

# Gathering Stakeholder Feedback Prior To Designing a New Enterprise Data Warehouse

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# Introductions

- **Your Presenters**
- **Raise your hand if you:**
  - **Work for a 2 Year**
  - **Work for a 4 Year**
  - **Work in IR**
  - **Work in Decision Support, BI, etc.**
  - **Work as Vendor Partner**

# Our Agenda

- **About the University of North Texas**
- **National Perspectives**
- **About the Insights Program**
- **What Led Up To This Need**
- **About the Insights Program**
- **Components of a Successful Process**
- **Deeper Dive into Successful Practices**
- **Key Take-a-ways**

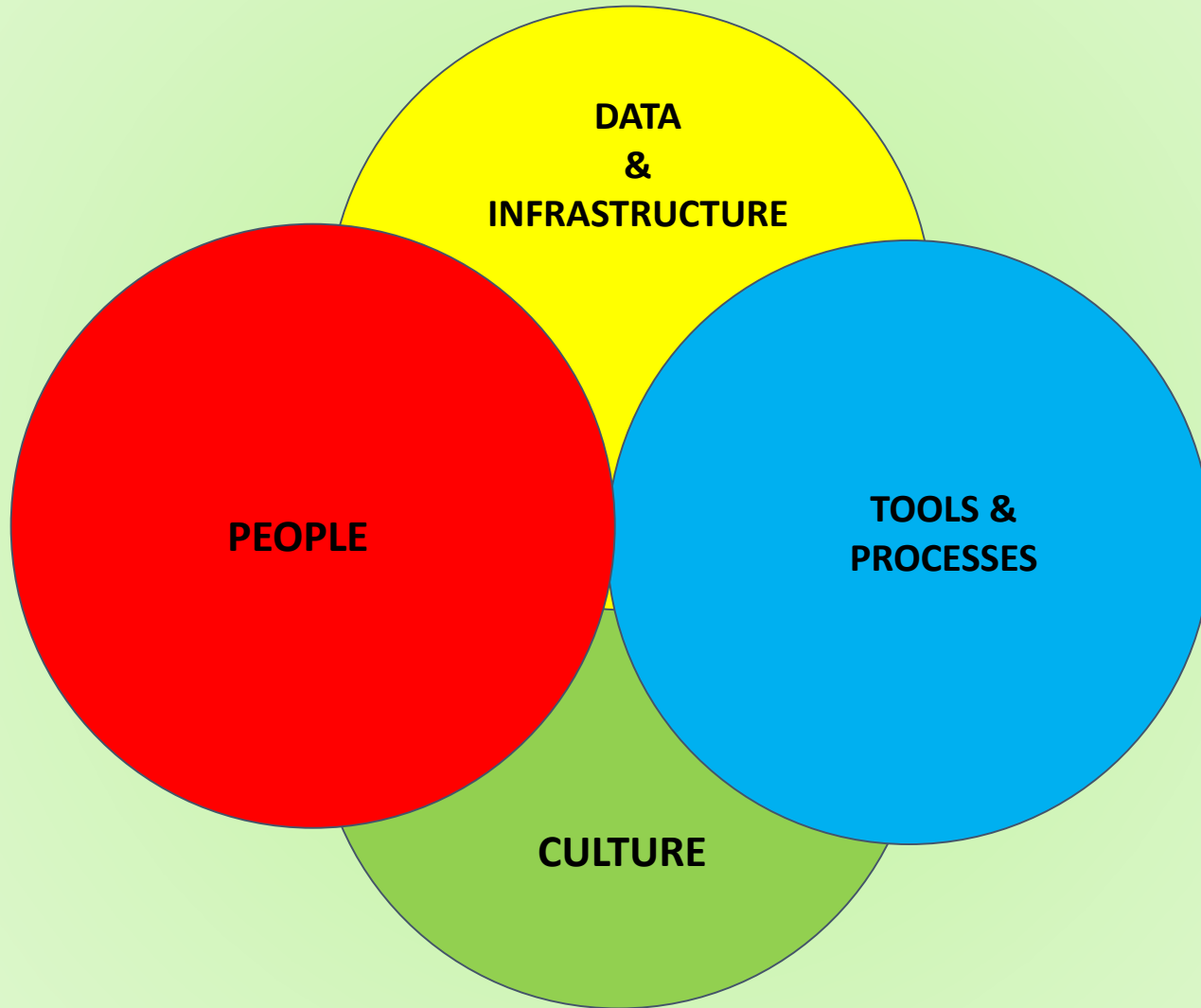
# About UNT & DAIR

- **37,979 Students**
- **79.6% Retention Rate**
- **59.1% Graduation Rate (6 year)**
- **Carnegie Tier 1**
- **Approaching MSI and HSI**
- **1100+ Ad-Hocs a Year**
- **8 FTE (formerly when combined with IE)**
- **11 FTE (after consolidation with Decision Support)**
- **19 FTE (post implementation of new EDW\*)**  
*\*dependent on hiring freeze*

