FY 2020 Budget Discussion – Georgia Institute of Technology

Part I: System-Wide Initiatives

1) Discuss the major actions undertaken as a part of your Momentum Year plan. What components are still in the development or implementation phases? From a financial perspective, how has your institution invested in your Momentum Year plan and what were the sources of funds? Describe strategy taken in scaling corequisite model. Discuss any early results to date.

Georgia Tech has made progress in its Momentum Year plan, which is focused on helping Georgia Tech students to be successful by: (a) starting college with a purposeful choice in a program or area; (b) entering with a productive academic mindset; and (c) following clearly sequenced program course maps. Below are updates on key components of plans that support these goals, including where funds have been invested.

GT1000 First-Year Seminar Curriculum Redesign

Georgia Tech has redesigned the curriculum for our first-year seminar class, GT 1000, to better meet the needs of our incoming students and to emphasize whole-person education. As part of this initiative, GT 1000 course learning outcomes were streamlined, and common assignments were developed for all sections. This change required the collaboration and participation of Academic Affairs, Student Life, Campus Services, and faculty and staff across campus. The redesigned curriculum focuses on encouraging self-efficacy, community building, and sense of belonging for our first-year students. The resulting curriculum shifts the course from an extended orientation model to focus more heavily on self-reflection, intentional academic planning, and leadership and collaboration skills, helping to ensure that the course is providing our students with the skills and resources they need to succeed personally and academically at Tech and beyond. To support these efforts, we have allocated new funding ($65K) to hire a new Program and Operations Manager for the course.

Academic Advising

The Advising Task Force (TF) was convened by the Georgia Tech Provost in late fall of 2017 and submitted their Report and Recommendations to the Provost in April 2018. These recommendations focused on ensuring that Tech undergraduates must have access to comprehensive, effective, and impactful advising. With implementation of the findings of this task force, key outcomes will be to: expand advising services, better integrate career and academic advising, and enhance technology and analytics, and more equitable and accessible advising for all students. Several of these recommendations are closely tied to and supportive of the Momentum Year plan. For example, the TF recommends that all first-year students meet with academic advisors at least once during their first two semesters at Tech. A new working group (First Year Advising @ Tech) has been recently established. This group will contribute to defining advising learning outcomes for first-year students, and to creating resources and training for advisors to ensure that all first-year advising supports students in their exploration of their major and the creation of their academic plan. We are hiring our first Exploratory Advisor (approximately $55K in new workload funding) to address a campus need for expertise in working with undecided, exploring, and off-track students.

Curricular Enhancement in Gateway STEM Courses

Introductory Physics

The School of Physics is in Year 1 of the "Gateway to Completion" (G2C) three-year process. Year 1 is focusing on analysis and planning. We are currently transferring institutional data on student performance in high enrollment courses to the John Gardner Institute (JGI) for analysis. The JGI-specific surveys are being

conducted with the students currently enrolled in our target courses. We are also currently working on forming the Institute's Steering Committee and Course Committee.

Mathematics - Linear Algebra

In Fall 2015, the School of Mathematics implemented the First-Year Course Revamp, a reworking of the core mathematics classes. The first-year sequence was modified from two courses (both 4 credits, spanning differential calculus, integral calculus, and linear algebra over two semesters) to three courses. Within this reorganization, MATH 1553 required a major curriculum upgrade to meet the needs of the students in their programs. This course has seen major curricular changes, most notably: (1) a free, online, interactive textbook and (2) the implementation of a free, online homework platform called WebWork. MATH 1553 is also the largest mathematics course at Georgia Tech with approximately 2,500 students each year. Georgia Tech has invested $40,000 in this revamping of the Math courses. As part of the first-year course revamp, an increase in the number of sections was seen at 25-30% for the first-year courses. As the largest course, MATH 1553 has benefited from the increase in sections. A specific budget for this is not available since it is rolled into the increase in sections for the School of Math.

Living Learning Communities

Living Learning Communities (LLCs) is an academic strategy that links academics to on-campus, residential living. Each Georgia Tech LLC is an integrated experience that promotes interactions between faculty and students, fosters collaboration among students, enhances campus and civic engagement, increases retention, and eases both the academic and social transition to college. Georgia Tech is in the process of implementing a multi-year plan to significantly expand these programs. Beginning in 2016, the Institute allocated $1.5M dollars of one-time funding and $450K of permanent funding for Living Learning Community space renovations, staff, and curriculum development over the next four years. This also included hiring a full-time Associate Director in the Center for Academic Enrichment (a unit in the Office of Undergraduate Education) to oversee and coordinate this expansion. By Academic Year 2020-2021, the target is to enroll 1650 (approximately 60%) of on-campus, first-year students in a Living Learning Community. This growth would indicate the addition of approximately two new communities each year beginning AY 2018-2019.

Scaling Learning Support Co-Requisite Model

The co-requisite learning support model for math and English at Georgia Tech was implemented following the guidelines set forth during the AY2017-2018 USG learning academy meetings. The Institute has made a commitment to providing the highest quality of instruction for the math courses at a lower level than calculus by hiring a specialist to teach these. Having a single person whose focus is teaching the learning support courses and pre-calculus will allw for the development of a strong and consistent curriculum that can provide a higher level of support for students who, by Georgia Tech standards, are below college-ready. The math specialist is a member of the Center for Academic Success, with a secondary reporting line to the School of Mathematics, giving this person direct access to the full resources for tutoring and academic coaching to assist students in the learning support courses.

Complete College Georgia

Georgia Tech will continue to implement its Complete College Georgia (CCG) plan, as outlined in the annual update report submitted each fall. Through investment in programs and services for “at risk” students, we are proud to see our retention and graduation rates reach historic highs. This is a top priority for Georgia

Tech for Fiscal 2020, as indicated in questions 15 and 16 and of this document. The Institute's CCG plan is found here – https://oue.gatech.edu/complete_college.

2) Provide an update on the status of the Comprehensive Administrative Review at your institution. Have you begun to implement the CAR action plan and, if so, what savings have been realized and where have the funds been reinvested? Who on your campus is on the design team tasked with recommending organizational changes to the President?

The CAR Action Planning process kicked off at Georgia Tech on September 24, 2018. The analysis of the assessment findings has begun with the Working Group, which will engage people from across the campus to develop recommendations from a Decision Group. Savings have not yet been identified or realized. With the guidance of the USG, a decision group and a working group have been formed, listed below.

The major activities for planning process include the following target timelines:

- **October – November** – Working group analyze assessment results and discuss with functional leaders (central and distributed)
- **December** – Working group to engage functional subject matter experts from across campus to provide suggested solutions for consideration in the action plan
- **January** – Working group prepare the draft action plan
- **February** – Decision group decide which recommendations of the draft action plan to accept
- **March** – Decision group to advance the action plan to Georgia Tech president and USG chancellor for review and comment

Working Group/Focus Areas	Decision Group
• Sandi Bramblett, Assistant Vice President of Institutional Research and Enterprise Data Management – institutional data	• G.P. "Bud" Peterson, President
• Mia Reini, Director, Enterprise Risk Management – risk management	• Rafael Bras, Provost and Executive Vice President for Academic Affairs
• Juanita Hicks, Deputy Director of Human Resources – talent and human resources	• Chaouki Abdallah, Executive Vice President for Research and Associate Vice President for Research
• Robert Foy, Senior Director, Institute Finance Support – strategic finance perspective	• Jim Fortner, Interim Executive Vice President for Administration and Finance
• Rusty Edwards, College of Engineering – academic unit finance	• Joe Hughes, representing Faculty Senate
	• Tina Clonts, representing Staff Council
	• Maryam Alavi, Dean, College of Business

3) Describe the process that your institution is using to evaluate the level of benefits or payroll staff needed post-conversion to OneUSG Connect. What positions are expected to have time redirected to new duties and what positions can be (or have been) eliminated? Also, list any third-party costs related to human capital management previously incurred, including software, professional consultants, or outsourced services, that will no longer be needed by the institution in FY19 or beyond.

Role	Impact
Payroll Processors (3)	3 full time payroll processors will still be needed after conversion to OneUSG. Each USG school is still required to resolve their own payroll errors, enter additional compensation, process late timesheets, and work with school employees on data discrepancy and payroll issues. The processors perform all the duties above currently and will continue when the payroll is run by a staff member at the SSC. The payroll run itself does not take a lot of time. It is the issues above that take the most time in order for the run to be completed. Transactional processing on pay lines will be replaced by processing on Additional Pay, General Deductions, and Job Earnings Distribution. Additionally, we anticipate spreadsheet processing as import to support payroll. The One USG Project team is working with GT Enterprise Resource Planning (ERP) to determine applicable R1 solutions. GT has customized and decentralized solutions associated with General Deductions and Summer Pay. If solutions are not adopted in R1 model, then more manual processing will shift to the Payroll Processing Team. One of the 3 payroll processors is responsible for garnishments as well. The OneUSG model will utilize an ADP Garnishments solution. The garnishment duties will be reduced. However, this employee will still be required to set-up new garnishment orders and reconcile garnishments each pay period. The slight reduction would help reduce overtime that this employee works and dedicate a little more time to assist the other processors and improve customer service.
Payroll Analyst (1)	The payroll analyst currently performs functions such as running the monthly/bi-weekly payroll and *we anticipate that these responsibilities will be alleviated by the OneUSG common HCM.* We anticipate calculating international payroll and taxes, researching complex issues, gathering information for open records requests, pulling metric information, pulling data for various audit requests, and assisting payroll processors and accountants with payroll or benefit issues will remain as a necessary function of this role. *We anticipate that the time formerly associated with processing the payroll stream pre-OneUSG will be redirected toward liaison support of interfacing files between the hosted center and GT.* This includes detailed redesign, QA, error resolution, and new solutions associated with the automated payroll systems to ensure documentation of system functions and capabilities and to facilitate the training of payroll staff in the use of the automated system.
Payroll Manager (1)	We anticipate that the Payroll Manager duties will still be required once we move to OneUSG to manage personnel and oversee critical tasks remaining at GT. We anticipate oversight will be required to support new processes associated with off-cycle check processing, pay corrections and workflow. This individual will be a key point of contact for the OneUSG processing

