Using Novel Reports to Inform Strategy, Drive Enrollment, and Meet Workforce Needs

Margo Kenirey
Report Developer
Overview

• About TCSG/Programs
• Data Analysis
• Pandemic Impacts
• Mitigate Challenges Using Strategies
  • Drive Student Enrollment
  • Share Students’ Progress and Program Needs
  • Focus on Graduation/Program Completion Time
  • Inform Program Review and Workforce Leaders
• Data Techniques for Each Strategy
• Questions
About TCSG

• Technical College System of Georgia

• 22 Colleges

• 88 Campuses

• 600+ Programs

• Associate, Diploma, and Certificate Level Programs
About TCSG > Program Offerings

- Business
- Cyber and Related
- Engineering Technology
- Film
- Healthcare and Nursing
- Industrial Technologies
- Personal and Public Service Technologies
- Public Safety
- Transportation and Logistics
About TCSG > Program Offerings: Business

Business
Cyber and Related
Engineering Technology
Film
Healthcare and Nursing
Industrial Technologies
Personal and Public Service Technologies
Public Safety
Transportation and Logistics

Accounting
Banking and Finance
Business and Management
Business Technology
Design and Media Technology
Healthcare Management
Interior Design
Marketing
Paralegal Studies
About TCSG > Program Offerings: Cyber and Related

- Business
- Cyber and Related
- Engineering Technology
- Film
- Healthcare and Nursing
- Industrial Technologies
- Personal and Public Service Technologies
- Public Safety
- Transportation and Logistics

- Computer Support
- Cybersecurity
- Database
- Gaming
- Networking
- Programming
- Web Design and Development
About TCSG > Program Offerings: Engineering Technology

<table>
<thead>
<tr>
<th>Business</th>
<th>Bioscience</th>
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<tbody>
<tr>
<td>Cyber and Related</td>
<td>Civil Engineering</td>
</tr>
<tr>
<td>Engineering Technology</td>
<td>Electrical/Computer Engineering</td>
</tr>
<tr>
<td>Film</td>
<td>Environmental Engineering</td>
</tr>
<tr>
<td>Healthcare and Nursing</td>
<td>Mechanical Engineering</td>
</tr>
<tr>
<td>Industrial Technologies</td>
<td>Nuclear Engineering</td>
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<td>Personal and Public Service Technologies</td>
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<td>Transportation and Logistics</td>
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</table>
**About TCSG > Program Offerings: Film**

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Business</td>
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<tr>
<td>Cyber and Related</td>
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<td>Engineering Technology</td>
</tr>
<tr>
<td>Film</td>
</tr>
<tr>
<td>Healthcare and Nursing</td>
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<tr>
<td>Industrial Technologies</td>
</tr>
<tr>
<td>Personal and Public Service Technologies</td>
</tr>
<tr>
<td>Public Safety</td>
</tr>
<tr>
<td>Transportation and Logistics</td>
</tr>
</tbody>
</table>

Film (Georgia Film Academy)
About TCSG > Program Offerings: Healthcare and Nursing

- Business
- Cyber and Related
- Engineering Technology
- Film
- Healthcare and Nursing
- Industrial Technologies
- Personal and Public Service Technologies
- Public Safety
- Transportation and Logistics

- Cardiovascular Technology
- Dental Care
- Medical Assisting
- Medical Laboratory
- Nursing
- Ophthalmic Careers
- Paramedicine
- Pharmacy Technology
- Radiology/Ultrasound
- Rehabilitation Services
- Respiratory Therapy Technology
- Surgical Technology
- Veterinary Technology
<table>
<thead>
<tr>
<th>Business</th>
<th>Chemical Operations Technology</th>
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<tbody>
<tr>
<td>Cyber and Related</td>
<td>Construction</td>
</tr>
<tr>
<td>Engineering Technology</td>
<td>Construction Mechanical Systems</td>
</tr>
<tr>
<td>Film</td>
<td>Drafting/GIS</td>
</tr>
<tr>
<td>Healthcare and Nursing</td>
<td>Manufacturing and Maintenance</td>
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<tr>
<td>Industrial Technologies</td>
<td>Welding and Joining Technology</td>
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<td>Personal and Public Service Technologies</td>
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<td>Public Safety</td>
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<tr>
<td>Transportation and Logistics</td>
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</table>
About TCSG > Program Offerings: Personal Public Service Technologies

