

Data Warehousing & Analytics for Peer Benchmarking Data

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Dan Hubbard, Director, Data Management



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About Dan

- Responsible for leadership and implementation of data governance, data management, analytic development, and training involving internal and external data resources at UNT.
- Helps manage Insights, UNT's comprehensive data warehousing, analytics, and governance Program.
- Holds a Bachelor's degree in Psychology, Master's Degree in Cognition and Neuroscience, and a Ph.D. in Cognition and Neuroscience from UT Dallas.







About Allen

- Responsible for providing new user training for the Insights 2.0 program, supporting data governance and data management processes. Responsible for developing external benchmarking developing analytics for Insights and UNT leadership.
- Holds a Master's degree in Advanced
 Data Analytics from UNT and a Bachelor's
 degree in International Development and
 Humanitarian Affairs from UNT.



- **►** Located in the DFW Metroplex
- ➤ 44,405 students (F22)
- **≥** 237 academic programs (89 in Nation's Top 100)
- ➤ 36% students are Pell eligible
- **▶** 37% students utilize federal unsubsidized loans
- **►** Carnegie R1 Hispanic Serving Research Institution
- ► 54.3% non-white
- ► 6.6% International
- ► Awarded 10,500+ degrees last year
- **▶** Record growth in enrollment
- **▶** Peoplesoft & Salesforce campus

About | DATA, ANALYTICS, & INSTITUTIONAL RESEARCH

- ▶ 12 amazing professionals across IR, Data Modeling, & Data Management
- ► Launched Insights program in 2017, Insights 2.0 launched in 2020
- **► 2019 CIO 100 Awardee**
- ► 1200 users, 1100 terms, and 22 analytic products
- ► Leverages SAS Viya, BDN, DIS, EG



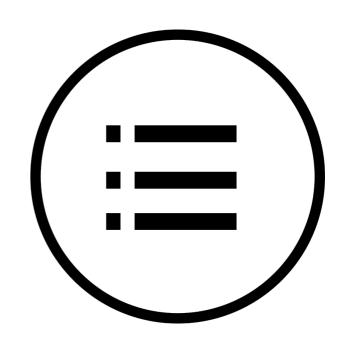
Overview

Peer Benchmarking Challenges

Categories of External Data Available

3 UNT Data Collection and Processing

Data Management Steps





- User interface
- Variety of formats
- Measurement issues
- Consistency
- Finding comparison is difficult
- Benchmark looks backwards, not forward (narrow perspective of action)
- Guiding how to use Benchmarks to support decision making

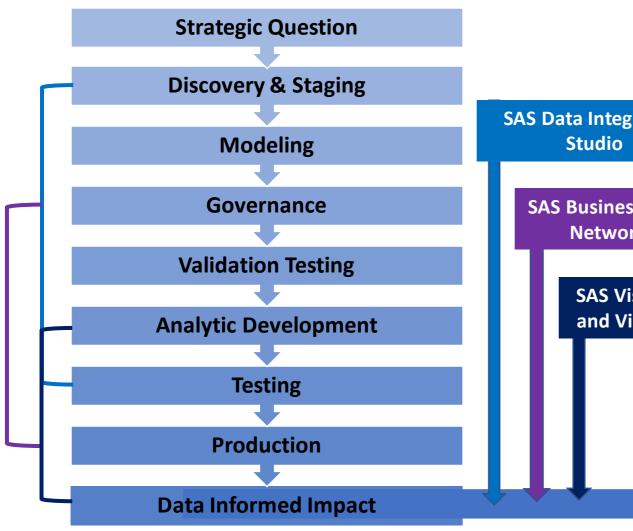


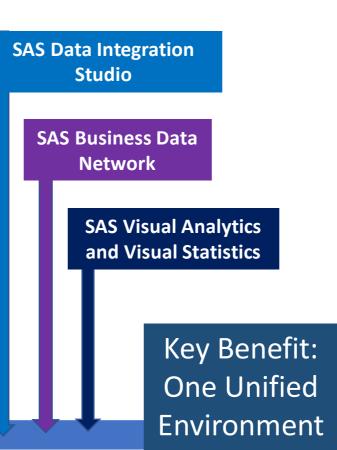




Data Collection and Processing











UNT Insights



Insights is a comprehensive approach to data warehousing and predictive analytics.

Insights data is accessible using a web-based dashboard software called SAS Visual Analytics.

Current Dashboards:

Admissions (security role required)

Admissions Funnel

Admitted, Enrolled Elsewhere

Card Swipe

Degrees

Enrollment by Section

Enrollment Comparison (2)

Faculty

Grade Distribution

Graduation Rates (3)

IPEDS

Retention (2)

Semester Credit Hours

Student Demographics

Student Enrollment Patterns

THECB Almanac (2)

THECB HS to College

THECB Majors by CIP



Encumbrance Management (security role required)*
Payroll (security role required)*

^{*}Available by special request/training

Welcome to Insights 2.0. With over 1,000 trained campus users, data.unt.edu is designed to be your gateway to data-informed decision making. The icons below will take you directly to the data you need to help you with your questions. We encourage you to visit often as we are constantly adding new products and features to assist our user community. The entire DAIR team and developer partners look forward to hearing about your success stories leveraging the insights below.

FLY HIGH - BE SURE TO VPN PRIOR TO LAUNCH

Please note you must download the Cisco AnyConnect VPN client to access Insights 2.0 dashboards from off-campus locations.

Click here to download Cisco AnyConnect

Admissions Dashboards









UNT External Dashboards



External Dashboards



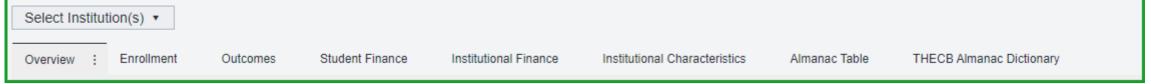
THECB Almanac



The THECB Almanac dashboard contains five years of institutional and peer comparison data supplied by the Texas Higher Education Coordinating Board (THECB). All public higher education institutions in Texas are required to submit THECB Almanac data to the THECB regarding enrollment, student outcomes, student and institutional finance and institutional characteristics. The THECB Almanac dashboard allows the user to self-select institutions of interest for comparison on a variety of important institutional measures. For all tabs, UNT, UT Arlington and UT Dallas are shown by default, but the user can select any comparison institution(s) by clicking on the "Select Institution(s)" drop-down on the top right portion of the screen.