	center and we anticipate that this resource will fulfill a role associated with the development of training materials, handouts, and training plans for campus.
Accountants I-III (3)	Three full-time accountants are responsible for reconciling payments to all benefit vendors, processing payments for GT provided benefits, paying all employer taxes, collecting salary overpayments, calculating imputed wage updates, and providing guidance associated with W-2 corrections and collection of benefit premiums not paid by employees. We do not anticipate any reduction to these primary responsibilities. *We anticipate some time savings associated with the OneUSG ADP Tax Services solution.* However the resource will be required to interface directly with the vendor to establish new jurisdictions, facilitate timely filings/re-filings and resolve jurisdictional tax tracers. We do not anticipate any time savings associated with the account reconciliations and anticipate that they will become more complex as they did with the common Benefit solution. *We anticipate utilizing any time savings generated to focus on improving the timing of the account reconciliations, control and data integrity.*
Assistant Payroll Director (1)	The Assistant Payroll Director manages the accountants in Payroll Accounting. The position is responsible for all payroll tax activities, including compliance with local, state, and federal regulations and filing local, state, and federal payroll tax returns. In addition, this resource supervises the calculation and reporting of tax liabilities, and responds to questions and special requests from employees and regulatory agencies. We anticipate that this assistant director will still be needed after the conversion to OneUSG, as few responsibilities within this unit are included in the solution. In addition to management responsibilities, this Assistant Director also performs a large amount of transactional work. *We look forward to any time savings the OneUSG solution will bring to enable better work-life balance to the team.*
Time and Labor Analyst (1)	In addition to all time, labor, and absence management responsibilities, our time and labor person also serves as the Institute's Dual Appointment Coordinator. We anticipate that this will be the sole functional resource associated with supporting the OneUSG time processes associated with PeopleSoft Time & Labor, Absence Management and KABA time clocks. We anticipate that this common solution will be a significant change for GT as the Institute currently operates under a model of multiple time applications as well as manual processes. We anticipate that this resource will remain as primary point of contact for time related issues, data discrepancy and other pay related matters. Additionally, this resource will work closely with the GT Institute ERP team

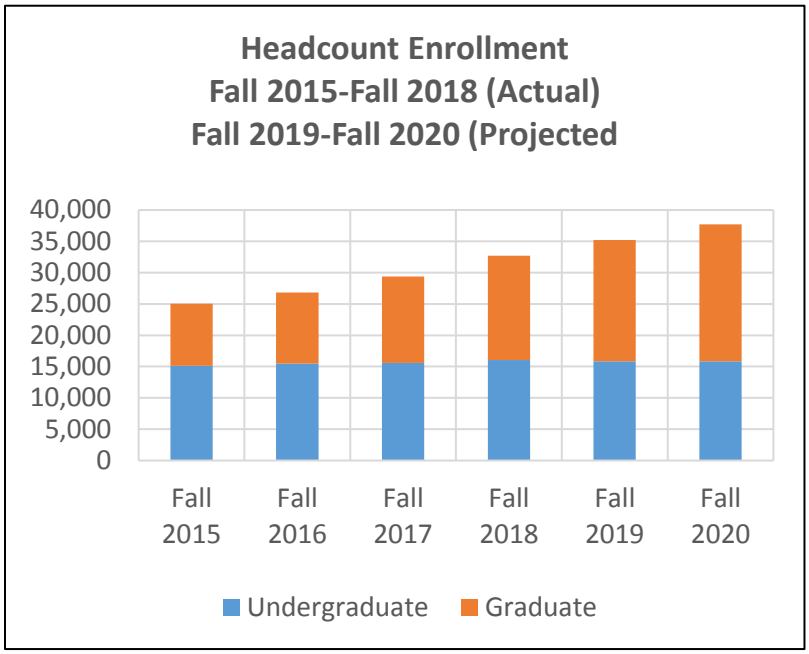
	on interfacing, modifications and implementations. Similarly to the Payroll Manager, we anticipate that this resource will fulfill a role associated with the development of training materials, handouts, and training plans for campus.
Director of Payroll (1)	The Director of Payroll has the primary responsibility associated with payroll and related activities. The incumbent directs the activities of the senior payroll management team, the Payroll Accounting, and Payroll Processing teams. Currently, the Director of Payroll is a subject matter expert for compliance, including relationships with internal and external auditors and state and federal agencies. In addition to director responsibilities, this resource performs transactional work on occasions and works long hours to complete leadership tasks and the transaction tasks. *The reduction of team hours noted above and some redirection will reduce the amount of transactional tasks performed by the Director. This OneUSG solution will allow the Director to focus more on strategic objectives to improve efficiency and effectiveness of operations, build greater partnerships with USG and Institute departments, and improve work-life balance for the team.*
Benefits	Below are the staff prior to transition to OneUSG Benefit Connect solution: Benefits Manager (1 FTE) Benefit Counselors (2 FTE) Benefits Specialist (1 FTE) Disability Specialist (1 FTE) The following staff will remain after transition to OneUSG Benefit Connect solution: Benefits Administrator (1 FTE) Benefits Specialist (2 FTE) Disability Specialist (2 FTE) Benefits will gain from the solution by permitting a second resource to focus on all Disability Leave and Workers Compensation cases. Time savings generated from a reduction in counselling services were shifted to facilitate the increased data processing, data discrepancy, and error resolution associated with the common platform. Remaining counselling activities were distributed amongst the remaining resources and managerial responsibilities were absorbed by the Sr. Director, Total Rewards and Payroll.
Payroll Systems	We anticipate that *costs associated with supporting the GT instance of PeopleSoft HCM will decline over time.* However, success will depend upon a solution for retaining historical data required by regulations as the OneUSG solution will not house legacy archive data. We also anticipate *additional savings from sun-setting custom time systems such as TimeOut (exempt Absence Management) and TechTime (non-exempt time)*. We anticipate an increase in costs associated with replacing the existing Kronos clocks with the KABA time clock solution and we will accelerate end of life. We are in the investigatory phases of the OneUSG R1 time solution for our research

	area. There are significant regulatory and audit requirement that must be incorporated before we can estimate savings associated with sun-setting the vendor Deltek solution currently in place. Similar to the HCM, we anticipate that the legacy archive data will require a solution related to regulatory retention requirements prior to realizing savings associated with discontinued support.

Part II: Enrollment

4) Discuss enrollment trends over the past three years (fiscal years 2017, 2018 and 2019). Discuss factors impacting enrollment. What are your enrollment projections for the next two years (Fall 2019 and Fall 2020)? What enrollment management strategies and software are employed at your institution and how effective are they? Discuss trends in online enrollment. To what extent are the trends driven by dual enrollment students? What steps has your institution taken to enroll dual enrollment students post-high school graduation? Use data available to highlight success in this area.

Georgia Tech's enrollment continues to be strong with a 22% increase in headcount, largely at the graduate level since Fall 2016 (FY2017). Due to the popularity of our online programs, we project 7% increases in enrollment for Fall 2019 and Fall 2020. Additionally, we have enrolled a record number of Georgians (over 12,400) in Fall 2018.



Enrollment is managed by the Provost's Office. An Enrollment Management Advisory Committee meets routinely to discuss undergraduate enrollment and the deans provide guidance on enrollment growth within their colleges. We do not currently subscribe to enrollment management software.

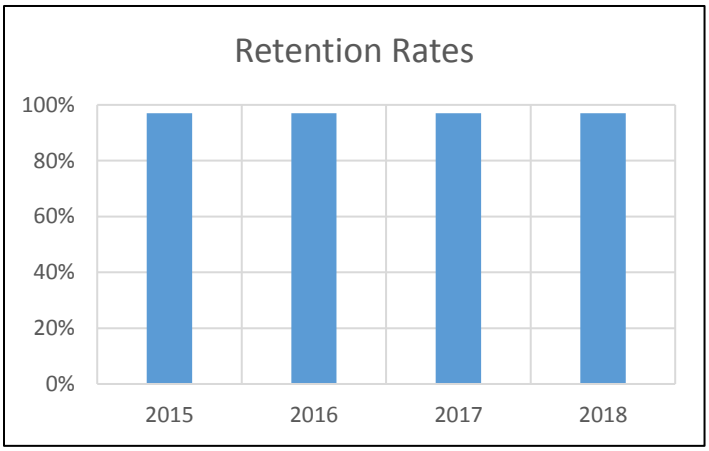
Online enrollment has been the source of Georgia Tech's growth in headcount with enrollment more than doubling on our online/video campus. Graduate enrollment in our online programs has increased dramatically while dual enrollment has held steady over the time period.