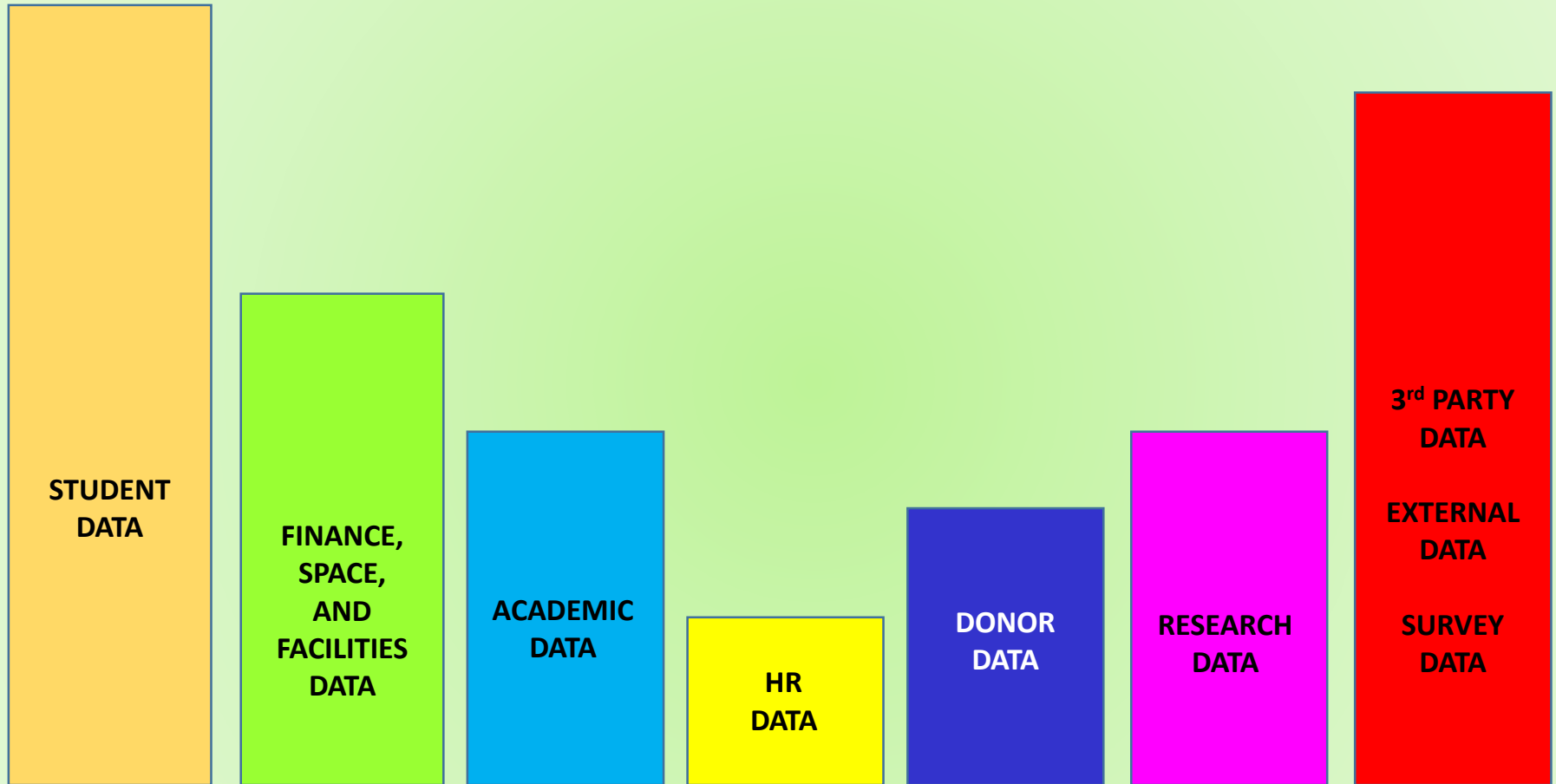
# What Led Up To This Need

- **UNT's data landscape was not optimized for enterprise-level analytics**
- **UNT's utilized fragmented hardware and storage**
- **Departments had chosen their own BI and Analytics tools**
- **Information access within departments were working; sharing/comparing data between departments has created challenges**
- **Each department defines key master data in own way. Difficult to integrate across enterprise**
- **Data governance non-existent. Data dictionaries ill-defined**
- **Data approach is redundant, manual, and focused on very basic delivery of information. Analytics capability non-existent**
- **Data professionals overtaxed and buried by ad-hoc requests**

# The Four Foci of The Future of UNT Data: What Needs to Be Addressed To Get Us To Our Goals



# Current UNT Data Landscape: Look Similar to Your Institution?



# About the program

- President elevated the need for a new data landscape and volunteered to serve as Executive Champion (2015)
- UNT System-Wide workgroup formed to lay a foundation to create a new data warehouse, analytics toolset, and dashboard deployment
- Workgroup consisted of IT professionals, business units, faculty representatives, and occasional consultant participation
- Workgroup evolved as capacity was built and eventually turned into two implementation teams. IR was represented on both.



# Components of a Successful Process

- **Focus Externally, UNT:**
  - Researched into Common Pitfalls
  - Read articles, Whitepapers, and Journal reviews
  - Conducted three best practice site visits
  - Interviewed two additional institutions on the phone
  - Hosted vendor previews and demonstration testing
  - Attended analytic and data warehousing conferences
  - Leveraged professional association research,
  - Networked with colleagues for advice
  - Engaged a EDW consulting firm to help us learn what we needed to consider before starting

# Components of a Successful Process

## Look Internally, UNT:

- Organized a cross-functional team organization
- Re-aligned staff across multiple units
- Completed a Responsible /Accountable /Consult/ Inform (RACI) stakeholder identification