Business
Cyber and Related
Engineering Technology
Film
Healthcare and Nursing
Industrial Technologies
Personal and Public Service Technologies
Public Safety
Transportation and Logistics

Agriculture and Horticulture
Barbering
Cosmetology
Culinary Arts
Early Childhood Care and Education
Fish and Wildlife Management
Forestry Technology
Funeral Services
Hospitality
Photography
Social Work Assistant
### About TCSG > Program Offerings: Public Safety

<table>
<thead>
<tr>
<th>Business</th>
<th>Basic Law Enforcement</th>
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<tbody>
<tr>
<td>Cyber and Related</td>
<td>Criminal Justice</td>
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<tr>
<td>Engineering Technology</td>
<td>Crime Scene</td>
</tr>
<tr>
<td>Film</td>
<td>Fire Science Technology</td>
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<tr>
<td>Healthcare and Nursing</td>
<td>Forensics</td>
</tr>
<tr>
<td>Industrial Technologies</td>
<td>TSA</td>
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<tr>
<td>Personal and Public Service Technologies</td>
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<td>Public Safety</td>
<td></td>
</tr>
<tr>
<td>Transportation and Logistics</td>
<td></td>
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<tr>
<td>Category</td>
<td>Programs</td>
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<tr>
<td>--------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Business</td>
<td></td>
</tr>
<tr>
<td>Cyber and Related</td>
<td></td>
</tr>
<tr>
<td>Engineering Technology</td>
<td></td>
</tr>
<tr>
<td>Film</td>
<td></td>
</tr>
<tr>
<td>Healthcare and Nursing</td>
<td></td>
</tr>
<tr>
<td>Industrial Technologies</td>
<td></td>
</tr>
<tr>
<td>Personal and Public Service Technologies</td>
<td></td>
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<tr>
<td>Public Safety</td>
<td></td>
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<tr>
<td>Transportation and Logistics</td>
<td></td>
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<tr>
<td>Continue &gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aircraft Structural Technology</td>
</tr>
<tr>
<td></td>
<td>Auto Collision Repair</td>
</tr>
<tr>
<td></td>
<td>Automotive Service Technology</td>
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<tr>
<td></td>
<td>Aviation Maintenance Technology</td>
</tr>
<tr>
<td></td>
<td>Certified Economic Development</td>
</tr>
<tr>
<td></td>
<td>– Warehousing and Distribution</td>
</tr>
<tr>
<td></td>
<td>Commercial Truck Driving</td>
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<tr>
<td></td>
<td>Diesel Equipment Technology</td>
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<tr>
<td></td>
<td>Logistics and Supply Chain Management</td>
</tr>
<tr>
<td></td>
<td>Railroad Operations</td>
</tr>
</tbody>
</table>
Data Analysis: Three Levels

**Reporting**
- Answer questions with available data

**Insights**
- Understand relationships between data

**Predictions**
- Have the ability to adjust to predicted performance and outcomes

- Descriptive
- Predictive
- Prescriptive
Data Analysis > Reporting: Traditional

- Static/Low-Interactivity
- Grid/tabular-basic visualizations

- Can we disaggregate?
- Can we drill down to student level?
- Can user change the parameters?
- Does it match need of case?
- SQL?
Data Analysis > Reporting: Dashboards

- Aesthetically pleasing
- Interactive
- Flexibility
- Data module

- Is it concise?
- Is it actionable?
- Is there ease of use?
- Is it drag and drop?
Data Analysis > Predictive
Data Analysis > Predictive

Openings, College, and Awards predict Gap with a predictive strength of 63.8%.
On track to meet Georgia’s workforce needs
Yearly enrollment increased 10,000+ students between AY 2016 and AY 2020
From 133,455 to 143,750
Pandemic Impacts: Enrollment Withdrawals

In Spring 2020, students withdrew from nearly 36,000 classes due to COVID-related and other reasons.
Pandemic Impacts: Enrollment Declines

- Spring-to-Spring and Fall-to-Fall enrollment declined
- Students’ lives disrupted (transportation, childcare, employment)
- Industry shut downs
- Access to clinicals and practicums threatened
- Truck driving impacted by social distancing protocols
Pandemic Impacts: Economic Impact

Many key industries, such as healthcare, manufacturing/logistics, and transportation, were experiencing severe workforce shortages.