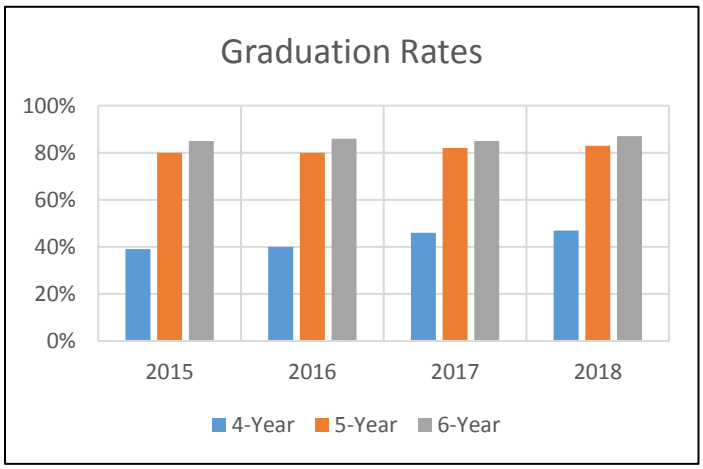
5) What is the current impact and projected impact of the out-of-state tuition waivers for the 14 institutions approved to extend out-of-state waivers to bordering states? What are the target areas? How do you advertise/communicate to potential students?
N/A

Part III: Student Success and Affordability

6) Provide information on graduation and retention rates. Explain positive or negative trends. Discuss student success in Freshman Math & English. What initiatives (if not described already) do you intend to introduce this coming year to improve student success? In what ways will you know that these initiatives are succeeding?

Georgia Tech's retention rate for the first-year has been at 97% for the last four years. Our graduation rates have also reached record highs and we are working to attain a 90% six-year graduation rate by 2020. As outlined in Part I, Georgia Tech is participating in the USG's Momentum Year initiative and we have started a partnership with the Gardner Institute to redesign our introductory Physics courses. We have no results to report yet since we just started our engagement with Gardner in FY2018. We expect our partnership with the Gardner Institute to lead to higher success rates in our Physics courses.





7) Discuss your institution's participation in the Affordable Learning Georgia program and also give details on the percentage of courses at your institution using low-cost or no-cost textbooks. What other actions has your institution taken to reduce the cost of education to students? Provide details regarding these actions, the number of students impacted and the savings to students. Additionally, provide ideas on how your institution can be proactive in reducing costs to students for the upcoming year.

Affordable Learning Georgia Data

For the 2019 academic year, nearly 500 course sections have been identified as requiring low-cost or no-cost textbooks. Over 6,000 students have enrolled in courses with low-cost or no-cost textbook options. The cost-savings to students will be analyzed as registration for Spring 2019 is completed but an example can be seen already in GT1000. During Summer and Fall 2018, a total of 2,080 students were enrolled in GT1000, Tech's Freshman Seminar. In previous years, the textbook costs were approximately $45.00. Since the textbook is now free, the students enrolled this academic year have a cost savings of $93,600. See recap below:

Number of Course Sections with Low Cost or No Cost Textbooks - 2019 Academic Year

Term	Low-cost $40 or under textbooks	No-cost $0 required textbooks	Total
201808	44		44
201902	22	423	445
Total	**66**	**423**	**489**

Recap of Additional Selected Georgia Tech Measures to Reduce the Costs to Students

1. Georgia Tech made 9,600 awards totaling over $49 million from its own sources, in addition to distributing $188 million from state, federal, and outside sources. See the table after the listing of actions. A summary of student aid in Fiscal 2018 from all sources is shown below.

Georgia Tech Awarded Student Aid, FY 2017-2018

Source	Number of Awards*	Amount of Awards
Federal Funds	15,405	$99,441,573
State Funds	9,745	71,138,076
Institutional Scholarships/Loans	9,601	49,279,021
Total GT Awarded Aid	**34,751**	**$219,858,670**
Total Outside Awards	2,717	17,667,441
Total Awards	**29,366**	**$237,526,111**

* Number of unduplicated students = 14,449

2. In FY18, there were 7,113 students who received HOPE/Zell Miller Scholarships, totaling $63.1 million. Also, 65% of first year/first time freshman entering as Georgia residents in fall 2018 entered as Zell Miller Scholars.
3. For graduate students only, the Board has agreed with Georgia Tech to reduce the Special Institutional Fee, which is now $344 compared to the full $544 per semester. Elimination of this fee and rolling it into tuition is GT's multi-year objective, which is financially beneficial to most graduate students. The Institute was not able to reduce this further in Fiscal 2019 due to the freeze on tuition rates.
4. Georgia Tech has fully implemented the Online Master's in Computer Science (OMSCS) and the Online Masters in Analytics at a greatly reduced tuition rates. The Institute also has initiated the Online Masters in Cybersecurity, which has a similar reduction in the cost to the students.
5. Georgia Tech continues to assist students to graduate on a timely basis, as witnessed by the Institute's very high graduation rates. See the response to questions 1, 6, and 15.
6. Many courses offer the option of renting (rather than purchasing) textbooks at a reduced cost. The Institute intends to increase promotion of this option to get more students to use it in the future.
7. The "Georgia Tech Payment Plan" allows students to defer payment for up to 50% of the current term's tuition and mandatory fee charges OR the account balance, whichever is less. (http://bursar.gatech.edu/content/georgia-tech-payment-plan)
8. GT offers competitively priced housing with rental terms that match the academic calendar, thus allowing families to save on renting rooms during the time that when school is not in session.
9. GT offers flexible meal plan options to match student needs and reduce costs.
10. The campus offers free transit to students in its immediate vicinity, including some off-campus locations.
11. Through the following four components, the Students' Temporary Assistance and Resources (STAR) program assists student in need (http://studentlife.gatech.edu/content/star-services).
    a. The Klemis Kitchen helps approximately 50 students in need per semester with free food.
    b. The "Campus Closet" assists students by lending clothing for students requiring business attire for interviews. Georgia Tech also loans winter coats to students in need.
    c. Georgia tech offers temporary housing to students who become unexpectedly displaced or placed under financial stress.
    d. The Dean Griffin Hip Pocket Fund offers interest-free emergency loans to students for academic or personal matters.

Part IV: Institutional Financial Health

8) Discuss the financial health of your institution using the June 30, 2018 annual financial statements as the basis. This discussion should include trend data for student receivable balances as well as other key financial measures (i.e. cash, reserves, etc.). Discuss any material audit findings. Use charts and graphs as necessary.

Response updated 11/15/2018 due to audit adjustments made after the submission

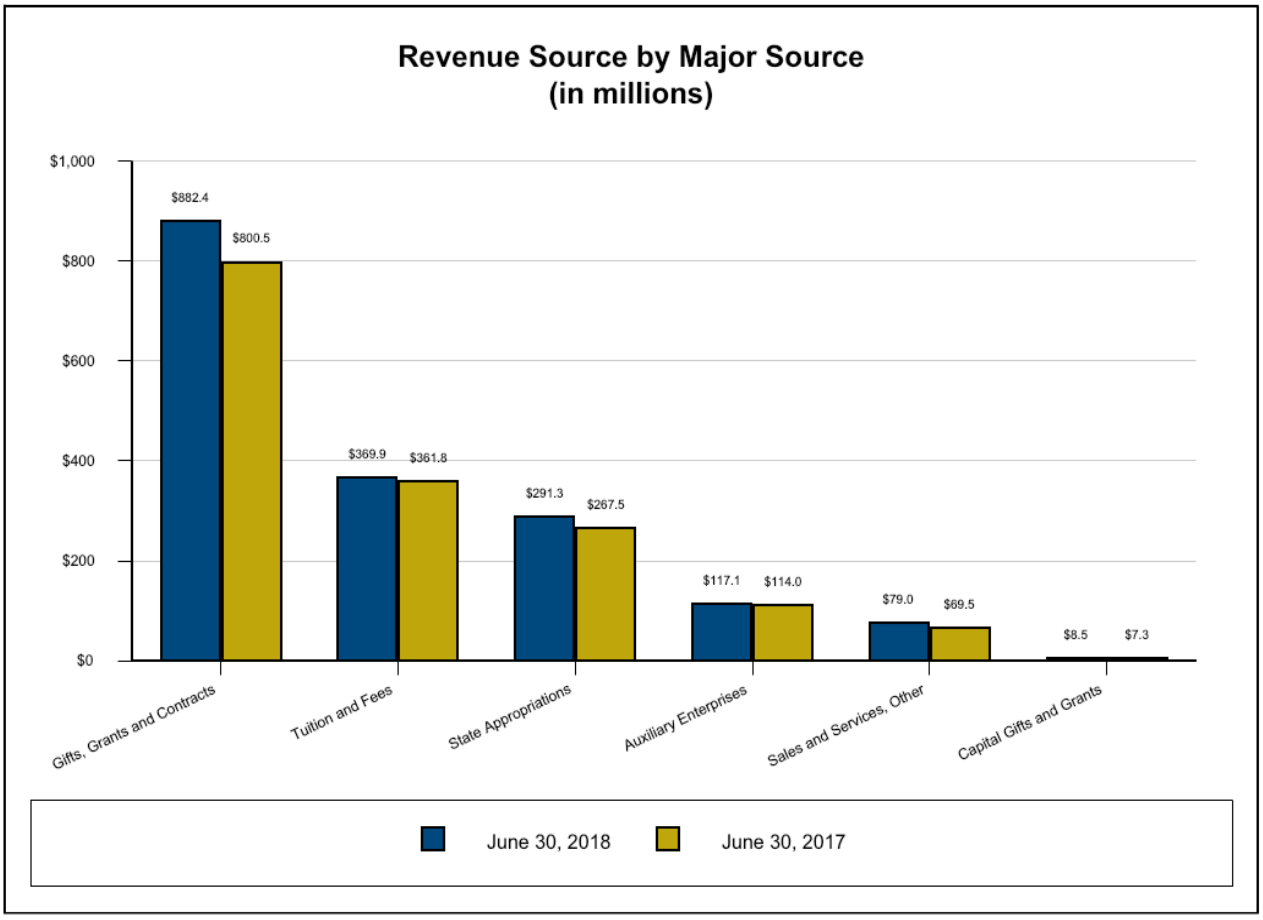
In 2018, Georgia Tech showed a strong financial position, due primarily to positive enrollment trends, a diversified and robust portfolio of sponsored research awards, and the strategic efforts of campus academic, research, and administrative partners. The financial schedules indicate that Georgia Tech completed another solid financial year.