- Conducted a data culture audit with Subject Matter Experts (SMEs)
- Engaged C-Level Leadership to share research findings
- Initiated qualitative research utilizing faculty expertise
- Organized SME/TSME Data Summits
- Invited SME/TSME to vendor demonstrations
- Planned and committed to ongoing IT/Business unit work sessions
- Developed and Deployed roadshows
- Worked with experts on the development of a Decision Tree for staffing
- Organized a specific program charter workgroup
- Conducted a risk assessment with campus audit and data security units

# Digging a Bit Deeper Into Key Practices: Campus Visits

# Gaining Insights From Leading Institutions

- **Committee members visited University of Connecticut, New York University, and University of Washington in Fall, 2015**
- **Evaluated SAS Visual Analytics/Visual Statistics (UCONN), Oracle OBIEE (NYU), and Tableau (UW) as potential analytic solutions**
- **Inquired about campus culture, technical architecture, data security, and ability to develop and deliver robust analytics.**
- **While not the main factor in decision, costs were analyzed as well the need for additional infrastructure to support effort**

# Campus Visits: Sample Questions

## Culture

What are the user adoption rates on the customer/administration sides?

How do you handle differences between functional (IE/IR) users and IT users?

What was the most significant organizational behavior or organization culture barrier you had to overcome?

## People

What was the size of the organization doing the reporting and analyses (Recognizing you will have overlap)?

What types of training do you offer your community on the tools, capabilities, etc.?

Would you be open to sharing with us sample job descriptions for the various roles in your organization?

## Processes

What best practices have you defined for your organization?

What was your biggest mistake you made in this process?

What lessons learned can you share about the data dictionary, its compilation, enforcement, etc.?

## Technology

What analytic tools and technology are being used?

What does the data architecture look like?

What is the organization of the data landscape?

