

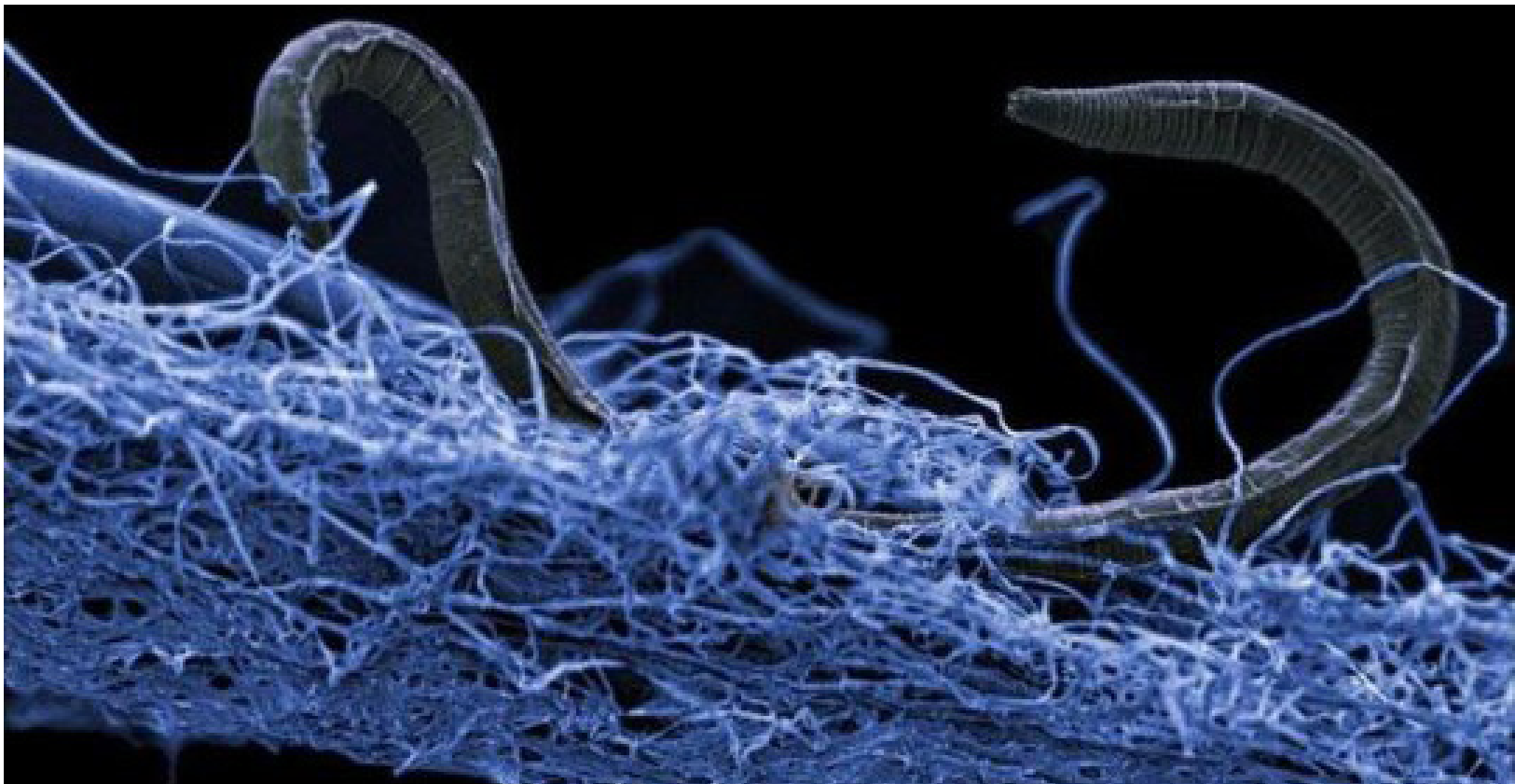
University of Tennessee  
Office of Research & Engagement