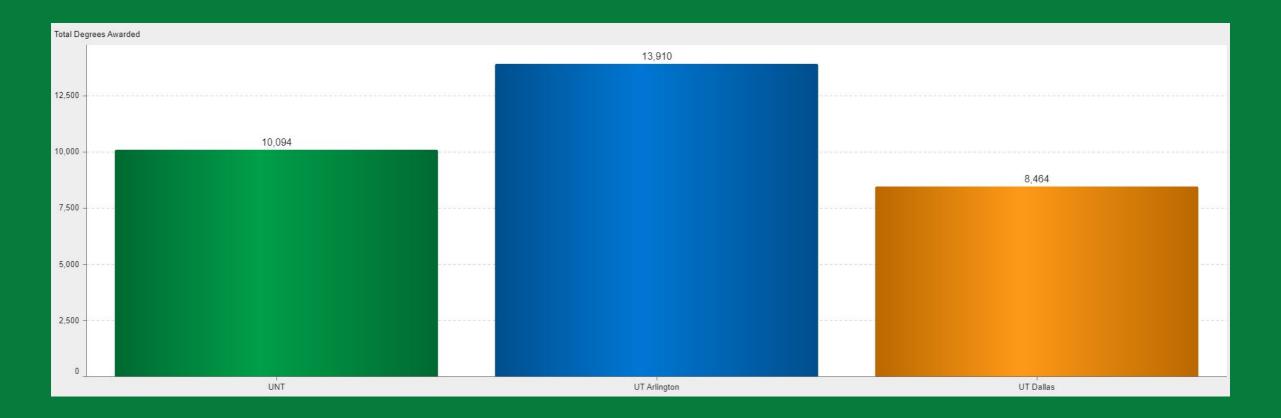


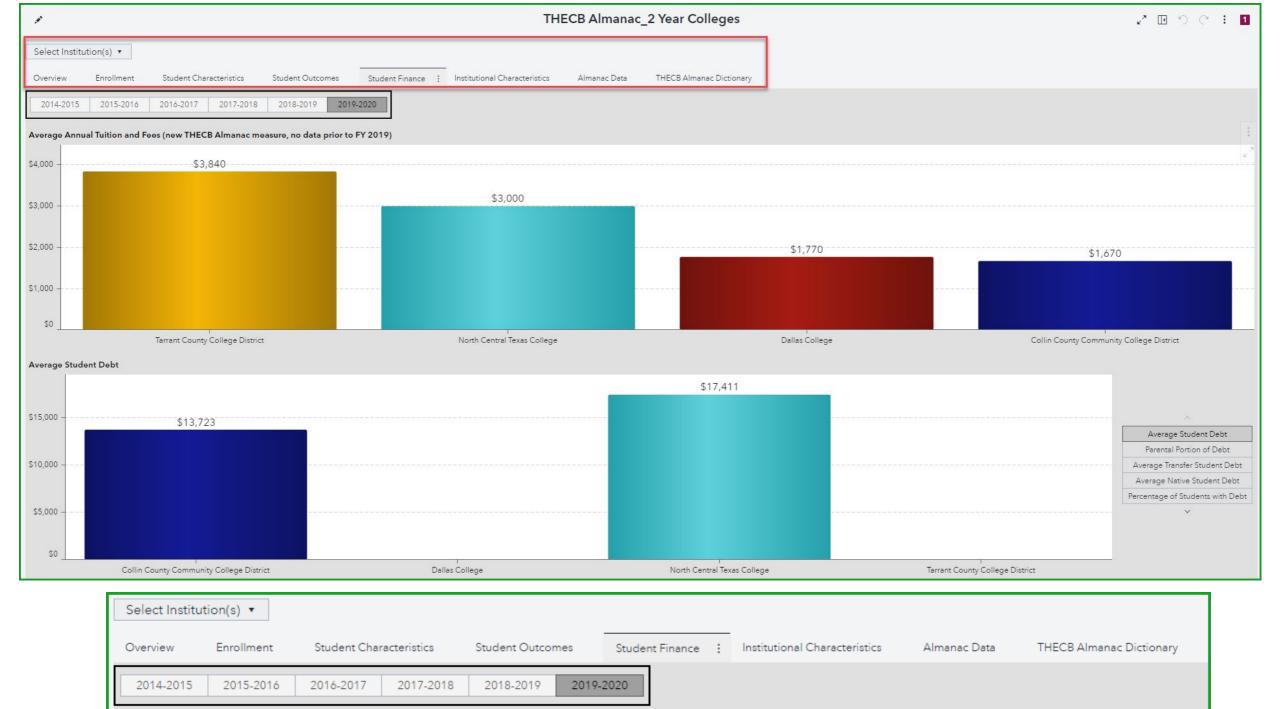




2020 - 2021 Outcomes

Total Degrees Awarded





IPEDS



The IPEDS dashboard contains openly available public data on all institutions in the US. IPEDS data are submitted at the aggregated-level from postsecondary institutions and do not include student-level information. Institutions submit data through 12 interrelated survey components about general higher education topics for 3 reporting periods (Fall, Winter and Spring). The publicly available data is updated annually. The data from IPEDS years 2013 through the most current are available.





Integrated Postsecondary Education Data System



This dasboard is updated annually. The Current Data Year is 2020.

The data is updated on an annual basis, and depends on the availability of data from National Center for Education Statistics (NCES) / Integrated Postsecondary Education Data System (IPEDS) Data Center website. All annual data is a snapshot of institutions in their Fall semester.

Peer Enrollment Trending - We can find enrollment data and track trends in peer enrollment patterns.

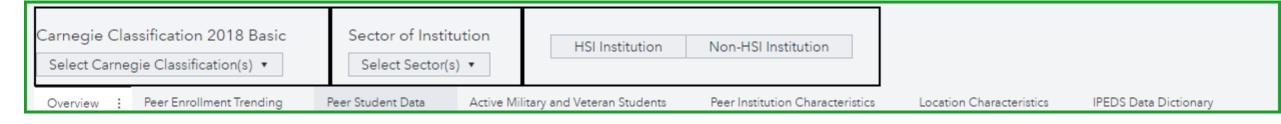
Peer Student Data - This page contains test scores, degrees, and retention data

Active Military and Veteran Students - We can find data on students in military or previously served in the military.