The illustration below notes that total assets increased by 2.33 percent to $2.48 billion in fiscal year 2018. This increase includes combined capital additions and improvements to the West Village Dining Commons and steam line replacement of $38.7 million.

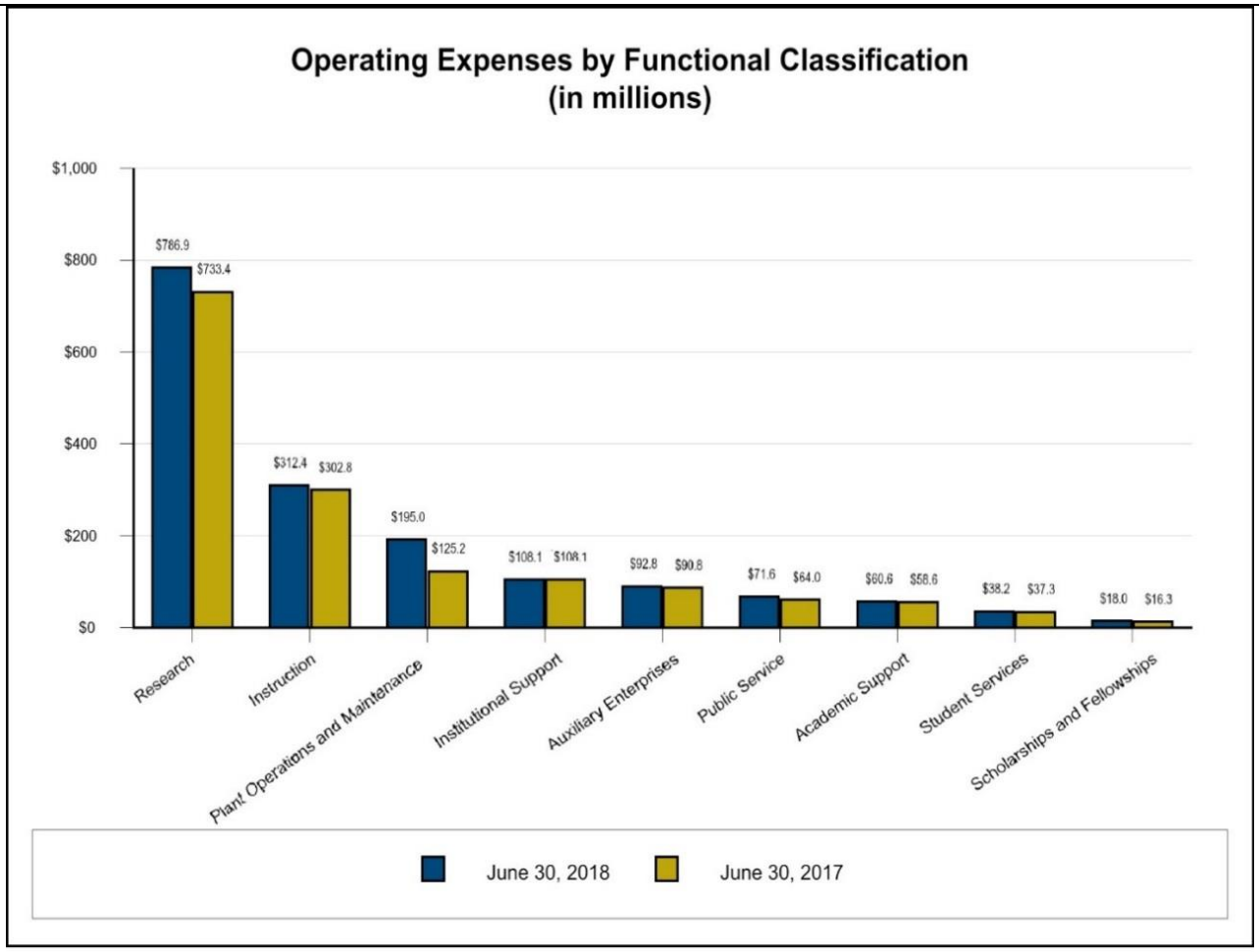
This year saw changes to the Governmental Accounting Standards Board (GASB) Statement No. 75, Accounting and Financial Reporting for Post-employment Benefits Other Than Pensions. The adoption of this Statement resulted in the accrual of the Institute's proportionate share of the net Other Post-Employee Benefit (OPEB) liability for the Board of Regents Retiree Health Benefit Plan. Primarily due to the new reporting methods, the Institute's Total Net Position decreased by $561 million to $865 million from fiscal year 2017 to fiscal year 2018. The revised standards necessitated a change in reporting only. Operational procedures stayed the same, and the Institute's financial position remains solid.

	June 30, 2018	June 30, 2017
Assets:		
Current Assets	$464,877,108	$430,979,041
Capital Assets, Net	1,917,030,340	1,901,947,788
Other Assets	98,439,853	90,915,300
Total Assets	2,480,347,301	2,423,842,129
Deferred Resource Outflows	140,174,893	135,937,111
Liabilities:		
Current Liabilities	203,580,710	200,413,897
Non-Current Liabilities	1,491,669,852	918,927,396
Total Liabilities	1,695,250,562	1,119,341,293
Deferred Inflows of Resources	59,496,438	12,878,810
Net Position:		
Net Investment in Capital Assets	1,466,887,074	1,435,060,932
Restricted for:		
Nonexpendable	69,971,535	65,258,703
Expendable	29,848,244	29,277,394
Unrestricted	-700,931,659	-102,037,892
Total Net Position	**$865,755,194**	**$1,427,559,137**

The following chart indicates that total revenue was $1,748.1 and $1,620.6 million for fiscal year 2018 and fiscal year 2017, respectively. Revenue from Gifts, Grants and Contracts was $882.4 million, an increase of $81.9 million over the prior year. This revenue source includes $77.0 million of direct expense reimbursements from the Georgia Tech Foundation, a decrease of $6.9 million over the prior fiscal year.



The following graph shows that total operating expenses were $1,660.7 million and $1,536.6 million for fiscal year 2018 and fiscal year 2017, respectively. This represents a $124.1 million or 8.07% increase over the previous fiscal year. Operating expenses for Plant Operations and Maintenance, Research, Instruction and Public Service increased by a total of $118.3 million. The remaining categories remained relatively stable compared to prior year.



9) Discuss the financial health of each auxiliary enterprise (except Athletics). Are any major changes to service offerings being contemplated, such as outsourcing that will affect the finances of the auxiliary portfolio? Have any auxiliary funds operated in deficit for multiple years, and if so how will this trend be reversed? Please use the attached Excel template to provide Auxiliary Reserves (tab labeled Reserve Balances).

The auxiliary enterprise at Georgia Tech is financially robust. Combined revenues exceeded combined expenditures by $49 million during fiscal year 2018, before depreciation and interest expense. Total revenues net of all expenses (including depreciation and interest expense) totaled $28.3 million. Reserve balances for each auxiliary enterprise division are established, held, and used for necessary capital improvements.

Revenues net of expenditures and after transfers for Housing, Dining/Food Services and Parking/Transportation was $16.5 million, $7.9 million and $2.2 million, respectively. The fund balance for Housing, Dining/Food Services and Parking/Transportation was $251 million, $38 million and $57 million, respectively. Other Auxiliary Operations and Health Services also had positive net revenues and both have positive fund balances. The Bookstore operation had a loss after expenditures and transfers in fiscal year 2018 of $805 thousand. The overall fund balance for this operation, however, is $6.6 million.

The Institute's Telecommunications system is managed as an Auxiliary enterprise and currently carries a negative fund balance of $5.1 million. The negative fund balance was reduced in fiscal year 2018 and will be further reduced in future years as additional net revenues are received. The Telecomm system is operated as a campus service/cost center. Rates are established and charged to internal customers based on projected costs and system utilization. Internal rates are updated over time to capture any prior year over or under-recoveries.

10) Provide an update on the current status of each Public Private Venture (PPV) at your institution. Have the underlying assumptions been achieved (i.e. enrollment, occupancy, etc.)? If not, discuss how shortfalls will be addressed. Describe any unexpected capital repairs, expenditure trends, reserve balances, and the anticipated coverage ratio for the current year based on your enrollment/occupancy. Discuss any needs for a fee increase in the upcoming year. Do current and projected future conditions indicate a need to draw from the capital reserve maintained at the System Office? If so, when and how much?

All Georgia Tech PPV projects are performing as planned and as budgeted, with coverage ratios at or above 1.0. Georgia Institute of Technology (GIT) has to date been very pleased with the projects within the PPV portfolio. Estimates of revenues, expenses, as well as the student growth rates that drive both of those have all proven to be reasonable and conservative. All annual PPV reports (including annual financial and the 10-year cash flows) have been submitted on time, and continue to represent the required 1.0 for revenues over expenses and lease obligations.

But this is not to say that these programs are not without their challenges. Georgia Tech operations our Auxiliary Services in a combined portfolio manner, and as such GT Housing retains their own reserves on the Institute's balance sheet – which can mean from time to time that a one-time lease amendment could be required in order to complete capital improvements within a housing PPV facility (which could also be true for dining or parking). To date, we have only had one such capital improvement and we are pleased with the on-going support from the BOR PPV team that we work with to address these needs and exceptions.

Outside of the above, which has occurred only once, GIT has no proposed or needed fee increases for FY20 that relate solely to a PPV, and have no current projections that forecast a need to draw upon the BOR held capital reserve.