# Campus Visit – Key Learnings

- Executive leadership and sponsorship is key to success
- Free has a large price (and it can be in the millions)
- Find the solution that does work first, then expand
- Be tool agnostic and focus on data structures first
- The effort takes more than just technology to be successful
- Best results are observed when IT, IR, and the end users work together
- IT should not be developing in a silo
- The end users (working with SMEs and IR) should develop the Dashboards, Reports and Analytic Models
- Once the data is available and validated the reports are quick
- Freeing the data will yield dividends
- Official data vs. Transactional data need to be accounted for

# Campus Visits Solidified Provider

- Clear advantage emerged for SAS VA/VS as this offering provided advanced capabilities in forecasting, prediction, and data modeling
- Wanted a single source solution that would allow us to seamlessly blend modeling and visualization work in same space
- SAS VA/VS enables UNT System and components to leverage 15+ years of pre-existing SAS programming
- SAS also provided a soup-to-nuts approach including data governance tools and data integration software
- SAS provided consulting service hours across a broad range of program deliverables

# **Digging a Bit Deeper Into Key Practices: Faculty Led Stakeholder Interviews and DAIR Led SME Focus Groups**



# Collaborative Decision Making Process

- **Committee engaged faculty from UNT Department of Anthropology to conduct over 25 interviews with a broad array of key stakeholders in senior leadership positions across the UNT System and component campuses. IRB approved study.**
- **Committee members engaged Subject Matter Experts (SMEs) from across UNT Dallas and UNT Denton in a series of discussions designed to provide insights on opportunities and challenges related to the data landscape**
- **Committee members invited SMEs to all three vendor presentations for the analytics solutions and solicited feedback via online survey tools**
- **IT committed a dedicated Project Manager to work with the program and the Business Unit**

# UNT Dept. of Anthropology Interview Sample Items:

In regards to your work at/with [Institution name] what are your primary responsibilities?

What are your information needs to fulfill those responsibilities?

Who are the people or units you go to, or rely on, for the information you need?

What are the major challenges in doing your job because of issues with information/data?

Describe one or more information or data sources at UNT you have used that have not been of the quality or utility you need for your work?

Describe one or more information or data sources at UNT you have used that you consider good examples of what you would like for all your work needs.

*(1) FINAL REPORT: Phase One User Research For Data Warehousing/Analytics/Dashboards (D.A.D.) Initiative. Presented to the D.A.D. Core Team. Authors Christina Wasson and Heather Roth Please do not use or reproduce without permission from Study Authors.*

# Senior Leaders – Key Learnings

- Looking for solutions across stand-alone data sources that transcend traditional information silos
- Desiring ability to forecast, predict, and test use-cases
- Expressing concerns about our current pain points<sup>(1)</sup>:
  - Information siloes
  - uncertainty about data reliability and whether data were used correctly
  - the high number of ad hoc requests
  - shortage of staff with appropriate technology skills
- Responding to enrollment, financial, and overall institutional indicators of health needs

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# What We Did We Ask SME Focus Groups?

- In regards to your work at/with [Institution name] what are your primary responsibilities?
- What are your information needs to fulfill those responsibilities?
- Who are the people or units you go to, or rely on, for the information you need?

# Attendees Completed a SME Frustration Index

## FRUSTRATION INDEX

The Data Analytics and Dashboard Initiative is tasked with addressing the need to improve the data landscape across the UNT system. Please share with us your frustrations below by marking the appropriate bubble below. Please note that this is anonymous.

**In thinking about the data you need to do my job at UNT how frustrated are you with the following data elements?**

ITEM	Never a Frustration	Somewhat a Frustration	Growing Frustration	Consistent Frustration	N/A
The data have not been collected.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
I don't know where the data are located.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
I don't know who owns or has the data.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
I don't know if the data are actually in our possession.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
I don't know when the data are pulled/refreshed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
I don't know if I'm processing the data correctly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
I don't know if the data are accurate.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
If I own the data, I don't have the time to validate it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

# SMEs – Key Learnings

UNT SMEs and Data Advocates Frustration with UNT Data



SCALE: 1 (Never a Frustration), 2 (Somewhat a Frustration), 3 (Growing Frustration), and 4 (Consistent Frustration)

# SMEs Provide Feedback:

Findings from UNT Denton<sup>(2)</sup> & UNT Dallas<sup>(3)</sup>

- Desire centrally trusted tool that is drillable and customizable
- Tool should produce automated reporting of department and institution-wide data
- Historic data needed in Hadoop for comparative reporting (10+ years)
- Tool should be online and cross platform capable
- Tool should have capabilities to define data points to eliminate confusion about data veracity and source
- Tool should be supported by trainings
- Tool should have role-based permissions
- SMEs overwhelmingly concerned about capacity and how to devote time to validate data

*(2) UNT Denton Subject Matter Expert Data Discussion: FINDINGS AND ANALYSIS, January, 2016*