Peer Institution Characteristics - Institution characteristics include tenure faculty, tenure-track faculty staff numbers.

Location Characteristics - Map of all institutions, congressional districts, urbanization, and Bureau of Economic Analysis regions

IPEDS Data Dictionary



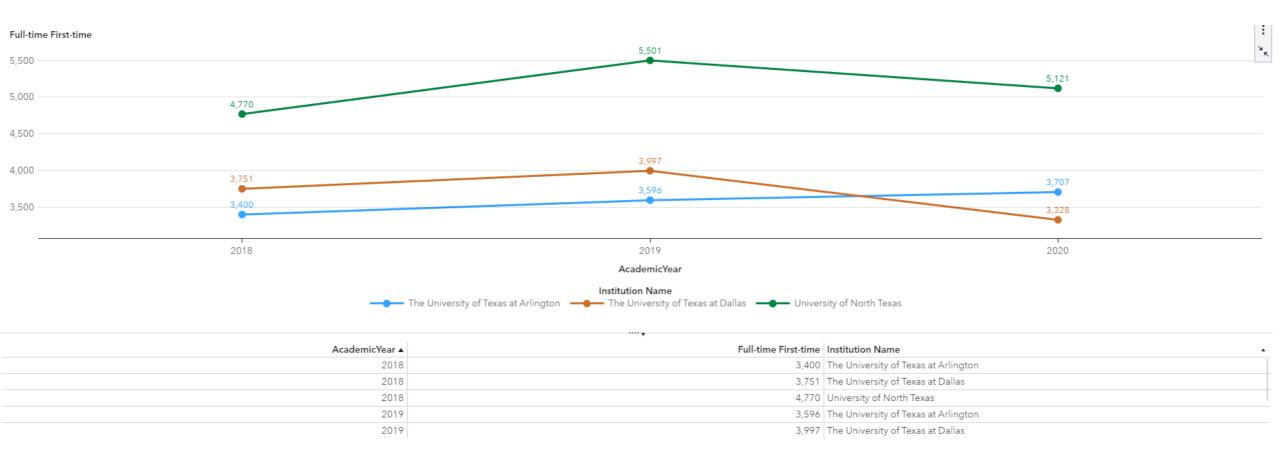
IPEDS





UNIVERSITY OF NORTH TEXAS*

Full-Time Students, First Time in College



High School to College Dashboard



This dashboard focuses on the enrollment patterns of Texas high school graduates enrolling at UNT and other state universities/colleges in the fall term following their year of graduation. It employs data produced by the Texas Higher Education Coordination Board, which can be found

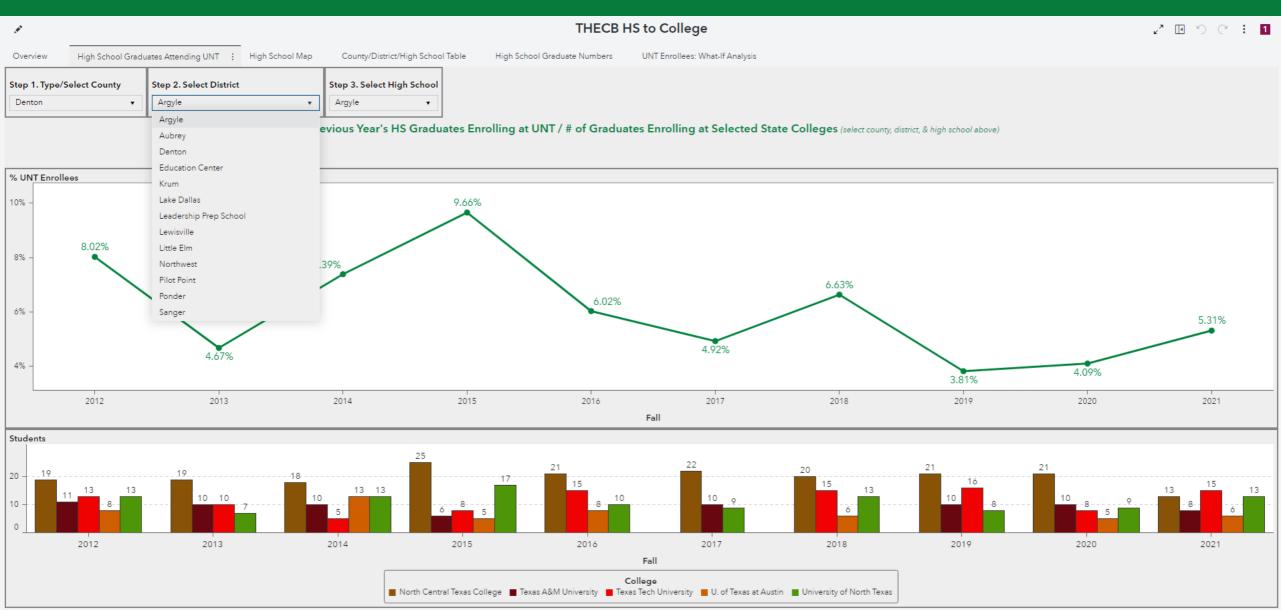
at http://www.txhighereddata.org/index.cfm?objectid=DE7B0990-D970-11E8-BB650050560100A9. Please note that the coordinating board includes only high schools with more than 25 graduates; for this and possibly other reasons, not all counties and/or school districts are included. Additionally, individual colleges are only delineated when the number of attending students is greater than or equal to five. This reporting restriction will have a small impact on some of the calculations displayed in the dashboard; college percentages will not be available in these cases.