11) Provide an update on the financial health of the athletics program at your institution. Specifically, provide the revenue generated, total spent by fund source, and reserve balance for the past five years. What percent of revenue comes from student fees and what percent comes from private donations? Report on any shortfalls. What actions are being taken at your institution to address any shortfalls or prevent them from happening? What are the biggest challenges in athletics? Be specific. Is your institution in compliance with the subsidy limit established by the Board? If not, what actions are being taken at your institution to get in compliance?

The Georgia Tech Athletic Association (GTAA) completed fiscal year 2018 with a net operating surplus of $3.1 million. The surplus will be added to its reserve balance, which totaled $6.6 million at fiscal year-end. The summary of revenue and expenses over the past three years is detailed in the following table.

GEORGIA TECH ATHLETIC ASSOCIATION INCOME STATEMENT (FY 2016-FY 2018)			
	FY 2016	**FY 2017**	**FY 2018**
REVENUES			
ACC Distribution	$22,874,800	$27,435,811	$28,098,370
Ticket Sales	12,573,349	11,304,108	14,070,352
Guarantees Received	73,650	326,000	2,908,000
Premium Lease Fees	9,691,493	9,591,533	9,442,347
Sponsorships	7,100,076	7,867,538	7,905,051
Student Fees	5,270,384	5,387,074	5,448,836
AT Donations & Endow. Draws	13,977,543	14,749,211	17,339,292
Institutional Support	$2,171,534	2,264,352	2,659,767
Other	$1,989,226	2,085,631	2,999,253
TOTAL REVENUES	**$75,722,054**	**$81,011,258**	**$90,871,266**
EXPENSES			
Personnel	$24,774,346	$28,011,941	$30,909,205
Scholarships	10,412,150	11,071,266	11,472,290
Travel & Post Season	4,362,161	6,319,413	4,450,024
Recruiting	1,365,539	1,407,424	1,323,949
Event & Other Services	3,897,070	4,149,395	4,184,500
General & Administrative	7,841,826	8,055,469	7,964,449
Guarantees	1,619,557	1,879,986	4,291,455
Operations, Maintenance, and Plant	5,912,313	6,843,718	6,787,359
Utilities	1,239,882	1,978,465	1,898,942
Uniforms and Equipment	828,619	970,165	1,025,422
Debt Service	13,193,406	13,414,115	13,433,680
TOTAL EXPENSES	**$75,614,821**	**$84,101,357**	**$87,741,279**
NET INCOME/(LOSS)	**$107,233**	**($3,090,099)**	**$3,129,987**
Beginning Fund Balance	**$6,508,202**	**$6,615,435**	**$3,525,336**
Net Income/(Loss)	$107,233	($3,090,099)	$3,129,987
Ending Fund Balance	**$6,615,435**	**$3,525,336**	**$6,655,323**

What percent of revenue comes from student fees and what percent comes from private donations? Report on any shortfalls?

The GTAA receives an athletic fee that funds approximately 6% of the total annual operating budget. Almost 30% of the GTAA's revenues come from private donations (premium seating lease fees and donations/endowment draws).

What actions are being contemplated or taken at your institution to address any shortfalls or prevent them from happening?

The GTAA's goal is to maintain a $5.0 million (minimum) reserve balance, which serves as a contingency account to offset any annual shortfalls or fund significant emergent expenses. At the end of fiscal year 2018,

the reserve balance totaled $6.6 million. The GTAA will conduct an annual operating budget risk analysis to determine the appropriate minimum reserve balance to address future financial challenges.

What are the biggest challenges in athletics? Be specific.
The GTAA is faced with operational expenditures which are required to stay competitive within the Atlantic Coast Conference (ACC). The growing costs include but are not limited to nutrition and meal offerings, mental health support for student-athletes, personnel expenses, and improvements or enhancements to facilities (deferred maintenance). Also, the GTAA depends on maintaining and growing the endowment base which supports scholarships, the total person program, debt service, and facility enhancements. The endowment generated returns of approximately 10% and totaled $109 million at the end of fiscal year 2018.

What actions will be taken at your institution based on the new athletics policy?
The GTAA maintains strong monitoring practices; therefore, limited action will be required in response to the athletics policy. An external financial statement audit, annual operating budget, and long term financial projections are completed each fiscal year and presented to the GTAA Board of Trustees. These items will be filed with the USG chief audit officer per the prescribed process and timeline as detailed in the athletics policy.

Part V: Fiscal Year 2019 Update

12) How are new funds appropriated for fiscal year 2019 being used to address the institutional priorities? Specifically, discuss the progress to date, achievements, challenges, etc.

The table on the next page compares the budget priorities submitted to the BOR via the Fiscal 2019 budget template with the actual allocations approved by the executive leadership. This includes allocations reflected in the Original Budget and also funding to be reflected in the second quarter budget amendment to be submitted to the BOR. Executive leadership decided to proceed with a limited merit raise program, which required reallocation of existing resources and application of additional projected revenue identified in the Institute's internal first quarter budget report. The following summarizes the budget status ($M):

Resources available following earmarked funding	**$24.4**
Total allocations including $6.3 million for merit increases	$29.4
(Less Internal Redirection of Funding)	-$5.0
Net allocations to address priorities	**$24.4**

As indicated in Georgia Tech's budget presentation for Fiscal 2019, the mandatory/must pay items must be covered by the "first dollar" available from new funding. The Institute applied 61% of the available funding to cover the items listed in the table on the next page. The four largest priority areas (nearly 80% of priority one items) are the following ($M):

- Information technology base requirements and enhancements $3.3
- Georgia Tech's share of fringe benefit increases $3.2
- Facilities operational requirements and leases $4.0
- Faculty research support of high performance computing (HPC) $3.6

Except for the merit program funding, the actual funding allocations to date are very similar to the plan presented to the BOR in March of this year. The one exception is the reduction of the faculty and faculty support funding line, which will have to be delayed until all "must pay" items are covered. This reduction is

partially offset by the additional funding being invested in faculty research support, including investments being made in conjunction with the imminent opening of the CODA building to be devoted to higher performance computing. The merit pay and other salary adjustment funding will be critical in helping to minimize turnover and to retain faculty by avoiding "raids" from other institutions.

Since this is being written in the second quarter of the fiscal year, it is difficult to assess the impact of the funding priorities at this time. However, the Institute will carefully track all new allocations and identify the impacts on students and on research efforts.

Georgia Tech's expected funding challenges in the Fiscal 2019 and future years are principally the following:

- Faculty and staff retention and recruitment
- Student mental health
- Funding for aging facilities including deferred maintenance and meeting ADA standards
- Information technology requirements, including cybersecurity and research support
- Continued financial and legal compliance
- Faculty start-up investments.

Georgia Tech
Fiscal 2019 Budget Allocations Compared to Priorities Presented to BOR

Resources Available Following Earmarked Funding			**24,389,337**	
Priority for BOR	**Priority Funding Areas**	**Priorities Identified to BOR**	**Amended Budget Allocations**	**% of Total**
1	Mandatory/Must Pay Items			
	- Information technology base requirements (regulatory compliance & fixed maintenance/software contracts)	2,080,000	1,331,656	
	- Information technology enhancements (learning mgt system, research tech, security/privacy, digital future)	1,800,000	1,962,732	
	- Coverage of library publishers' annual online subscription price	525,000	500,465	
	- Compliance commitments - federal, state, foreign government requirements - legal, financial, & other business areas	500,000	749,200	
	- GT share of fringe benefit increases - health insurance and TRS	3,240,000	3,240,000	
	- Faculty Promotion and Tenure	600,000	600,221	
	- Facilities operational requirements and leases	4,175,000	3,979,927	
	- Faculty research support of High Performance Computing/PACE (Partnership for an Advanced Computing Environment)	2,000,000	3,600,000	
	- Other Mandatory/"Must Pay" Items not Presented to BOR:			
	- Public Safety	-	802,450	
	- Research Support (including grants support and faculty start-up)	-	567,500	
	- Systems Infrastructure Investments (permanent allocations)	-	580,000	
1	Total Mandatory/Must Pay Items	14,920,000	17,914,151	61%
2	Faculty and Staff Salary Equity and Retention (incl merit pay - $6.3M)	2,550,000	7,188,300	24%
3	Student Services	385,000	366,326	1%
4	Faculty and Faculty Support	4,250,000	2,610,741	9%
5	Student Success and Support	1,120,000	578,380	2%
-	Other Institute Support Priorities		737,732	3%
Total Allocations (excluding earmarked revenue)		23,225,000	29,395,629	100%
(Less Internal Redirection of Funding)		(3,800,000)	(5,006,292)	
Net Allocations		**19,425,000**	**24,389,337**	

13) How is your institution addressing the impact of fall 2018 enrollment declines or shortfalls, if applicable? Was this decline considered in your original budget? What actions are being taken to cut costs and streamline operations?
N/A

14) What one-time costs are anticipated or possible but currently on hold pending funding availability in fiscal year 2019? Use the attached template to provide a priority listing.
The one-time items currently on hold pending funding availability total $57.12 million, as listed in the template. The projects are the following: 1. Facilities Deferred Maintenance ($3.25M) – current deferred maintenance total exceeds $170M per the most recent Sightlines "Return on Physical Assets analysis" 2. Campus-wide ADA Transition Plan Implementation ($1.0M) – These upgrades are required for code compliance. 3. 10th Street Chiller Electrical Resiliency ($6.6M) – This work includes the replacement of four transformers with larger ones and equipment replacement to bring this up to the standards of the Holland Plant. 4. Historic Renovation of D.M. Smith ($18.5M) – This involves the complete historic renovation of this 38,306 gsf facility, including accessibility compliance of building this building that houses centrally scheduled classrooms and departments in the Ivan Allen College. 5. Aerospace Engineering Complex Renewal – Engineering Science & Mechanics Building ($19.4M) (Phase 1 of 3) – complete renovations and code upgrades of historic buildings; phased master plan for Aerospace Engineering complex: - Phase 1 - Engineering Science & Mechanics Building – $19.4M (37,818 gsf) - Phase 2 - Montgomery Knight Building – $31.5M (69,702 gsf) - Phase 3 - Weber Space Science & Technology (SST1 & SST3) Buildings – $24.7M (86,117 gsf) 6. Design for the Renovation of Blake R. Van Leer Building ($8.37M of the total project budget of $83.7M) – This project involves the complete renovation this 150,000 gsf historic building, including code compliance; the building is used for centrally scheduled classrooms, class labs and Electrical and Computer Engineering programs.