*(3) UNT Dallas Subject Matter Interviews with SMEs, January, 2016*

# Digging a Bit Deeper Into Key Practices: Program Support Planning Tools



# Develop a Plan Up Front

## Visual Analytics Deployment

- Vendor Contracted
- Hadoop Environment Developed
- Data Integration and Linkages
- Data Models Developed
- SAS VA/VS Training DAIR & UNTD IR Teams
- Initial Analytics Deployed
- Training Launches for Campus SMEs
- Trusted Analytics Delivered by SMEs
- Additional Analytics Deployed by DAIR to answer strategic questions

## Technical Infrastructure

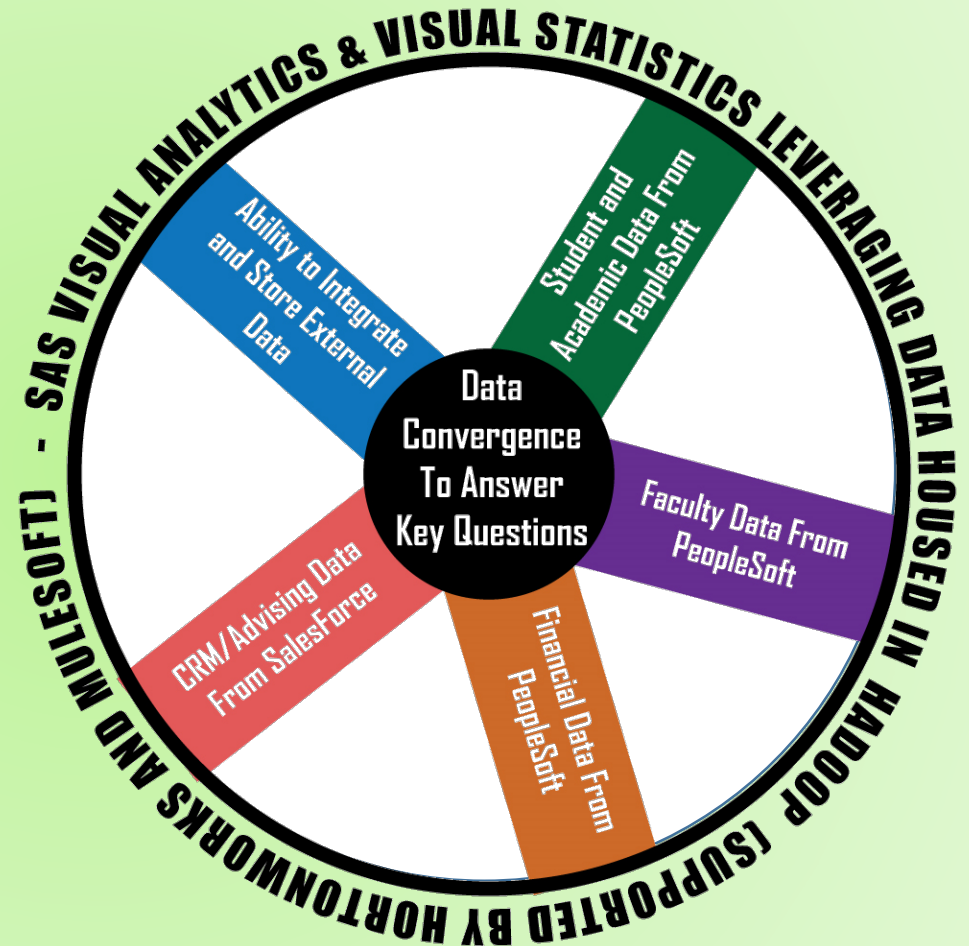
- Define The High Level Needs
- Interview Vendors
- Construct List of Software and Hardware Needs
- Create Architecture Diagram Of New System At UNT
- Define Final Solution with Vendors
- Issue PO's
- Install Software and Hardware
- Beta Test Solution
- Release Solution to Production