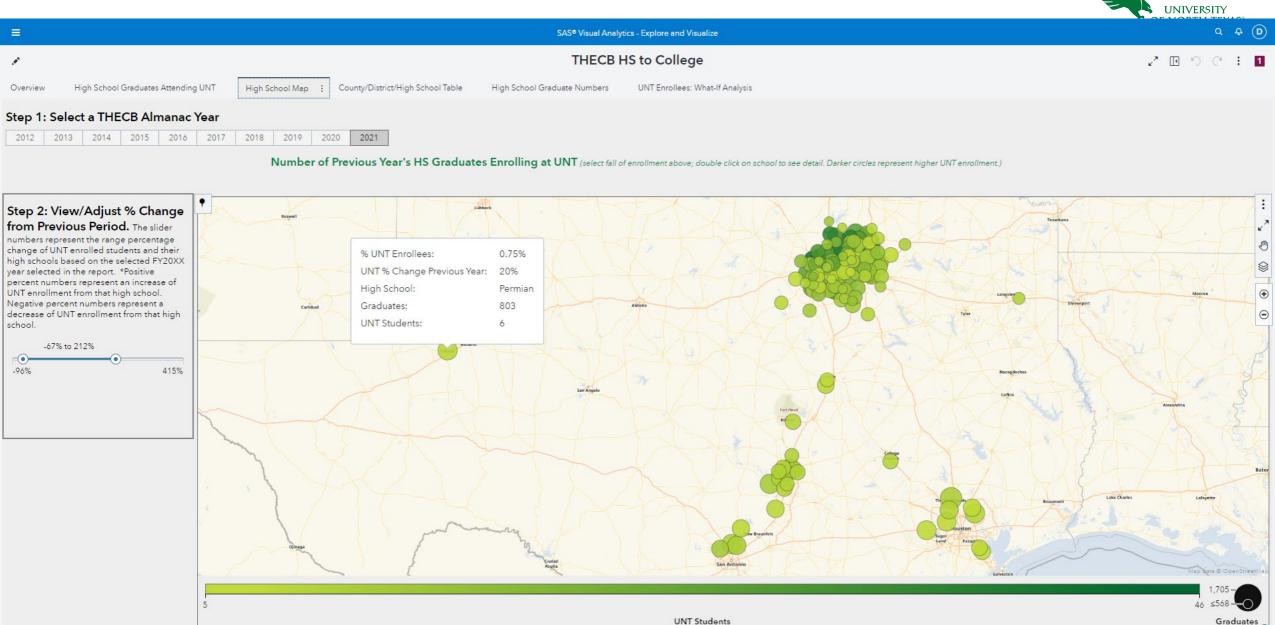
High School to College





High School Map





THECB Majors by CIP



TEXAS HIGHER EDUCATION COORDINATING BOARD REPORT ALL COLLEGE MAJORS BY CIP IN TEXAS

The THECB Majors by CIP dashboard is designed to help UNT leadership compare majors at the CIP code level to in-state Texas peers. These data provide an opportunity to assess UNT's program offerings compared to our peers as reflected in the number of declared majors reported to the THECB. Ultimately this dashboard answers the following questions:

How do distributions of UNT majors by CIP compare to other institutions around the State?

In a head-to-head comparison, how does UNT compare to a selected competitor in Majors by CIP?

What programs are seeing increasing interest by students? What programs are experiencing decreases in interest?

What programs represent opportunities for strategic investment/growth? What programs may be reaching saturation?

Please note: These data are publicly available via the 60x30xTX.com website.

DAIR has ingested these data into Insights to aid analysis in an enhanced presentation format.

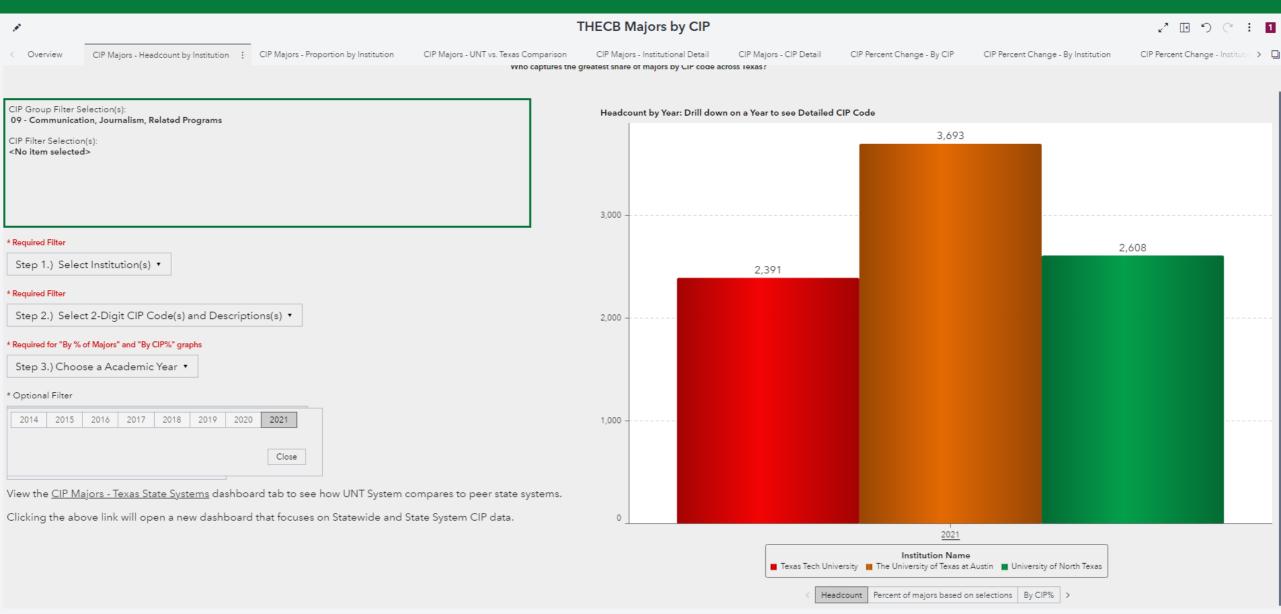
These data are THECB records that indicate the primary major via the CBM001.

The data is updated once per year and collected after Summer enrollment is updated for the academic year.