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# Quarterly Research Activity Report • Q1 FY19

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Cumulative for July 1, 2018 – September 30, 2018



A nematode (eukaryote) in a biofilm of microorganisms. This unidentified nematode (*Poikilolaimus* sp.) from Kopanang gold mine in South Africa, lives 1.4 km below the surface. Image courtesy of Gaetan Borgonie (Extreme Life Isyensya, Belgium)



THE UNIVERSITY OF  
TENNESSEE  
KNOXVILLE

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OFFICE OF RESEARCH &  
ENGAGEMENT

## A Message from the Vice Chancellor

After a record year for total research expenditures in fiscal year 2018 (FY18), the first quarter of fiscal year 2019 (Q1 FY19), looks strong. The current estimate of the FY19 Total Research Expenditures (TREs) is \$50 million, an increase of 16% over the first quarter of fiscal year 2018 (FY18). This increase is based on the efforts of our many talented faculty and our internal efforts to accurately capture the institutional contributions to research.

Some of the positive takeaways for the first quarter of fiscal year 2019 (as compared to the first quarter of fiscal year 2018):

- Proposal submissions up by 3%
- Significant increases in proposal submissions and requested amounts by the College of Communications and Information (CCI) and the College of Social Work (SW)
- College of Nursing (NUR) and SW saw substantial increases in award amount, receiving \$1.3 million and \$1.4 million respectively
- 75% of all funding received during the first quarter of FY19 came from federal agencies
- Department of Energy (DOE) remained the top agency providing UT \$15 million or 30% of total awarded amount and 40% of the total federal funding
- National Science Foundation (NSF) funding increased by \$2.4 million

As a spotlight of funding diversification this quarter, researchers in the College of Social work were awarded \$2.6 million by Maddie's Fund, a foundation that provides funding to revolutionize the status and well-being of companion animals. AlignCare, a project led by Michael Blackwell, Donald Bruce, Kathleen Brown, William Nugent, and Linda Daugherty, will conduct a three-year, multi-site proof of concept study focused on the bonds between families and their companion animals. The program will be implemented in 8-10 diverse communities nationwide with the goal to expand to other communities throughout the United States

Although we observed increases in some sectors, funding from Tennessee Government sponsors came in 18% less than the previous year (state funding accounted for 20% in the Q1 FY18 and 2% in Q1 FY19). During this quarter NSF funding remained lower than our five year (FY15-FY19) average amount, and will command attention from ORE to help identify points of alignment between our faculty and NSF's new points of emphasis.

Again, these figures represent the first quarter of FY19 funding as compared to the first quarter of FY18 and our challenges are not insurmountable. First quarter data shows the impact that can come of diversifying research within colleges and departments as the College of Social Work, Tickle College of Engineering, and College of Education, Health and Human Sciences accounted for the three largest awards for the quarter, respectively.

The UT discovery enterprise continues to grow and reflects the talent and innovative research of our great university.



A handwritten signature in black ink, appearing to read 'R. Nobles'.

