocols.

The Most Important Lesson Learned

- ▶ With the support of Executive Leadership, the Office of Institutional Research (IR) embraced the directive of leading the Data Warehouse Initiative (DWI). IR and the Office of Information Technology (IT) began developing the technology needed for an on-premises data warehouse with data visualization capability.
- ▶ **However, the DWI Team quickly learned that a data warehouse would require a data governance framework to ensure long-term success.**

State Requirements

- ▶ In 2021, **Senate Bill 475 of the 87th Texas Legislature**, Regular Session, directed **agencies with over 150 full-time employees** to designate a Data Management Officer (DMO) to actively support their organizations' operations by defining and driving the implementation of data governance and data management methodologies.

<https://capitol.texas.gov/tlodocs/87R/billtext/html/SB00475S.htm>

- ▶ In Fall 2021, UHCL named its DMO, who is currently housed in IR



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Data Governance

- ▶ UHCL's DMO worked with the **Texas Department of Information Resources' Data Management Advisory Committee (DMAC)** and consulted with **Gartner** to develop an institutional data governance framework based on DAMA International Data Management Body of Knowledge (DMBOK).
- ▶ Additionally, the State of Texas has adopted the Texas Data Management Framework: based on DAMA International's DMBOK at the direction of the Chief Data Officer
- ▶ In an effort to implement best practices, the DWI Team selected DAMA-DMBOK, as our standard.
 - Henderson, D., & Earley, S. (2017). *Dama-DMBOK: Data Management Body of Knowledge*. Technics Publications.



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The Mission: Implementation of the 11 Data Management Knowledge Areas



Implemented

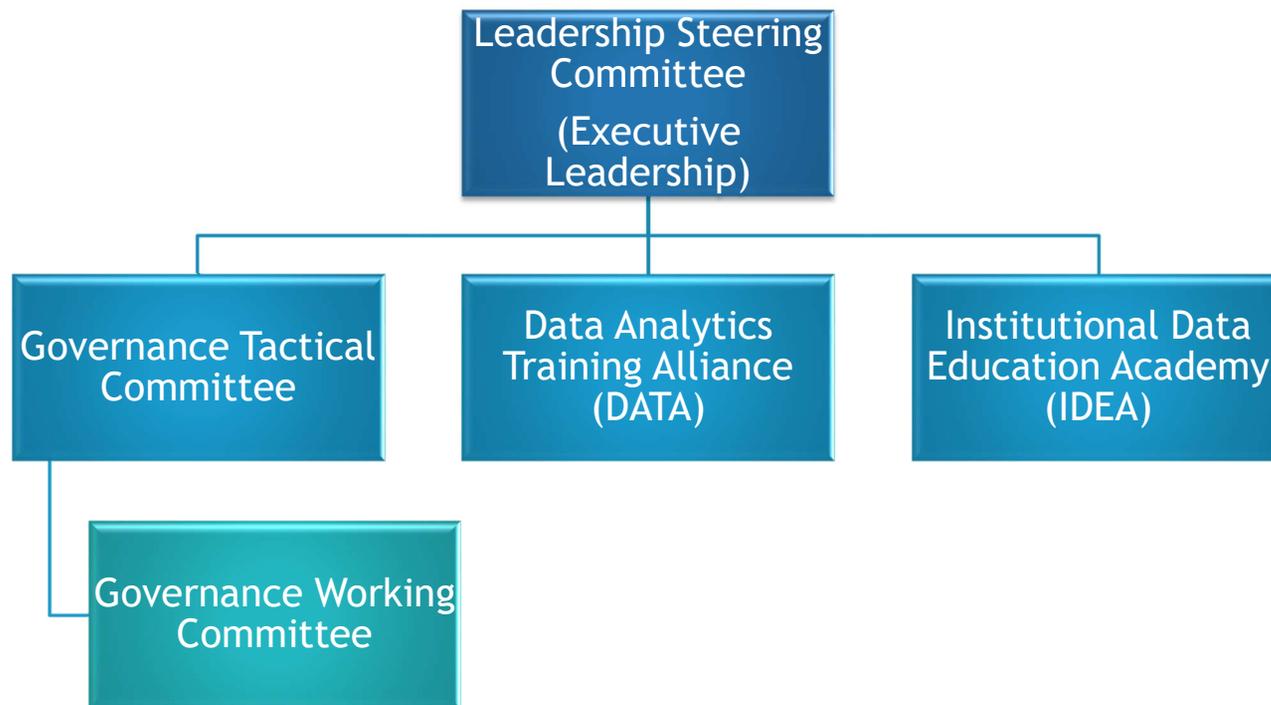
- ▶ **Data Governance** – DG Organizational framework, Asset Management, Change Management
- ▶ **Data Warehousing & Business Intelligence** – On-premises Data Warehouse and Data Visualizations Systems
- ▶ **Meta-Data Management** – Data Glossary, Data Lineage, & Knowledge Base
- ▶ **Data Architecture** – Data Dictionary
- ▶ **Data Security** – Information Security Officer implementation of UHS information security policies
- ▶ **Data Quality** – Data Validation



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Data Governance & Organizational Support



Roles & Responsibilities

Leadership Steering Committee (LSC)

- ▶ Data Governance Champions
- ▶ Identify business needs
- ▶ Determine priorities

Tactical Committee – Directors/Data Owners

- ▶ Determine feasibility
- ▶ Identify and allocate resources needed
- ▶ Monitor the progress of the Working Committee
- ▶ Communicate milestones to LSC
- ▶ Establish and document business practices
- ▶ Request support from LSC



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Roles & Responsibilities - 2

Working Committee – Data Owners/Data Analysts

- ▶ Carry out the initiatives
- ▶ Create taskforces for collaborative work
- ▶ Report Progress and Issues to the Tactical Committee
- ▶ Submit requests for resources to the Tactical Committee

Institutional Data Education Academy (IDEA)

- ▶ This citizen analyst training program is geared towards enhancing UHCL's faculty and staff's knowledge of data research and analytics through on-campus classes.