CIP Majors – Headcount by Institution





CIP Percent Change – By Institution



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≡					SAS® Visual Analytics - Ex	plore and Visualize					Q	4 D
/ THECB						Najors by CIP						: 1
< □P Majors - Headcount by I	nstitution CIP Majors - Propo	rtion by Institution	CIP Majors - UNT vs. Texas (Comparison (CIP Majors - Institutional Detail	CIP Majors - CIP Det	tail CIP Percent Change - By	CIP Perc	ent Change - By Institution	CIP Percent Change - I	nstitution CIP Treemap	> □
Institutions						Choose CIP Groups						
Pick Institutions (Statewide C	Optional) ▼					Pick CIP GROUPS •	•					
Right click a column header to sort the Major by CIP Annual Growth.												
Academic Year ▲			2018		2019		2020		2021		Total	
InstName 🔺	CIPGroupDesc ▲	rollment Total	1-yr % Change (Annual Growth by %)	Enrollment Total	1-yr % Change (Annual Growth by %)	Enrollment Total	1-yr % Change (Annual Growth by %)	Enrollment Total	1-yr % Change (Annual Growt by %)	h Enrollment Total	1-yr % Change (Annual by %)	Growth
University of North Texas	05 - Area, Ethnic, Cultural, and Gender Studies	6	200.00%	9	50.00%	10	11.11%	22	120.009	% 49		
	49 - Transportation and Materials Moving	42	35.48%	42	0.00%	44	4.76%	46	4.559	% 341		
	44 - Public Administration and Social Service Professions	483	24.16%	535	10.77%	565	5.61%	529	-6.379	3,691		
	04 - Architecture and Related Services	234	23.16%	217	-7.26%	202	-6.91%	221	9.419	% 1,621		
	27 - Mathematics and Statistics	408	9.97%	437	7.11%	511	16.93%	520	1.769	3,344		
	38 - Philosophy and Religious Studies	128	9.40%	102	-20.31%	111	8.82%	125	12.619	% 904		
	03 - Natural Resources and Conservation	28	7.69%	26	-7.14%	27	3.85%	29	7.419	% 228		
	15 - Engineering Technologies and Engineering-Related Fields	514	3.21%	475	-7.59%	500	5.26%	509	1.809	3,965		
	42 - Psychology	2,032	2.78%	2,265	11.47%	2,509	10.77%	2,808	11.929	17,013		
	50 - Visual and Performing Arts	3,789	2.16%	3,977	4.96%	3,988	0.28%	3,865	-3.089	29,926		
	19 - Family and Consumer Sciences/Human Sciences	259	1.97%	226	-12.74%	239	5.75%	210	-12.135	% 1,990		
	51 - Health Professions and Related Programs	930	1.86%	967	3.98%	974	0.72%	976	0.219	7,566		

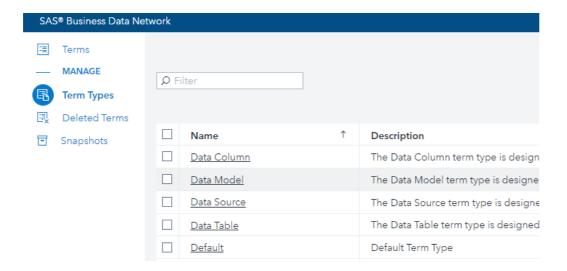
View the system trends on the <u>CIP Percent Change - By System</u> dashboard tab to see how UNT System compares to other state systems. Note: Clicking the above link will open a new dashboard that focuses on Statewide and State System CIP data.

Data Management Steps

Data Architecture



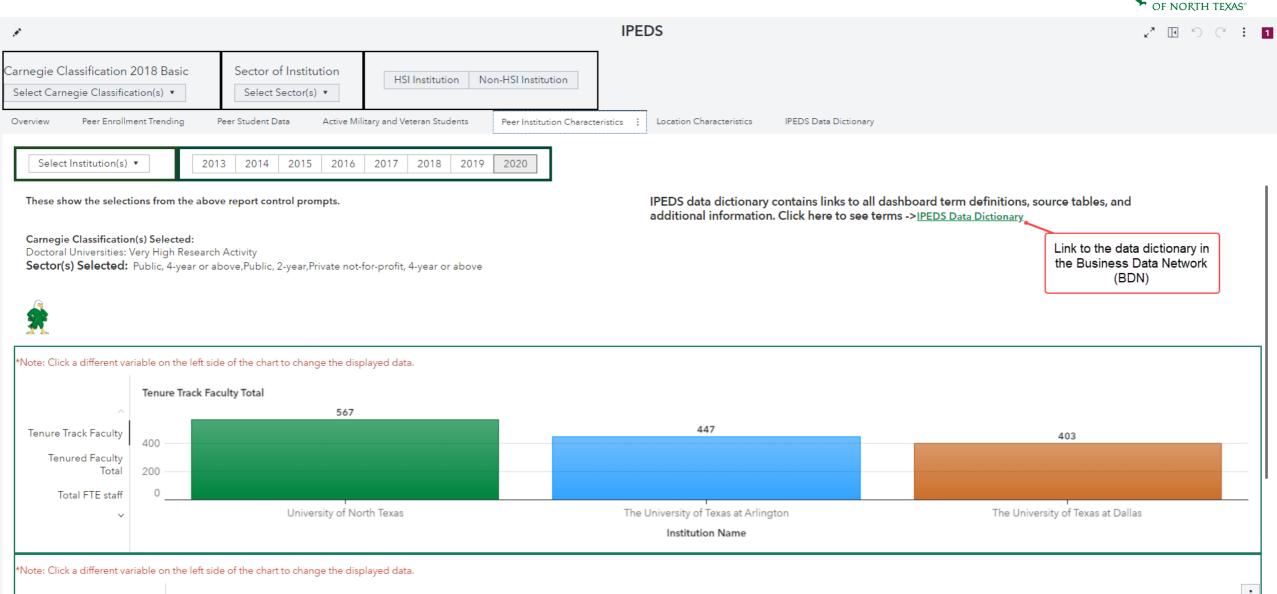
Data Integration
Data Modeling
Data Storage
Data Catalogs
Data Processing
Data Governance
Data Lifecycle Management
Data Pipelines – ETLs
Data Security
Data Security





Link to Data Dictionary





Data Dictionary Page





Percent of graduate enrollment that are Black or African American

Percent of graduate enrollment that are Hispanic/Latino

Percent of graduate enrollment that are Native Hawaiian or Other Pacific Islander

Percent of graduate enrollment that are Nonresident Alien

Percent of graduate enrollment that are Race/ethnicity unknown

Percent of graduate enrollment that are two or more races

Percent of graduate enrollment that are White

Percent of graduate enrollment that are women

<u>Percent of total enrollment that are American Indian or Alaska Native</u>

Percent of total enrollment that are Asian

Percent of total enrollment that are Asian/Native Hawaiian/Pacific Islander

Percent of total enrollment that are Black or African American

Percent of total enrollment that are Hispanic/Latino

Percent of total enrollment that are Native Hawaiian or Other Pacific Islander

Percent of total enrollment that are Nonresident Alien

Percent of total enrollment that are Race/ethnicity unknown

Percent of total enrollment that are two or more races

Percent of total enrollment that are White

Percent of total enrollment that are women

Percent of undergraduate enrollment that are American Indian or Alaska Native

Percent of undergraduate enrollment that are Asian

Percent of undergraduate enrollment that are Asian/Native Hawaiian/Pacific Islander