Robert Nobles  
Interim Vice Chancellor for Research

**PROPOSALS, AWARDS, & R&D EXPENDITURES: FY19 Q1 vs FY18 Q1 (Table 1)**

	No.	% No. Incr. Over FY 18	Amount Requested	% \$ Incr. Over FY 18	No. <sup>3</sup>	% No. Incr. Over FY 18	Amount Received	% \$ Incr. Over FY 18	Amount Expended	% \$ Incr. Over FY 18
College of Architecture & Design	2	100%	\$73,240	47%	0	N/C*	\$0	N/C*	\$325,802	281%
College of Arts & Sciences	102	-14%	\$16,192,179	-50%	104	-24.6%	\$9,783,640	-31%	\$15,634,043	52%
Haslam College of Business	7	-13%	\$915,528	-42%	9	0.0%	\$1,523,678	17%	\$2,456,224	70%
College of Communication & Information	10	233%	\$6,611,095	6025%	6	50.0%	\$674,509	253%	\$940,148	132%
College of Education, Health, & Human Sciences	27	8%	\$13,266,665	65%	10	0.0%	\$2,346,140	-30%	\$1,921,096	110%
Tickle College of Engineering	190	15%	\$58,458,400	-2%	172	0.6%	\$20,192,290	-21%	\$19,283,908	-0.3%
College of Law	1	0%	\$12,802	0%	0	N/C*	\$0	N/C*	\$389,589	3115%
College of Nursing	7	40%	\$2,676,826	-52%	6	200.0%	\$1,328,430	3779%	\$397,330	182%
College of Social Work	12	9%	\$7,792,773	301%	7	-46.2%	\$3,615,556	68%	\$375,274	6%
Research Centers & Institutes	83	-9%	\$11,137,161	-35%	94	4.4%	\$5,734,663	62%	\$6,170,973	-23%
UT Space Institute	8	-33%	\$834,951	-63%	7	-53.3%	\$222,774	-82%	\$1,111,341	-4%
Other <sup>2</sup>	5	400%	\$930,047	68%	12	33.3%	\$2,569,075	6%	\$1,224,585	19%
<b>Total</b>	<b>454</b>	<b>3%</b>	<b>\$118,901,667</b>	<b>-8%</b>	<b>427</b>	<b>-7%</b>	<b>\$47,990,755</b>	<b>-11%</b>	<b>\$50,230,313</b>	<b>16%</b>

Notes

1. HERD - The Higher Education Research and Development Survey, successor to the Survey of Research and Development Expenditures at Universities and Colleges, is the primary source of information on R&D expenditures at U.S. colleges and universities.
2. R&D expenditure data is collected from the "NSF Research Survey Estimate" report provided by UT IRIS Data Warehouse. The "NSF Research Survey Estimate" report provides an estimate of the R&D expenditures for UT colleges and research centers and institutes. This report does not contain expenditure data from the UT Research Foundation, which is included in the official NSF HERD survey during the submission of the survey. The expenditures data provided in the Office of Research & Engagement quarterly research activity report should be treated as an estimate reflecting trends for UT colleges and research centers and institutes only.
3. Other - This field captures any research proposals, awards, and expenditures not included in the categories above.
4. The Number of Awards Received represents the cumulative number of funding award increments. One project may receive multiple funding awards.