Part VI: Looking Ahead to FY 2020

15) The University System of Georgia was permitted to request enhancement funding in FY20. A template to collect enhancement requests related to Momentum Year/student success and student safety initiatives was distributed in August. Please provide a narrative description of the request, to include description of activity, timeline of implementation, and expected outcomes or performance indicators.
Focus of Georgia Tech's CCG Efforts The first phase of Georgia Tech's Complete College Georgia (CCG) investment focused primarily on: • Increasing academic support and intervention programs; and • Improved campus coordination of retention and completion efforts.

These efforts have been largely successful, as evidenced by the achievement of historically high first-year retention (97%) and six-year graduation rates (87%). However, Georgia Tech still has progress to make and the next phase of the CCG effort addresses the following issues:

- Reducing time-to-degree completion;
- Supporting students in more efficiently navigating Georgia Tech's undergraduate curriculum;
- Ensuring that all undergraduate students have equitable, accessible, and developmental advising, even within the Institute's highly decentralized advising model;
- Expanding students' opportunities to enhance exploration in their majors, interactions with faculty, and career planning through high-impact educational practices such as Living Learning Communities (LLCs).

Recap – Fiscal 2020 Enhancement Requests: $728,000

Priority 1: Investments in Undergraduate Academic Advising ($445,000)
In Fall 2017, motivated by Complete College Georgia efforts and other campus initiatives, the Provost created a task force to review the Institute's academic advising programs and practices and make recommendations to improve them. These recommendations focused on ensuring that Tech undergraduates must have access to comprehensive, effective, and impactful advising. With implementation of the findings of this task force, key outcomes will be to: expand advising services, better integrate career and academic advising, and enhance technology and analytics. Additional recurring funding from the USG would provide Georgia Tech an opportunity to make an immediate strategic investment in its undergraduate academic advising efforts and thereby allow the Institute to make progress on the goals outlined in the "Momentum Year" initiative.

Priority 2: Predictive Academic Analytics ($208,000)
Georgia Tech needs to further develop the capacity for predictive academic analytics to implement data-informed decision making in the general field of student academic success, curricular planning, and progress toward degree completion. Georgia Tech is developing "dashboards," which provide early-alert systems, predictive analytics, and improved reporting systems. At this time, advisors do not have any data analysis capabilities to help them focus on outreach and advising to students at key points in their academic careers. Georgia Tech also needs to add dedicated staff with expertise in data and analytics beyond just identifying students who are potentially "at risk." The need is also to capture and analyze data to help understand factors that impact students' retention and time-to-degree, including measuring how students traverse the curriculum and where curricular "bottlenecks" exist.

Priority 3: Living Learning Communities Curriculum Development ($75,000)
This third priority is to expand opportunities for students to participate in high-impact educational practices such as Living Learning Communities (LLCs), a key Georgia Tech strategy for promoting: student engagement in their majors, interactions with faculty, and planning for future careers. Students participating in Living Learning Communities at Georgia Tech are provided with opportunities to develop and grow the robust disciplinary knowledge they are gaining in their coursework and communicate it across social, cultural, and economic boundaries. Far more than coordinated activities, LLCs are tailored to first year students' interests and provide opportunities for students to explore and discover, while developing their creativity and problem-solving skills. New funding will enable the development of these courses, which combine the most successful instructional pedagogy with creative models of teaching to ensure that Georgia Tech's LLCs continue to innovate and graduate students who will make an impact in the world.

16) Your institution experienced credit hour enrollment growth in academic year 2018 and it is likely that your institution will receive additional formula funds in FY 2020. What are the budget priorities for your institution? How will new funds be utilized to best serve students? Please use the attached Excel template to provide the estimated cost associated with each priority (tab labeled New Funds – do not duplicate enhancement requests from question 15).

1. Faculty and Staff Salary Equity and Retention ($4.97M)

A top priority is funding to address both staff and faculty retention efforts and to correct salary equity and compression issues.

- The focus will be to retain employees in critical areas and avoid salary compression issues.
- These would be strategic, targeted raises, and not merit or cost of living increases.
- The $4.97 million identified in this priority represents the Resident Instruction/General Operations (RI/Gen Ops) cost of this effort if adequate funds are available. The amount is equivalent to 1% of the RI/Gen Ops salary base including fringe benefit increases - $4.04M of salaries + $932K of fringes.
- Salary adjustments for employees funded from sources other than RI/Gen Ops would be funded from those respective sources, including Auxiliary, sponsored, GTRI and the Enterprise Innovation Institute. Affiliate organizations also follow the president's guidance on pay adjustments.
- Critical faculty areas include: academic faculty in engineering, computing, sciences, and business, and research faculty in defense-related program areas.
- Critical staff areas include: information technology, business services, skilled trades, and law enforcement.

2. Complete College Georgia – Student Success and Support ($728K – 7 positions)

This request is represented by the Enhancement Request previously submitted to the BOR, detailed in Question 15. Since the BOR placed a $500,000 limitation on the Enhancement Request, Georgia Tech showed the use of non-state Institute funding to cover a portion of the costs. The $728,000 shown in this document represents the total cost projected for this initiative.

3. Faculty and Faculty Support ($5.95M including fringes – 30 positions)

Subject to the availability of funds, Georgia Tech intends to continue to invest in improvements in the quality of instruction through the following three priorities.

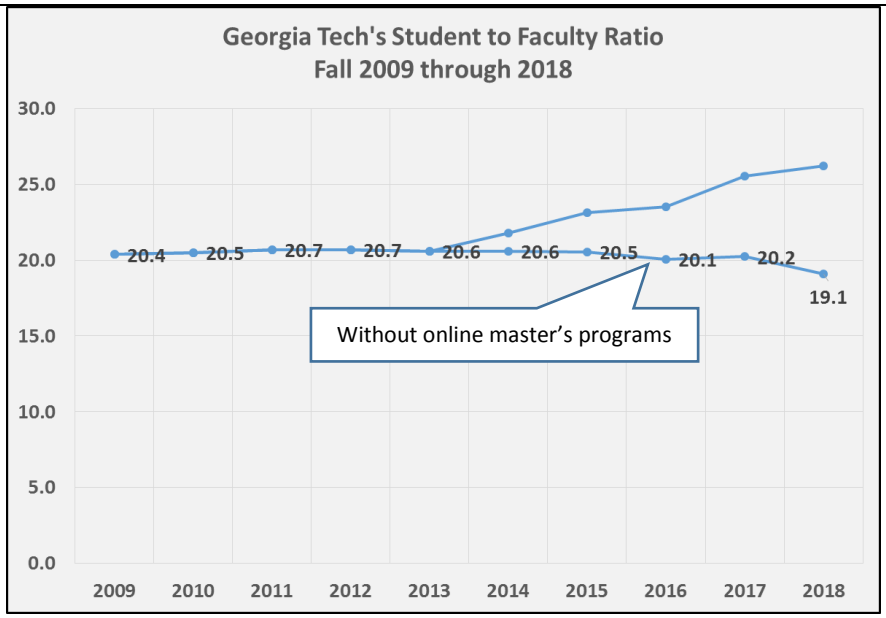
- <u>12 New Tenure-Track Faculty Positions ($3.0M) and 10 Non-Tenure Track Positions ($1.0M)</u> – The new positions will address enrollment increases and high priority research areas. These faculty lines will be targeted to improve student access to classes and sections, and thereby accelerate the time to degree. They also will improve student-faculty access and interaction and the student-faculty ratio. As shown in the chart on the next page, Georgia Tech has shown progress over the past four years in reducing the student-faculty ratio, when all faculty are considered, including non-tenure track faculty. The Institute has invested more heavily in recent years, and students have benefited from this approach. The following points support the importance and focuses of this budget priority.
    - Enrollment Growth Areas – The three highest growing majors since Fall 2013, besides the Master's of Computer Science, are the following: BS in Computer Science, BS in Aerospace Engineering, and BS in Mechanical Engineering.

- Research Priorities – The following are Georgia Tech's highest priority research disciplines for new faculty hires: data analytics, health sciences, machine learning, policy, cyber security, and energy (see http://www.research.gatech.edu/areas).
- Student-Faculty Ratio – With ongoing faculty turnover including retirements and annual, modest enrollment increases, the Institute is challenged to maintain its student-faculty ratio, as measured by tenure track (TTK) faculty. Selected programs have supplemented TTK faculty with instructors, lecturers, and graduate teaching assistants.
- On-Line Masters Programs – The student-TTK faculty metric has increased substantially with the implementation of online masters' programs, where the programs are able to deliver quality classes with a higher student-faculty ratio. The quality of these programs is ensured through extensive networks of teaching assistants. When the online programs are excluded from the TTK measure, the fall 2017 ratio has remained relatively flat from the previous fall.
- Faculty Workload – Georgia Tech faculty maintain a heavy workload in addition to their teaching load. In FY2018, Georgia Tech faculty were responsible for the following:
  - 757,000 credit hours generated
  - $885.2 million in new sponsored awards
  - $1.8 billion in sponsored proposals
  - $856 million in R&D expenditures
  - 25 plus start-ups formed from Georgia Tech research.