Percent of undergraduate enrollment that are Black or African American

Percent of undergraduate enrollment that are Hispanic/Latino

Percent of undergraduate enrollment that are Native Hawaiian or Other Pacific Islander

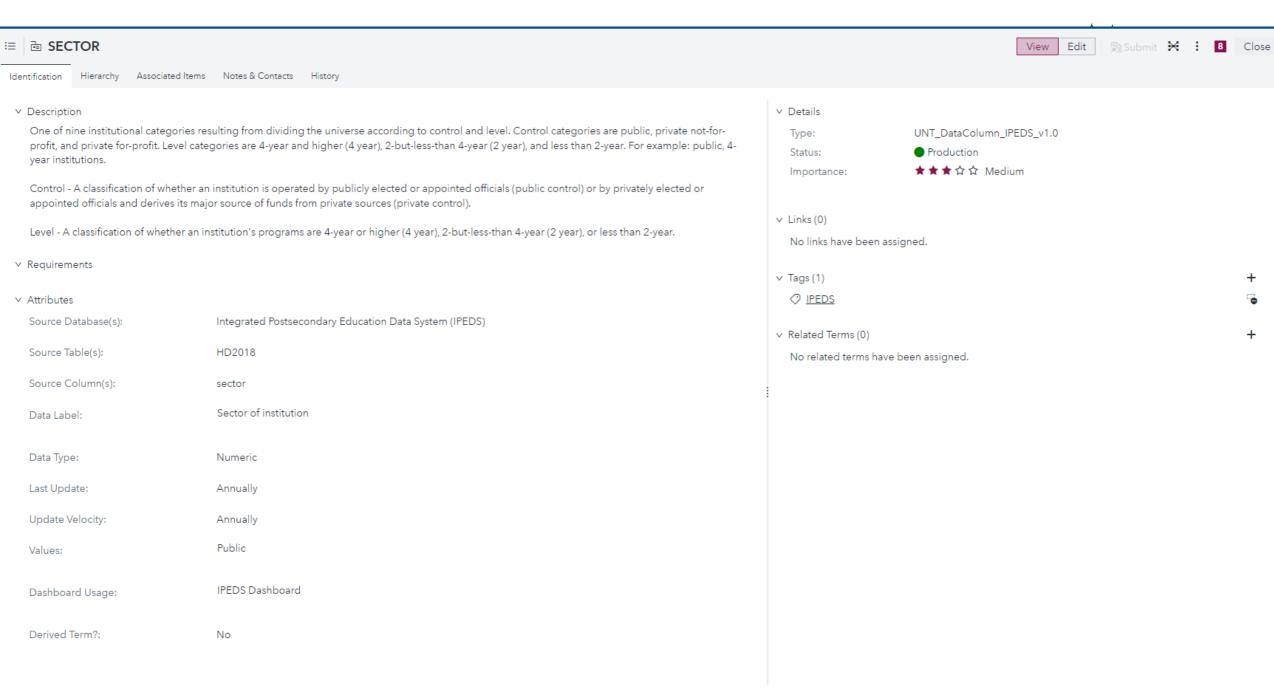
Percent of undergraduate enrollment that are Nonresident Alien

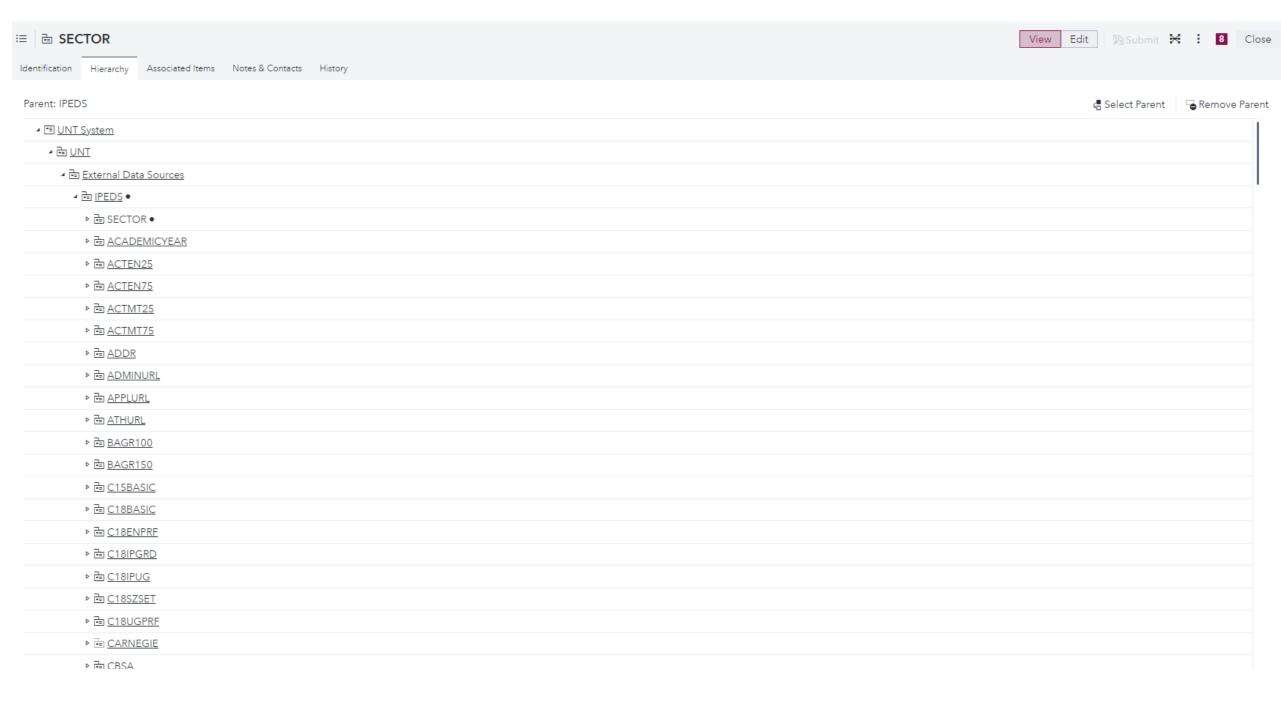
Percent of undergraduate enrollment that are Race/ethnicity unknown