Supply chain disruptions
Mitigate Pandemic Impacts > Strategies

- Address challenges
- Provide new insights
- Provide actionable data

Drive Student Enrollment

Share Students’ Progress and Program Needs

Focus on Graduation/Program Completion Time

Inform Program Review and Workforce Leaders
Strategy > Drive Student Enrollment

“Stop-Out” Report

Desired Insights and Actionable Data

- Identify students who previously enrolled but had not returned to the college
- Determine which students might be most likely to return
- Used to re-engage students and drive-up enrollment
- Colleges can boost enrollment through targeted campaigns
Strategy > Drive Student Enrollment

“Stop-Out” Report

Questions

- Did student re-enroll?
- Did student pre-register?
- Did student reach intended award level?
- Did student earn any award?
- Is student likely to re-enroll if encouraged?
Strategy > Drive Student Enrollment

“Stop-Out” Report

Technique: Model Data
Step: Build Data Blocks

- Created abstract model that organizes elements of data and how they relate to one another
- Model includes fields such as demographics, registration, advisor, email, phone, GPA, and financial aid
Strategy > Drive Student Enrollment

“Stop-Out” Report

**Technique:** Model Data

**Step:** Build Data Filters

- No SQL for end user
- No data extracts for end user
- Limitless combinations within the report
Strategy > Drive Student Enrollment

“Stop-Out” Report

**Technique:** Model Data

**Step:** Build Report

Data Model

Report

- **Detail Filters**
  - [Enrolled Term] in ?parTerm?
  - [College Number] in ?parSchool Number?
  - [Report Advanced] [Not Pre/Enrolled/Grad 3 Next Consecutive Terms]
  - [Student Type Code] in ?parStudentType?
Strategy > Drive Student Enrollment

“Stop-Out” Report

Technique: Model Data
Step: Run Detail Reports

Retention - Progression Report: Non-Graduate, Non-Returning Students (For 3 Terms)

<table>
<thead>
<tr>
<th>College</th>
<th>Athens Technical College</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term Enrolled</td>
<td>Spring Semester 2020 (2020-14)</td>
</tr>
<tr>
<td>No Graduate Records</td>
<td>2020-14 through 2021-14</td>
</tr>
<tr>
<td>No Enrollment</td>
<td>2020-14 through 2021-14</td>
</tr>
<tr>
<td>Total Non-Returning Students</td>
<td>681</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Home Campus</th>
<th>Banner ID</th>
<th>Last Name</th>
<th>First Name</th>
<th>Major Code</th>
<th>Major</th>
<th>Student Type Code</th>
<th>2020-14 Attempted Hours</th>
<th>2020-14 GPA Hours</th>
<th>2020-14 GPA</th>
<th>Street Address</th>
<th>City/State/Zip</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Campus</td>
<td>CE23</td>
<td>CE23</td>
<td>A.S. - Consumer Economics</td>
<td>R</td>
<td>4</td>
<td>4</td>
<td>0.76</td>
<td></td>
<td></td>
<td>Athens, GA</td>
<td>30605</td>
</tr>
<tr>
<td>Main Campus</td>
<td>CE23</td>
<td>CE23</td>
<td>A.S. - Consumer Economics</td>
<td>R</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td>Athens, GA</td>
<td>30605</td>
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<tr>
<td>Main Campus</td>
<td>AF53</td>
<td>AF53</td>
<td>AAS in Interdisciplinary Studies</td>
<td>R</td>
<td>13</td>
<td>13</td>
<td>3.46</td>
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<td></td>
<td>Hartwell, GA</td>
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<tr>
<td>Main Campus</td>
<td>AF53</td>
<td>AF53</td>
<td>AAS in Interdisciplinary Studies</td>
<td>B</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td></td>
<td></td>
<td>Athens, GA</td>
<td>30605</td>
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<tr>
<td>Main Campus</td>
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<td>BI03</td>
<td>Bioscience</td>
<td>R</td>
<td>6</td>
<td>6</td>
<td>3</td>
<td></td>
<td></td>
<td>Loganville, GA</td>
<td>30541</td>
</tr>
</tbody>
</table>
Strategy > Drive Student Enrollment