- Faculty Start-Up and Matching Funds ($1.2M) – The Institute has worked toward building a consistent, permanent budget for faculty start-up to cover equipment, renovations, matching for grant proposals, laboratory fit-up, and graduate research assistants. This central funding would be matched by an equal amount of dollars from the colleges. As in the past the Institute will attempt to identify other sources to cover the balance required that is not available from formula funding. If start-up funding is not available, then faculty job offers cannot be made in many of the disciplines, especially in engineering and the sciences. This increase represents approximately 14% of the current permanent Resident Instruction/General Operations centralized start-up budget of $8.4 million. The annual faculty commitments with funding from all sources totals approximately $26.0 million. The other major source is the Georgia Tech Research Corporation.

- Eight Faculty Support Positions ($750K including fringes) – These positions are intended to reduce the administrative burden on faculty and help increase productivity in teaching and research. During the four years of budget cuts, Georgia Tech did not reduce faculty positions, but rather, froze administrative vacancies and deleted a total of 139 filled positions, including 97 in Resident Instruction. Despite the freeze on administrative vacancies, faculty continued to support the instruction, research and economic development mission of Georgia Tech, as witnessed by the workload data shown above. This proposal will continue to re-invest in administrative support in both central and academic units and catch up on business system improvements that support the enterprise. With the recent changes in federal grant administration requirements, this effort is essential in ensuring compliance with federal rules, as well as streamlining grants administration for faculty and staff alike.

  Example positions to be added: Academic Professionals, Grant Writers, Financial Administrators, Financial Analysts



NOTE: The faculty count includes tenure-tenure track faculty, academic professionals, and instructors/ lecturers/professors of the practice. Administrative faculty are excluded from the computation.

Mandatory/Must Pay Items ($13.95M)

Each year Georgia Tech ensures that its financial requirements and existing commitments are met prior to funding allocations for new programs and expansion of existing efforts. The requirements list for Fiscal 2020 currently totals $13.95 million, detailed below and in the funding priority spreadsheet. This list will continue to change during the Fiscal 2020 budget preparation process. New funding in Fiscal 2020 will go to fund these items first, coupled with funding redirected to maximize allocations to high priority items. Over the past three years Georgia Tech has internally reallocated in its original budget a minimum of $5.0 million each year to fund high priority items, and additional funding shifts were applied in the second quarter to fund the Fiscal 2019 merit raises.

- Information technology base requirements – fixed maintenance/software contracts ($1.25M)
- Library publishers' online subscription price increases – to avoid reduction in current services ($530K)
- Compliance commitments - federal, state, foreign government requirements in legal, financial, and other business areas ($250K)
- Faculty Promotion and Tenure ($600K)
- Facilities operational requirements and leases: operating increases for existing facilities, lease increases, PPV & other reserves ($4.75M)
- Facilities infrastructure/deferred maintenance and operating cost increases ($1.0M)
- Quality Enhancement Plan (QEP) ($1.0M)
- Information Technology - Cloud Hosting and Applications and Major Research Instrumentation (MRI) ($2.0M and $1.0M respectively)

  GT Share of fringe benefit increases – health insurance and TRS ($1.57M)

Part VII: Academics

17) Discuss new academic programs under consideration for startup in FY 2020. Do you have plans to introduce a Nexus degree? How do the proposed programs line up with the goals of industry, the System, the region and the State? How were the needs for the programs and the program budgets determined?

Georgia Tech is considering six degree programs for start-up:

1. Master of Sustainable Energy and Environmental Management: The public and private sectors in Georgia and beyond have demonstrated increasing interest in implementing sustainable practices. The shift toward corporate social responsibility and the expansion of public programs targeting clean energy and environmental protection, along with an expansion of funding and activity by environmental nongovernmental organizations (NGOs) has led to a surge in demand for professionals with training in sustainability. With the proposed new professional Master in Sustainable Energy and Environmental Management (M-SEEM) degree, and it associated Graduate Certificate (C-SEEM), Georgia Tech can help meet this demand in Atlanta, Georgia, the Southeast, and beyond.
2. Master of Science in Robotics: The program is designed to meet the growing industrial and societal demand for advanced education in robotics. Graduating students will find employment in traditional industries such as manufacturing, defense, security, and transportation. Add to this emerging opportunities in forestry, agriculture, entertainment, homeland security, healthcare applications, and law enforcement. The robotics field relies on fundamental technologies such as Artificial Intelligence, Machine Learning, high-energy batteries, low-power motors, lightweight structures, and fast, embedded computers.
3. Master of Science in Global Development: The evolving global power structures create disparities in the developing world and the re-developing world that impacts societies and their ability to solve problems of poverty, the supply of goods and services, markets, and financial assistance. With support from the Center for International, Strategy, Technology, and Policy, global development seeks to improve physical infrastructure to ensure sustainable food and water supply and the ability of people to thrive and be problem-solvers.
4. Master of Science in Global Security: Emerging power structures represent challenges to society and its security. Migrations can affect food and water supplies, energy, and many areas of security beyond cybersecurity. With support from the Center for International Strategy, Technology, and Policy, students in global security will understand how all these forces interact and identify how technically-based approaches can address new challenges in developing and maintaining a secure environment.
5. Ph.D. in Neuroscience and Neurotechnology: Neuroscience represents a wide ranging, and ever evolving field of study. Research in neuroscience spans understanding the human condition and behavior, development and aging, health and dysfunction, and ethics and philosophy. While the science of the field is growing, it is becoming increasingly clear that the technological solutions to understand the function of the nervous system must mature. The proposed PhD in Neuroscience and Neurotechnology has a goal of advance the field of neuroscience through an interdisciplinary approach, with scientists and engineers of diverse backgrounds, integrating neuroscience research and technological development to study all levels of nervous system function.
6. BS in Economics and Mathematics: The BS in Economics and Mathematics combines rigorous requirements of both Economics and Mathematics so that students gain a substantive theoretical background while also acquiring applied skills in quantitative analysis. Students will learn macroeconomics, microeconomics, econometrics, economic forecasting, multivariable calculus, differential equations, mathematical proofs, probability, statistics, and linear algebra.

Program needs are determined through studies of employer and industry demands, Bureau of Labor statistics, and faculty networks. Budgets are determined by aligning current resources with projected resources. In many cases, we can simply absorb the costs of the program with existing resources. We expect the implementation of our recommendations from the USG Comprehensive Administrative Review will also provide opportunities to redirect funding for new degree programs.

18) Discuss the success of programs created during the past 4 years. Have enrollment targets been met and have cost projections held true? How is the institution addressing any underperforming programs?

Our new programs are showing signs of strong enrollment. Cost projections are in line with actuals. If program enrollment is lower than expected, the Institute will proactively recruit to increase applications and enrollment to ensure that demand for the program exists. If the demand is waning, we will address it during the Academic Program Review process.

Degree	Major Field of Study	Fall 2015	Fall 2016	Fall 2017	Fall 2018	Trend	Comments
BS in Mathematics	Mathematics			164	215		Combined applied and discrete math
BS in Music Technology	Music Technology		7	32	52		
BS in Neuroscience	Neuroscience			138	205		
Doctor of Philosophy	Machine Learning				43		
Doctor of Philosophy	Ocean Science and Engineering			9	16		
Doctor of Philosophy	Quantitative Biosciences		9	16	24		
Master of Architecture	Architectural Technology			68	82		
Master of Real Estate Develop	Real Estate Development			14	33		
MS in Architecture	Architectural Technology		15	22	23		
MS in Cybersecurity	Cybersecurity			74	94		
MS in Economics	Economics	22	19	27	34		
Pro Masters in Manu Leadership	Manufacturing Leadership		18	29	31		
Pro Masters in Occ Safe Hlth	Occupational Safety and Health			23	40		

19) What existing programs have low degree production? What measures are you taking to improve the enrollment in these programs?

The USG last provided a report on programs with low degree production in 2016. Our own internal study shows that we have approximately 20 programs which would meet the criteria of currently being low-producers:

- Nine of the degrees are “undesignated” master’s programs which have been discontinued;
- The Master’s and PhD in Paper Science and Engineering have been discontinued and will become a concentration within other PhD programs in the sciences and engineering;
- Two bachelor’s degrees have been discontinued (Building Construction and Discrete Mathematics) and have teach-out plans with no faculty ramifications.
- Two Master’s (Biomedical Engineering and Urban Design) and two PhD programs (International Affairs, Science & Technology and History & Sociology of Science and Technology) have strong applications and enrollment and we expect all four to be robust producers within the next 2-3 years.
- Three undergraduate programs (Economics & International Affairs; Global Economics & Modern Languages; and International Affairs & Modern Languages) will undergo a strategic review to determine future options.

Earlier the summer, Georgia Tech responded to a request from USG's Academic Affairs office to provide degree program groupings for the purpose of studying degree productivity. We anticipate that this administrative change to reporting will decrease the number of programs we currently see as low-producers.

Part VIII: Facilities

20) Highlight any projects in your existing Capital Plan that are integral to the goals and outcomes discussed elsewhere in this document (enrollment, academic, student success, etc.).

The following anticipated projects are integral to the goals and outcomes related to initiatives outlined in the first section of this narrative, the Momentum Year, and the implementation of the Comprehensive Administrative Review recommendations. For example, the Classroom Improvement Program directly affects instructional and academic support, particularly for undergraduates. Renovations of several residence halls over the next several years will directly impact the student life experience outside of the classroom.