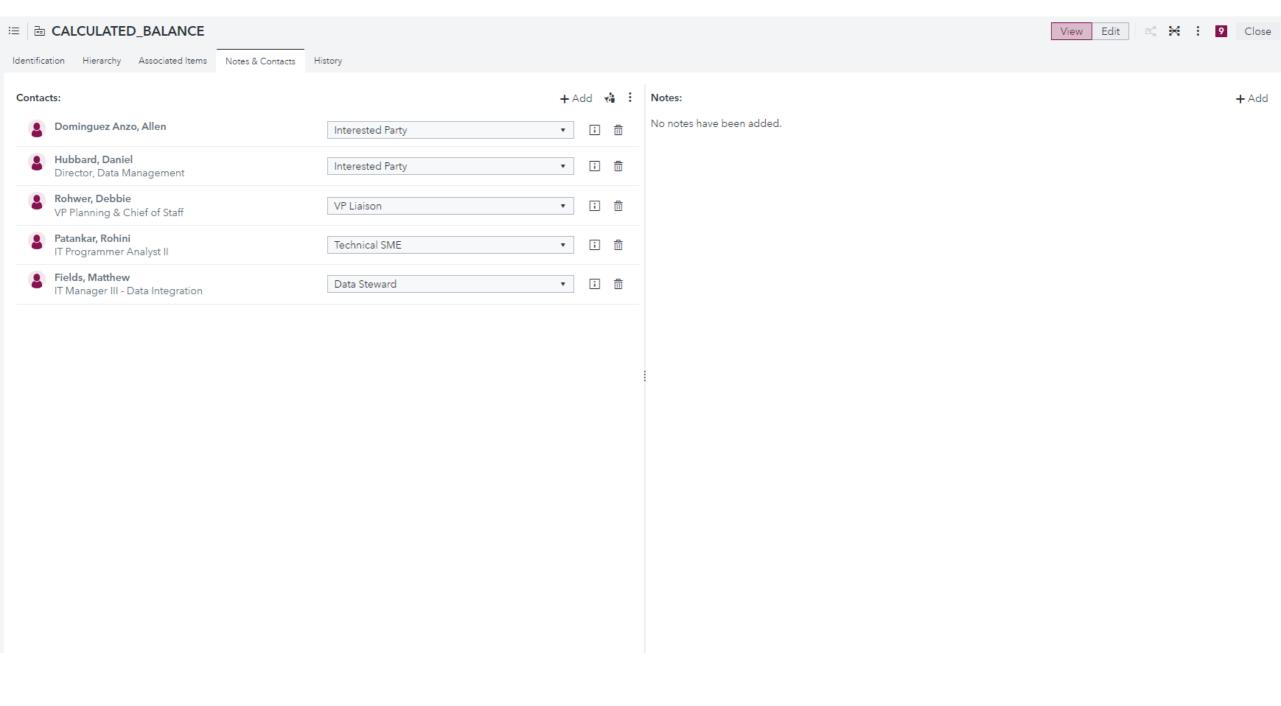
Percent of undergraduate enrollment that are two or more races

Percent of undergraduate enrollment that are White

Percent of undergraduate enrollment that are women SAT Evidence-Based Reading and Writing 25th percentile score









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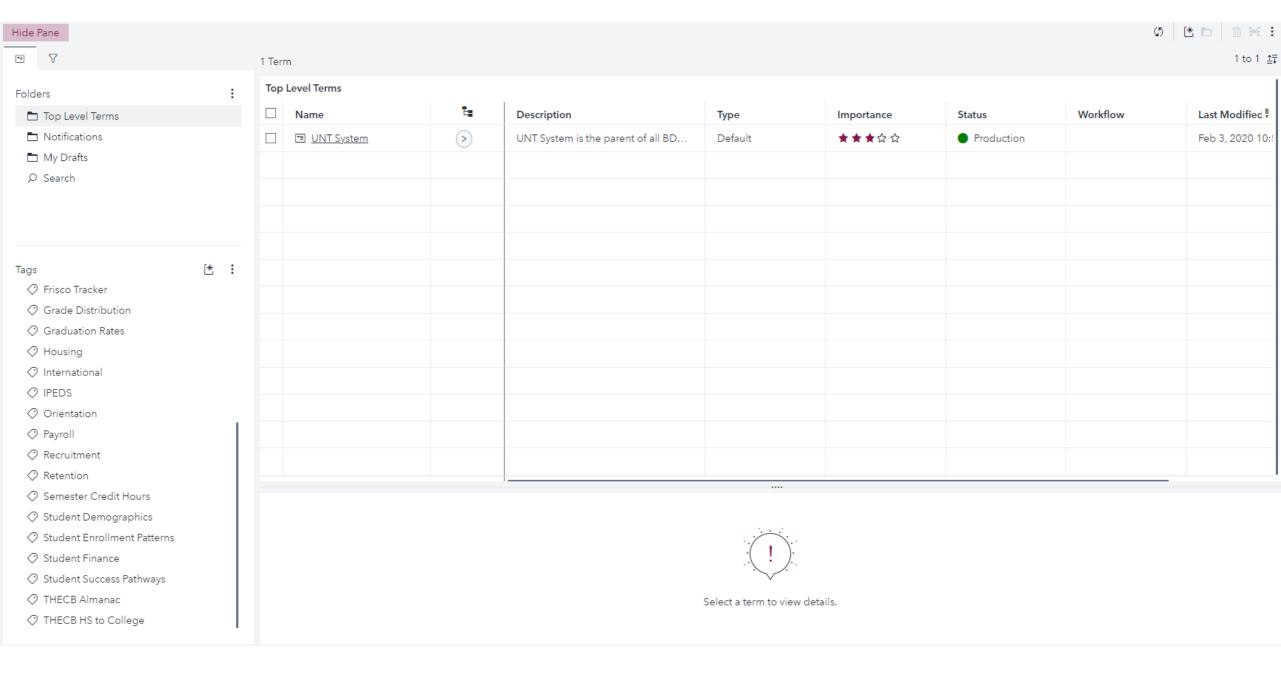
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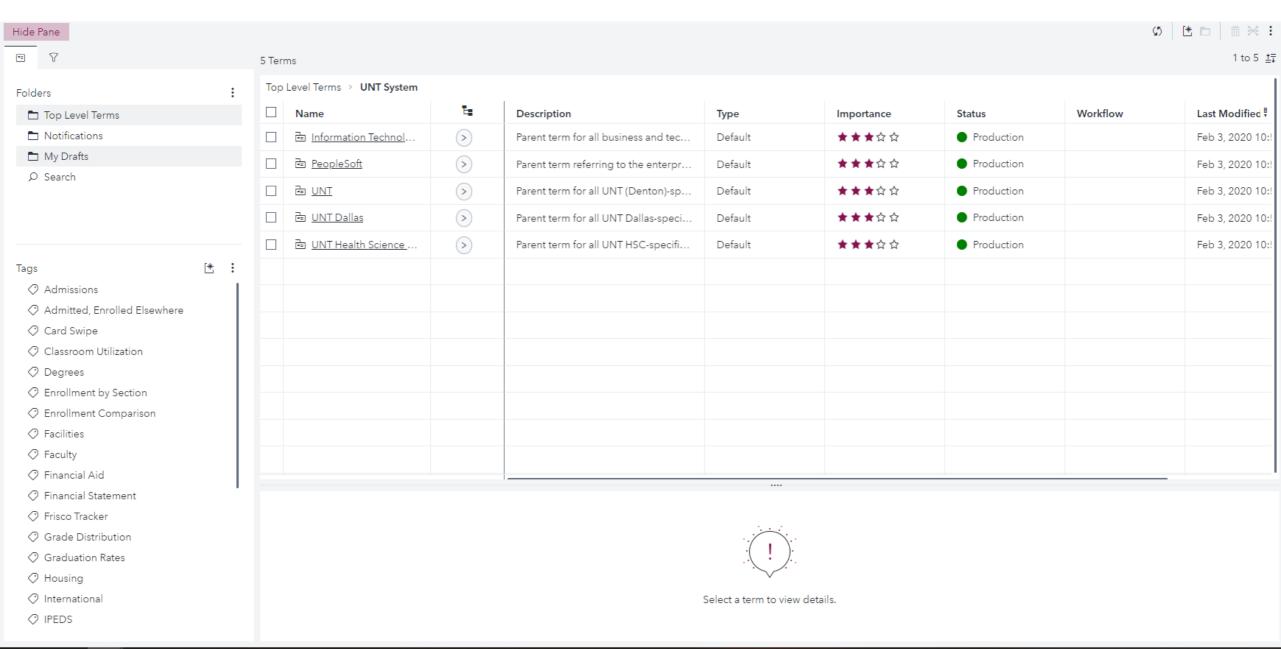
Identification Hierarchy Associated Items Notes & Contacts History