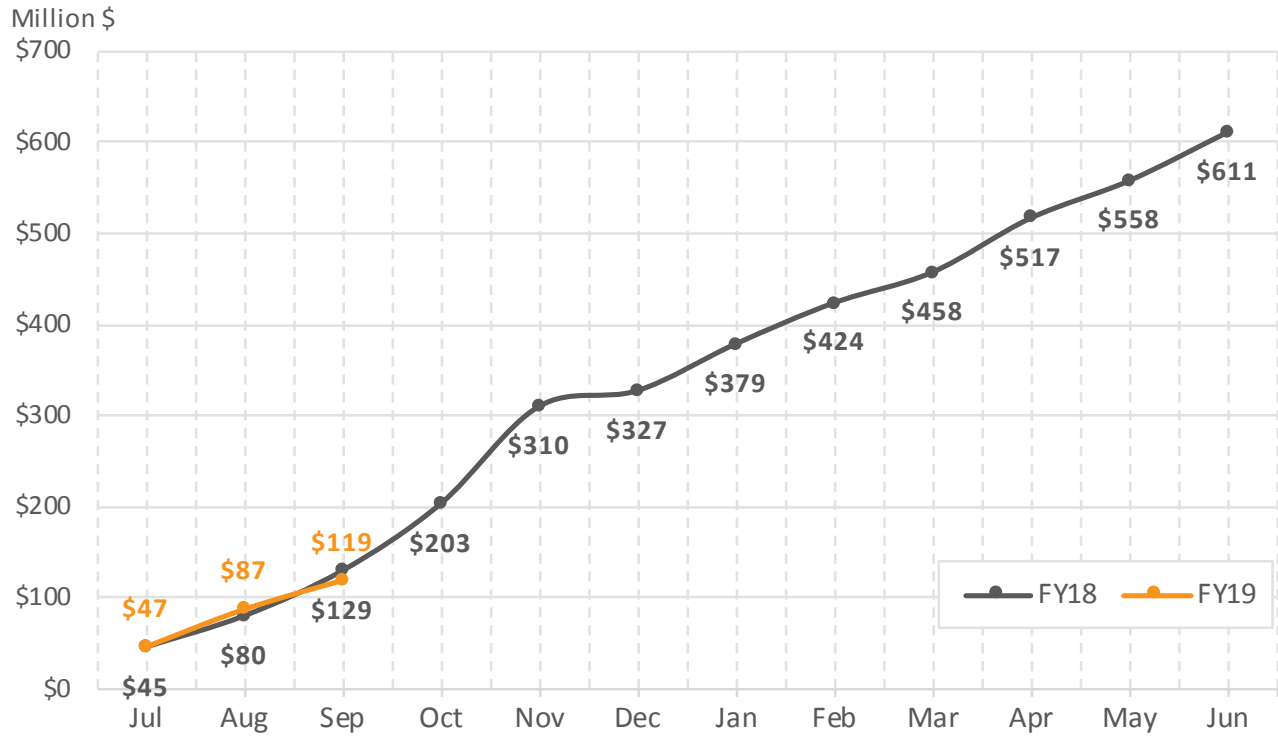
\* N/C - Not Calculable

**TOP 10 NEW PROJECTS: FY19 Q1 (Table 2)**

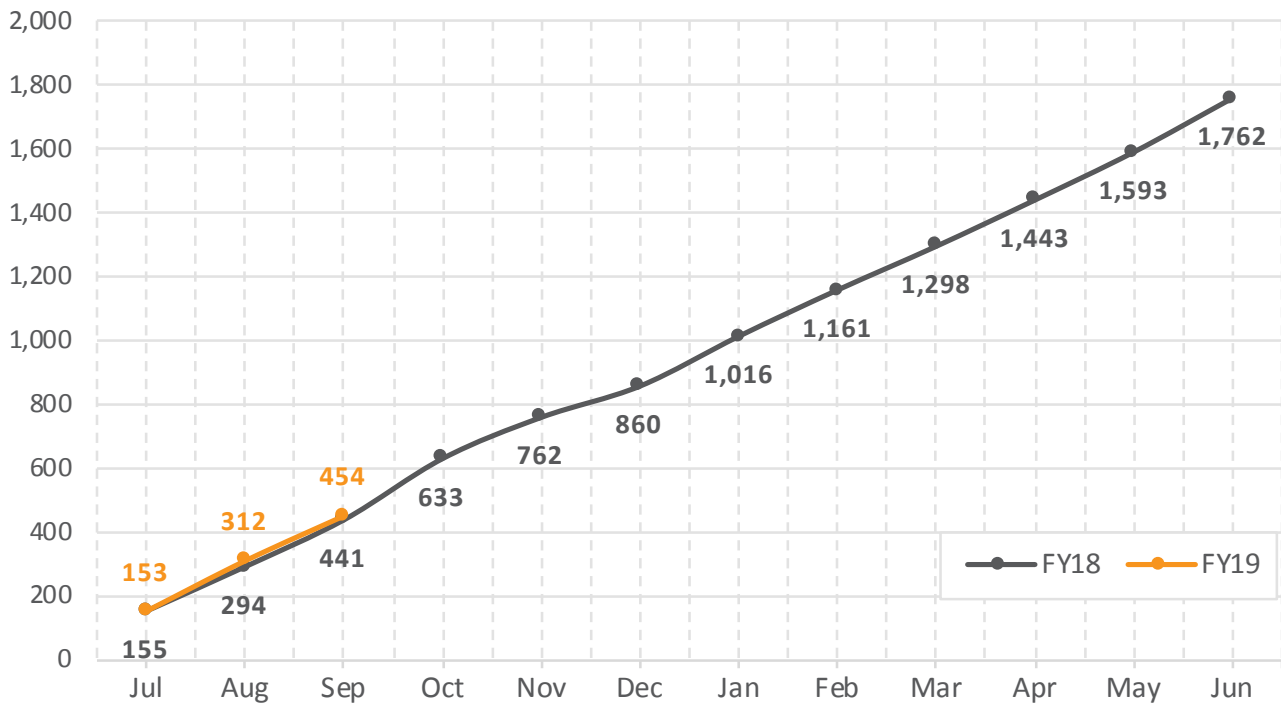
(by total anticipated dollar value)