Likely projects with a positive impact on instructional and academic support functions include:

- Expansion of Technology Square (Phase 3A)
- Renovation of the D.M. Smith Building
- Partial renovation of Callaway Building for Robotics Arena
- ADA Transition Plan Implementation Program
- Classroom Improvement Program
- Smart Labs Renovations Program
- Aerospace Engineering Complex Renewal, Phases 1, 2 and 3
- Renovation of the Blake Van Leer ECE Building

Student Services will be impacted by the following capital projects:

- GTAA - Renovation of O'Keefe Gym (Volleyball)
- GTAA - Renovation - Bobby Dodd Stadium Upgrades
- Campus Services - CRC ORGT (Outdoor Recreation GT) Expansion
- Campus Services – Renewal, renovation of residence halls
- Campus Services – Parking decks facility condition assessments and structural investments
- Partial Renovation of Robert Ferst Center for the Arts

21) Are there any facility expenses, including one-time or ongoing maintenance needs, which are not discussed in the Capital Plan that will have a major impact on operating budget planning for FY20? Provide details and budget impacts.

Two recent projects from the Institute Capital Plan will have unusual one-time and ongoing maintenance and operations needs related to the special nature and the research and public service functions and opportunities inherent in the facilities and their programs. It is important to note, that the very nature of these projects anticipate significant operating expense reductions and a net positive impact over their life cycle :

The Kendeda Building for Innovative Sustainable Design (Kendeda Building) is a collaboration between the Georgia Institute of Technology and the Kendeda Fund, a private grant making foundation that provided $25 million to fund 100 percent of the design and construction costs and $5.0 million to support programming activities. The Kendeda Building will be a multi-faceted building with approximately 47,000 square feet of programmable space of which nearly 37,000 square feet is enclosed and conditioned space. Georgia Tech seeks to construct and operate the Kendeda Building to the stringent Living Building Challenge (LBC) 3.1 certification standards, the world's most rigorous proven performance standard for buildings.

To meet these stringent LBC requirements, the Kendeda Building will abide by strict construction guidelines as well as operating procedures. For example, The Kendeda Building must produce more energy than it uses on site through renewable sources, as well as collect, treat, and reuse more than water than it needs on an annual basis. Because the Kendeda Building will be a pioneer in the region, the ongoing maintenance needs are difficult to quantify at this time. The Institute expects some otherwise usual operating costs to be zero, such as a utility bill for electricity and water. This is due to the LBC net-positive energy and water requirements. New facilities personnel will be hired to focus on operating the Kendeda Building to LBC 3.1 standards, but a final number of new personnel is not known at this time. There will also will be third-party contracts for services. However, some of the novel third-party services to be required, such as the annual cost of operating the Kendeda Building's potable water system, have not yet been determined. Georgia Tech is currently involved in the FY2020 to FY2023 budgeting process for this facility.

The Smart Labs Energy Reduction Program is being piloted thru a guaranteed energy savings Performance Contracting mechanism of the Georgia Environmental Finance Authority (GEFA). The pilot GEFA project is for two -- the Whitaker bldg. for Biomedical Engineering (BME) and the Ford bldg. for Environmental Science & Technology (ES&T) of six buildings currently identified in the Capital Plan multi-year Program for Lab energy reduction renovations.

The Whitaker, Ford, Petit/IBB, Krone/EBB, Marcus/Nanotechnology, and the Materials Science & Engineering Buildings are some of our most energy intensive buildings on campus. Georgia Tech anticipates energy savings from this program of renovations. The below line items are to ultimately support the smart labs Implementation and Operational program, across all six buildings:

Cost Factors for Smart Labs Energy Reduction Program:
$651,347 ONE-TIME IMPLEMENTATION OF FAULT DETECTION SOFTWARE
$253,656 ON-GOING ANNUAL MONITORING
$182,000 ON-GOING PERSONNEL (includes +30% for benefits)

Part IX: Information Technology (IT)

22) What are the trends in the overall IT expenditures of the institution over the last three years and where has the institution strategically invested in IT solutions to improve student outcomes or administrative efficiencies.

Three-year technology investment trends for Georgia Tech center around three primary priorities: Student Success, Expanding Research, and Administrative Efficiencies. This is accomplished by incrementally reducing costs associated with administrative systems, while making investments in faculty, research, and student-facing technologies.

1. Investments in student success include:
   a. Investment in a robust data infrastructure: Significant investment in a modern data warehouse to expose student enrollment and performance data to advising and support applications.
   b. Investment and implementation of a CRM solution to streamline and modernize student engagement from recruitment through commencement.
   c. Investment in a modern learning management system with fully integrated learning analytics to provide an enhanced learning experience and advise on course design and learning outcomes.
   d. Incremental reallocation of resources from administrative and instructional support to create/fund the digital learning support team of 7 personnel and 4 graduate assistants.
2. Research expansion investments include:
   a. A 90% increase in investments in research computing platforms (HPC)
   b. Increasing capacity from 32,000 cores to 54,000 cores. This investment has resulted in a 63% increase in users, and a 110% increase in in HPC-enabled sponsored research ($18.9M).
3. Administrative Efficiencies
   a. Investment in a new comprehensive financial system to replace the legacy PeopleSoft platform, which was highly-customized and required significant distributed support.
   b. Investment in a cloud-based data integration platform to replace the existing, home-grown system (BuzzAPI). This replacement reduces the cost per transaction by over 75%, mitigates vulnerabilities, and reduces risks based on single-points of failure for the Institute.
   c. Incremental reallocation of $1M in the Georgia Tech Service Delivery Platform, which streamlines customer support and case management by connecting all services across Georgia Tech through a unified platform, enhancing the faculty, student, and staff experience.

23) Discuss the investments your institution has made in relation to cybersecurity operations, including multifactor authentication. What cybersecurity related services would your institution be interested in having the USO/ITS provide?

Georgia Tech has made significant investments to improve cyber security capabilities across the Institute. Over the past three years these investments have exceeded $10.0 million. Further details of cyber security investments will be provided to the BOR Budget Office. Efforts include the following:

   a. Network security investments in next generation firewalls, network-based malware prevention, and in-line intrusion prevention
   b. Endpoint security investments in endpoint management, endpoint protection, endpoint threat detection/response, and vulnerability management
   c. Two factor authentication
   d. Security operations investments in event management and correlation, log management, security operations management
   e. Email security investments in malware prevention and anti-spoofing
   f. User security investments in two-factor authentication and training/awareness programs
   g. Regulatory compliance investments in a GRC (governance, risk management, and compliance) platform
   h. Expansion of the cybersecurity engineering, operations, and GRC teams
   i. Substantial investments in software, including Splunk, FireEye, Endpoint, Qualys, Arista, and Duo products

It is recommended that the USO/ITS consider providing digital forensic investigative services in support of internal investigations across the USG. This is a unique skill set that few universities can afford full-time resources to manage. While there is some intersection in the skills needed to provide Cyber Security services and digital forensic services, the focus of Cyber Security teams would be to prevent, detect, and respond to cyber attacks.

24) Discuss the information technology needs of your institution other than cybersecurity. What is the FY20 annual projected IT spend concerning the remediation/mitigation of audit findings, legislative mandates, or regulatory requirements? IT needs that have been identified as top priorities for your institution should be included as a part of your FY20 funding request (Question #15) if your institution has been permitted to request new funds.

In support of several transformative Georgia Tech initiatives, the following potential IT investments have been identified for FY20: cloud hosting and applications; research cyber infrastructure; recurring major research instrumentation (MRI) costs; and a new expansion request for 24/7 audiovisual services support for the Library Next initiative. These significant investments total $5.0 million and serve to enhance the global teaching, learning, and research experience across Georgia Tech locations. GT also plans the expansion of the Georgia Tech Service Delivery Platform, which introduces a comprehensive, efficient, and effective model for delivering customer support across the Institute. Service Delivery will be a key component of several IT-related projects, including the Financials implementation.

Part X: Major Success/Accomplishment

25) Use this section to highlight one major success/accomplishment at your institution that is in alignment with one or all of the Chancellor's three priorities.

- Degree Attainment: ensure more Georgians enter the workforce with a college degree.
- Affordability: make college more affordable for Georgians.
- Efficiency: find opportunities to be more efficient and control costs.

Please attach a one-pager that succinctly presents this success/accomplishment. This is an opportunity to brag on yourself. The information provided may be used in external communications.

Please include the following elements as you deem appropriate:

- Background
- Who benefited?
- Impact on student success
- Impact to the State of Georgia
- Savings ($), if applicable

A principal focus of this section will be on the Commission on Creating the Next in Education (CNE). The complete response will be submitted later, prior to the budget planning meeting. The following excerpt from the Foreword of the Commission's final report describes Georgia Tech's mission of "creating the next" lifelong learners:

> Georgia Tech remains committed to our mission as a public, technological research institution, and the traditional, residential experience will remain the core of our mission. But the Georgia Tech for the next generation must be transformed by redefining the fundamental approach to educational delivery. That new approach, called the "Georgia Tech Commitment to a Lifetime Education," envisions continual engagement with learners that extends from kindergarten to forever. The Georgia Tech Commitment means integration with primary and secondary schools, flexible learning options, connectivity that enables learning beyond traditional college years, and a network that supports learners all over the world.

This excerpt from the report's executive summary further describes the focus of this commission's efforts:

> This report of the Georgia Tech Commission on Creating the Next in Education (CNE) is an effort to draw with broad strokes the nature of education that defines the technological research university of the year 2040 and beyond. The Commission was formed because many within the institution are convinced that by the second half of this century Georgia Tech will be different from the university that matured and prospered in the nineteenth and twentieth centuries. Georgia Tech's mission seems to demand that the Institute examine the choices that lie ahead and make plans for a future that, however uncertain, is bound to present opportunities and challenges that cannot be understood as incremental changes in the status quo. (http://www.provost.gatech.edu/commission-creating-next-education)