Date created: May 11, 2021 04:46 PM Last modified: Jul 30, 2021 01:55 PM

Modified by: Hubbard, Daniel

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Version ↓	Archive Date and Time	User	Details
3 (current published)	Jul 30, 2021 01:55 PM	Hubbard, Daniel	Published: Description
2	May 11, 2021 04:47 PM	rbf0020	Imported from file: update identification information
1	May 11, 2021 04:46 PM	rbf0020	Imported from file
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Graduation Rates

○ Housing○ International

⊘ IPEDS



Select a term to view details.

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			⊡ THECB HS to College	>	Table containing THECB-provided	Data Table	****	Production		Feb 3, 2020 10:	
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Financial Statement	- 1										
Frisco Tracker											
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○ IPEDS											

4-year Graduation rate - bachelor's...

6-year Graduation rate - bachelor's...

The Basic Classification is an updat...

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BAGR100

BAGR10

BAGR150

Degrees

Facilities

→ Housing→ International

IPEDS

Financial Aid
 Financial Statement
 Frisco Tracker
 Grade Distribution
 Graduation Rates

Faculty

Enrollment by Section

Enrollment Comparison



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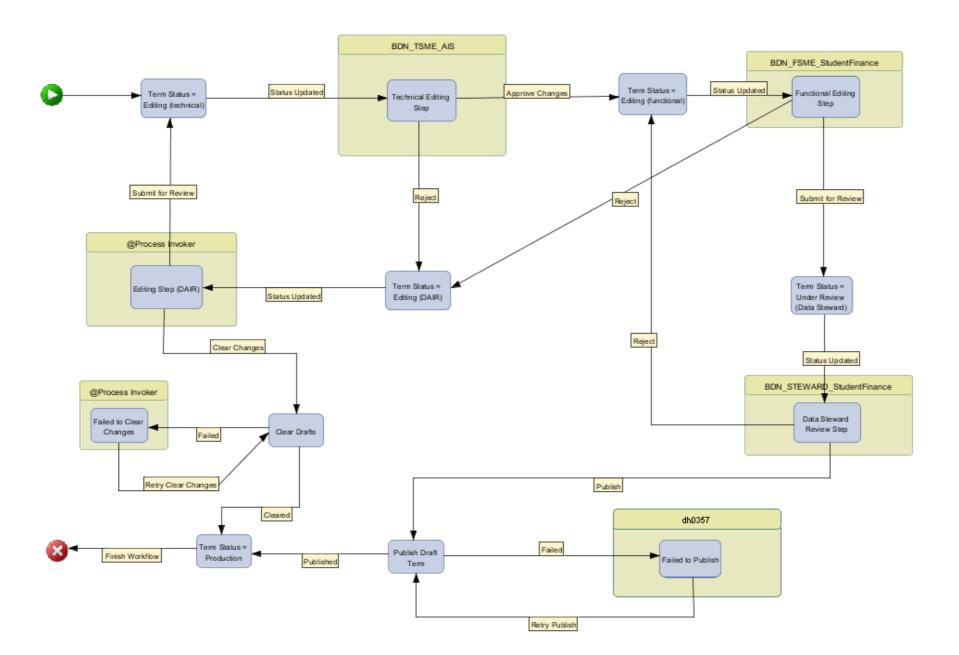
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Select a term to view details.

Collaborative Term Review Workflow





Conclusions



- Peer benchmarking data is tremendously valuable to higher education institutions as we seek to measure ourselves against others, better understand how we rank on various high-level metrics, and seek information for strategic institutional decision-making.
- Yet, external benchmark reports still have several areas to improve, such as lack of context, measurement issues, and reporting formats are some of the problems data analysts face when looking at the data for comparison.
- To counteract these difficulties, institutions must develop initial questions and goals to help them reshape the data for their individual use.
- Taking data management steps, such as automation of data processing, helps minimize future challenges.
- Implementing a data governance system is key to move forward by ensuring that data is consistent, trustworthy, and does not get misused.



Questions?





Thank You!