“Stop-Out” Report

Technique: Model Data
Step: Build Aggregate Reports

<table>
<thead>
<tr>
<th>Term Enrolled:</th>
<th>Total Students: 3076</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring Semester 2020 (202014)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Student Count</th>
<th>Graduated 202016</th>
<th>Graduated 202112</th>
<th>Graduated 202114</th>
</tr>
</thead>
<tbody>
<tr>
<td>31 - 35</td>
<td>Y: 76 N: 570</td>
<td>Y: 114</td>
<td>Y: 535</td>
</tr>
<tr>
<td>36 - 40</td>
<td>Y: 51 N: 316</td>
<td>Y: 70</td>
<td>Y: 297</td>
</tr>
<tr>
<td>Over 40</td>
<td></td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Term Enrolled:</th>
<th>Total Students: 237</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring Semester 2020 (202014)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Student Count</th>
<th>Graduated 202016</th>
<th>Graduated 202112</th>
<th>Graduated 202114</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting</td>
<td>Y: 6 N: 48</td>
<td>Y: 12</td>
<td>Y: 42</td>
</tr>
<tr>
<td>Cosmetology</td>
<td>Y: 74 N: 42</td>
<td>Y: 24</td>
<td>Y: 54</td>
</tr>
<tr>
<td>Cybersecurity</td>
<td>Y: 2 N: 35</td>
<td>Y: 24</td>
<td>Y: 64</td>
</tr>
<tr>
<td>Nursing</td>
<td>Y: 2 N: 35</td>
<td>Y: 24</td>
<td>Y: 64</td>
</tr>
</tbody>
</table>

Technical College
System of Georgia
Strategy > Drive Student Enrollment

“Stop-Out” Report

Technique: Model Data

Consider:

• Is your data correct, consistent and usable?
• Does your data need to be transformed?
• Does your data need to be pivoted?
• What are the relationships made between tables?
• What data can be chunked into reusable blocks?
• Can you define filters in the model?
• Will your model accept parameters (prompts)?
Strategy > Share Students’ Progress & Program Needs

“Must-Take” Report

Desired Insights and Actionable Data

- **Currently Enrolled Students**: Helps college administrators identify instructional demand and align course offerings based on the real-time needs.

- **Not Actively Enrolled Students**: Allows colleges to identify students with only a few courses remaining, thus creating an opportunity to reconnect with these individuals, so they may come back and complete their program.
Strategy > Share Students’ Progress & Program Needs

“Must-Take” Report

Questions

• What percentage of their program has the student completed?
• What is students’ last terms of enrollment?
• What is students’ contact information?
• What are the remaining courses needed to complete their program?
Strategy > Share Students’ Progress & Program Needs

“Must-Take” Report

Technique: Reuse Data Source

• Sounds like DegreeWorks?

BI Tool: Cognos Analytics 11.2
Data Source:

Degree Works Reporting Database
Stored Procedure
Cognos Package
Strategy > Share Students’ Progress & Program Needs

“Must-Take” Report

**Technique:** Reuse Data Source
**Step:** Ellucian Documentation

**BI Tool:** Cognos Analytics 11.2

**Data Source:**
- Degree Works Reporting Database
- Stored Procedure
- Cognos Package

**Degree Works**
- Advanced Reporting with CPA and SEP
- Technical Guide

**Ellucian**
Strategy > Share Students’ Progress & Program Needs

“Must-Take” Report

Technique: Reuse Data Source
Step: Build Blocks of Code

BI Tool: Cognos Analytics 11.2
Data Source:

- Degree Works Reporting Database
- Stored Procedure
- Cognos Package
**Strategy > Share Students’ Progress & Program Needs**

**“Must-Take” Report**

**Technique:** Reuse Data Sources  
**Step:** Run Detail Reports

<table>
<thead>
<tr>
<th>Student ID</th>
<th>Student Name</th>
<th>Student Type</th>
<th>Student Status</th>
<th>GPA (Unofficial)</th>
<th>Student Email</th>
<th>Alt Email</th>
<th>Student Advisor</th>
<th>Major Code</th>
<th>Major Description</th>
<th>Percent Complete</th>
<th>Active Term</th>
<th>Student PIDM</th>
<th>Cell Phone Number</th>
<th>Must Take</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Academic Suspension</td>
<td>2.261</td>
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<td>Wayne, Sonja</td>
<td>HT12</td>
<td>HT12-Hemodialysis Technologist Dip</td>
<td>91.026</td>
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<td>ALHS 1011</td>
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<td></td>
<td></td>
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<td>Good Standing</td>
<td>2.870</td>
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<td>Wright, Stephen G</td>
<td>MD12</td>
<td>MD12-Business Management Dip</td>
<td>97</td>
<td>202212</td>
<td></td>
<td>MGMT 2215</td>
<td></td>
</tr>
</tbody>
</table>
Strategy > Share Students’ Progress & Program Needs