## Data Governance

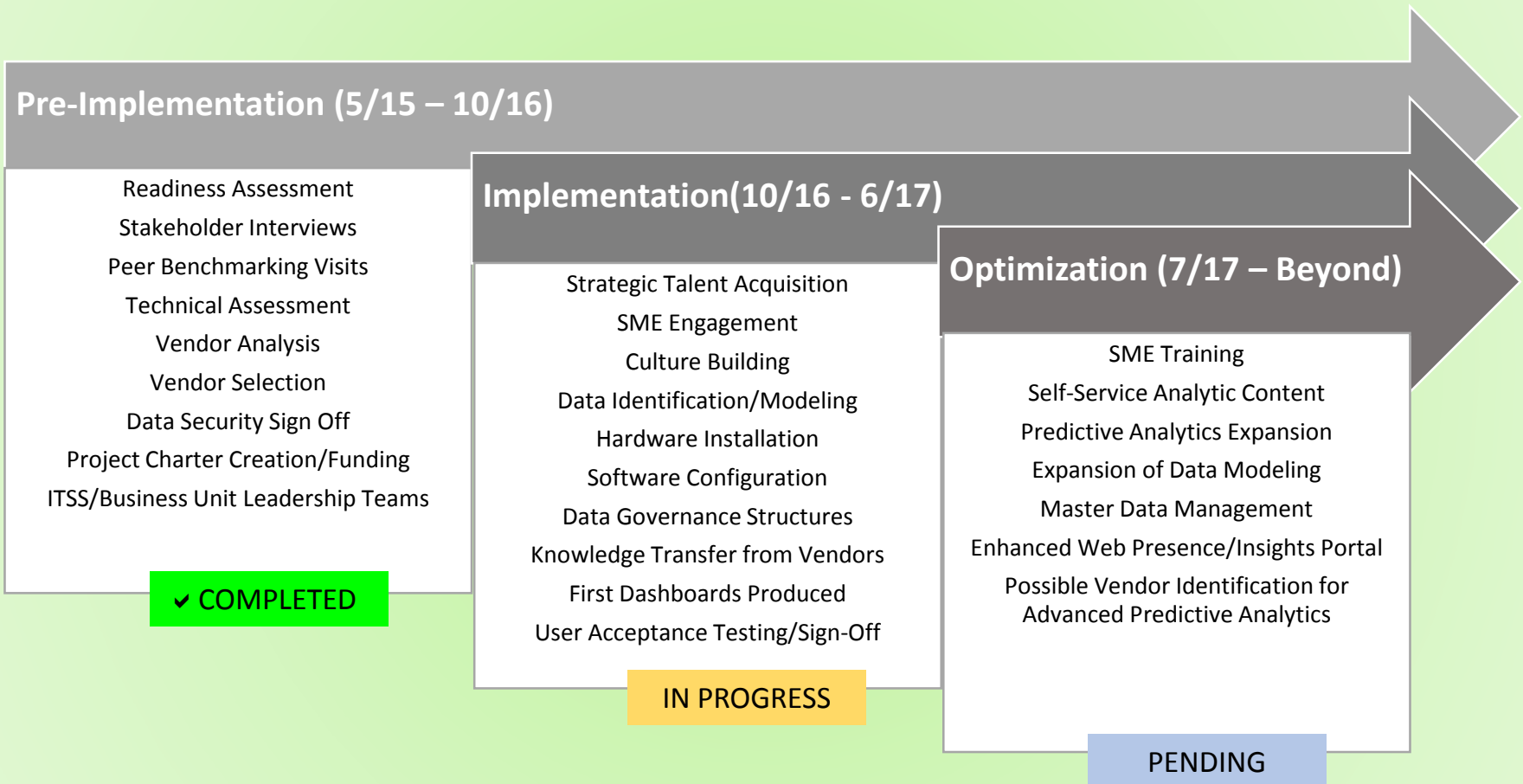
- Data Governance Consultants Engaged
- System DG Workgroup Forms
- DG Consultant Work Week
- DG System Policy Developed
- Campus DG Workgroup Forms
- Campus DG Work Week Launched
- Campus Procedures
- Ongoing DG Workgroup Meets
- Policies and Procedures Evolve As Needed

Data Security Protocols Managed, Trainings, and SME Data Validation Occurs Often and Regularly Across Both Cycles