Roles & Responsibilities - 3

Data Analytics Training Alliance (DATA) –

Power users' group; Single in-take for all data-related requests

- ▶ Required attendance at DATA Scrums (M/W/F)
- ▶ Members are tasked with evaluating information requests, identifying the responsible area(s), assigning requests, and completing requests



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Attaining Clarity

- ▶ In the Fall of 2022, UHCL launched the institutional data warehouse with active data visualizations and began implementation of the institutional data governance framework, which gave life to **Clarity**.
- ▶ **Clarity** is a collection of software and processes that have proved to be a robust repository for change management and configuration management of metadata.



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Attaining Clarity - 2

- ▶ The launch of Clarity marks an innovative leap forward for UHCL in its **ability to address all data management and data governance needs to ensure consistency, accuracy, and timeliness across the institution while reducing costs, transforming data delivery methods, and improving the decision-making processes through data accessibility.**
- ▶ From the Clarity portal, <https://clarity.uhcl.edu/>, users can access information and tools about Data Governance, Project Management, Data Warehouse, and Data Analytics as content is made available.

Clarity Systems

Data Management Knowledge Areas:

▶ Data Governance

- Asset Management: [TeamDynamix](#)
- Change Management: [TeamDynamix](#)

▶ Data Warehousing & Business Intelligence (BI)

- Data Warehouse: [MS SQL Server](#)
- BI: [MS Power BI Report Server](#)
- BI: [ArcGIS Server](#)



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Clarity Systems - 2

▶ Meta-Data Management

- Data Glossary: [OpenMetadata](#)
- Data Lineage: [OpenMetadata](#)
- Knowledge Base: [TeamDynamix](#)

▶ Data Quality

- Data Validation: [MS SQL](#), [Peoplesoft](#), [OpenMetadata](#)

▶ Data Architecture

- Data Dictionary: [OpenMetadata](#)



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Clarity Systems and Processes

- ▶ Data Analytics Training Alliance (DATA) – Power Users’ Group uses a single point of entry for all data requests.
 - DATA Request Ticketing System: [TeamDynamix](#)
- ▶ DWI Team – IR and IT composed of developers and analysts
 - Project Management System: [TeamDynamix](#)
- ▶ Data Science: [Jupyter Notebooks](#), [Python](#)
- ▶ Artificial Intelligence: [GPT4ALL](#) (development scheduled for Summer 2024)

Clarity: The Data and Analytics Portal

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 Home

 Data Governance

 Project Management

 Data Warehouse

 Data Analytics

Welcome to Clarity

The Data and Analytics Portal for UHCL

The University of Houston-Clear Lake (UHCL) implemented its new strategic plan, Impact 2025 and Beyond. "The strategic plan is a real-time roadmap providing guidance and clarity regarding UHCL's priorities, objectives, and overall direction for the next five years and thereafter." One of our objectives is to improve business and academic operations by providing access to 1) a data warehouse and 2) data visualization tools.

Four Key Benefits

1. Achieve cost-effective products by reducing effort on time-intensive and manual processes and procedures. Implementation of BI projects across several divisions is projected to reduce a significant number of person-hours each year.
 - ✓ Human Resources' (HR) mandatory training compliance effort is projected to be reduced by 230 person-hours each year, and the production of daily Strategic Enrollment Management's *Funnel Reports* (previously generated weekly) is projected to reduce effort by 235 person-hours each year.

Four Key Benefits

2. Provides multiple tiers of security.
 - ✓ The HR *Mandatory Training* dashboard uses row-level security to protect against unnecessary disclosure of private training records.
 - ✓ In addition, public data is made available on UHCL's webpage with all the features of our BI tool (drill down, sorting, etc.) replacing static PDF reports with dynamic dashboards while complying with our data security policies at the system and institution levels.



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Four Key Benefits

3. Uniting previously siloed areas
 - ✓ Brought together independent areas of “official reporting” and “operational reporting” (Institutional Research, Strategic Enrollment Management, HR, Finance, Budget) to achieve a one-stop-shop for all data requests by using a single point of entry for data requests.
4. Accessibility and transparency
 - ✓ As tools are brought online, they are made available to the campus community. Training and resources are provided to facilitate buy-in and encourage institutional use.

Key Takeaways

- ▶ Following data management best practices is everyone's responsibility.
- ▶ Executive leadership commitment and support are crucial.
- ▶ Collaboration between IR, IT, and the business and program areas is essential.
- ▶ If used effectively, data management enables organizations to gain predictive insight into their customers, products, and services.
- ▶ Implementing information management and data governance is an organizational change, and change management is critical.
- ▶ Success requires dedicated time and resources.



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Questions & Answers

Questions are guaranteed in life,



answers aren't.



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Thank you

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