“Must-Take” Report

Technique: Reuse Data Sources
Step: Run Aggregate Reports

Question

• How many students need this course?
• How many sections do we need to offer?
• How many students are near completion?
Strategy > Share Students’ Progress & Program Needs

Consider:

• Do you have underutilized data sources?
• Does this data source only deliver pre-packaged reports?
• Do you have the ability to combine existing data sources?
• Do those data sources have primary keys for you to match?

“Must-Take” Report

Technique: Reuse Data Source
Strategy > Graduates & Program Completion Times

“Time-to-Completion” Report

• Reviews of TCSG’s Manufacturing/Logistics, Nursing and Commercial Truck Driving programs

• Goal of getting more people with industry-recognized credentials into the workforce faster
Strategy > Graduates & Program Completion Times

“Time-to-Completion” Report

- Reports how many terms it takes for graduates to complete a program or course
- Data are disaggregated by students who stayed in the same major throughout their academic career versus those who changed majors
Strategy > Graduates & Program Completion Times

“Time-to-Completion” Report

• Illustrates how specific courses affect completion time

• Inclusion of awards earned provides context for understanding program completion times

• Insights gained by the Time-to-Completion reports may play an important role in TCSG program reviews

• Helps TCSG streamline career pathways and support strategies for more timely program completion
Consider:

• Are your existing reports overwhelming?
• Can you filter reports?
• Are default parameters available?
• Do you have definitions on the report?
• Can you export in multiple formats? Excel, PDF, HTML
Strategy > Inform Program Review & Workforce Leaders

Graduate Awards, Job Openings and Gap

Desired Insights and Actionable Data

• Understand and respond to regional workforce supply and demand gaps
• Strategically plan instructional offerings to effectively address workforce shortages
• Communicate enrollment and workforce gaps to stakeholders
• Request resources to expand instructional capacity
Strategy > Inform Program Review & Workforce Leaders

Graduate Awards, Job Openings and Gap

Technique: Visualizations and Maps
Strategy > Inform Program Review & Workforce Leaders

Graduate Awards, Job Openings and Gap

Technique: Visualizations and Maps

BI Tool: Cognos Analytics 11.2
Data Source:

Cognos Analytics
Banner Database > System-Wide

Transportation & Logistics Awards, Openings and Gap by College

Values

-4,000, -3,000, -2,000, -1,000, 0, 1,000, 2,000, 3,000, 4,000

College

Atlanta
Gwinnett
Chattahoochee
Georgia Piedmont
Lamar
West Georgia
Southern Crescent
Savannah
Georgia Northwestern
Augusta
Coastal Pines
Southern Regional
Wiregrass Georgia
Columbus
North Georgia
Oconeefall Line
Central Georgia
Southeastern
Athens
Albany
Oglethorpe
South Georgia

Measures
- Awards (Sum)
- Openings (Sum)
- Gap (Sum)
Strategy > Inform Program Review & Workforce Leaders

Graduate Awards, Job Openings and Gap

Technique: Visualizations and Maps
Strategy > Inform Program Review & Workforce Leaders

Graduate Awards, Job Openings and Gap

Technique: Visualizations and Maps

Consider:

- For maps, have you chosen the best geographical shape?
- Are data points/axis labeled?
- Did you try new visualizations? Heat Map, River, Sankey, Waterfall – be creative!
- Is your dashboard concise and easy to use?
Conclusion

• Describe how colleges can use novel reports and dashboard to boost enrollment and streamline academic/technical programs
• Understand how data visualizations and mapping can highlight supply gaps and workforce shortages
• Identify benefits of using data to inform strategic direction for program success
• Extrapolate from Georgia possible reports for other systems of higher education
• Leverage novel reports and data visualizations to request program resources
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Questions?