# Where Are We Heading?



# Measure Your Progress



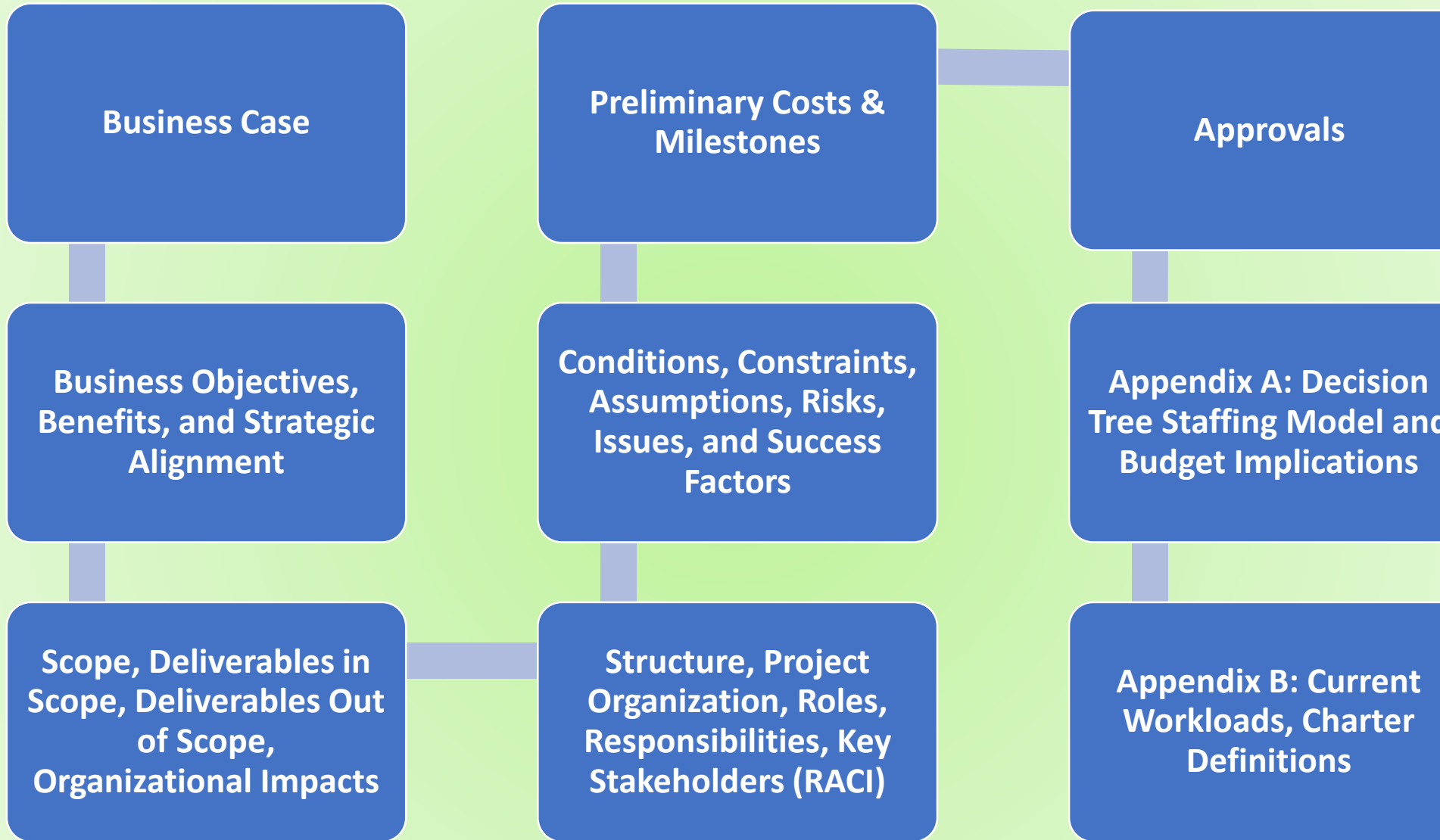
# Cement Scope in Key Findings

- 1. How is institutional progress being achieved on strategic priorities in enrollment, graduation and retention (admissions funnel through graduation)?**
- 2. Who are our students/constituents and what are they enrolled in (measures of academic engagement, usage, progress, and challenges)?**
- 3. How can the institution leverage a better understanding of the relationship between overall operational costs and semester credit hour generation (budget integration / investment across areas)?**

# Communication Planning



# Create a Successful Program Charter



# In Summary: Key Learnings Up To This Point

- Recognize this is a massive undertaking requiring significant time on task (in addition to current workload)
- Weigh approaches that fit with your campus culture – there is not a one size fits all process
- SME involvement requires constant care and feeding
- Ensure you have executive champions and buy-in
- Leverage your Charter to guard against scope creep
- Be up front if you lack critical skill roles
- Explore AGILE, SCRUM, or other project management styles
- Put your potential vendors through their paces
- Hiring takes time – more than you think
- Put your feelings on the side to focus on your goals

# Q&A