Investigators (Primary PI First)	Award Admin Dept	PI Home Department	Project Title	Anticipated Amount	Sponsor	Activity Type	Project Begins	Project Ends
Blackwell, Michael; Bruce, Donald; Brown, Kathleen; Nugent, William; Daugherty, Linda	Office of Rsch & Public Service	Ctr for Behavioral Health Rsch; Boyd Ctr for Business Economic Rsch; Office of Rsch & Public Service; Public Health; Social Work	AlignCare	\$2,633,420	Maddie's Fund	Basic Research	7/26/2018	6/30/2021
Lindley, Lisa	Nursing	Nursing	Effectiveness of concurrent care to improve pediatric and family outcomes at end of life	\$1,526,304	National Institute of Nursing Research	Basic Research	8/1/2018	6/30/2022
Babu, Sudarsanam	Mechanical, Aerospace & Biomedical Engr	Mechanical, Aerospace & Biomedical Engr	Rationalization of Liquid/Solid and Solid/Solid Interphase Instabilities During Thermal-Mechanical Transients of Metal Additive Manufacturing	\$1,500,000	Dept. of Defense - Office of Naval Research	Basic Research	8/1/2018	5/31/2023
Mannik, Jaan; Mannik, Jaana	Physics	Physics; Biochemistry, Cellular & Molecular Biology	Coordination mechanisms between cell division and chromosome segregation in E. coli	\$1,143,406	National Institutes of Health	Basic Research	9/1/2018	7/31/2022
Hillyer, Sarah	Ctr for Sport, Peace, & Society	Ctr for Sport, Peace, & Society	Better World: Empowering Global Change Agents through Sports	\$1,140,000	Dept. of State	Public Service	9/19/2018	12/31/2019
Lopez, Ruth; McLennon, Susan	Nursing	Nursing	ADVANCE: Assessment of Disparities and Variation for Alzheimer's disease in Nursing home Care at End of Life	\$1,047,001	Hebrew Rehabilitation Center (HRC) / National Institute on Aging	Basic Research	6/1/2018	7/31/2021
Wirth, Brian; Zinkle, Steven	Nuclear Engr	Nuclear Engr	High Fidelity Ion Beam Simulation of High Dose Neutron Irradiation	\$1,026,000	University of Michigan / Dept. of Energy	Applied Research	5/10/2018	4/30/2021
Tauer, Michela	Electrical Engr & Computer Science	Electrical Engr & Computer Science	BIGDATA: IA: Collaborative Research: In Situ Data Analytics for Next Generation Molecular Dynamics Workflows	\$979,987	National Science Foundation	Basic Research	6/1/2018	9/30/2021
Donovan, David	Nuclear Engr	Nuclear Engr	Understanding Impurity Transport in Magnetically Confined Fusion using Interpretive Modeling and High-Sensitivity Material Characterization Techniques	\$750,000	Dept. of Energy- Office of Science	Basic Research	9/1/2018	8/31/2023
Xu, Haixuan	JIAM	Materials Science & Engr	Mesoscale Defect Interaction Mechanisms in Structural Alloys	\$750,000	Dept. of EnergyOffice of Science	Basic Research	9/1/2018	8/31/2023

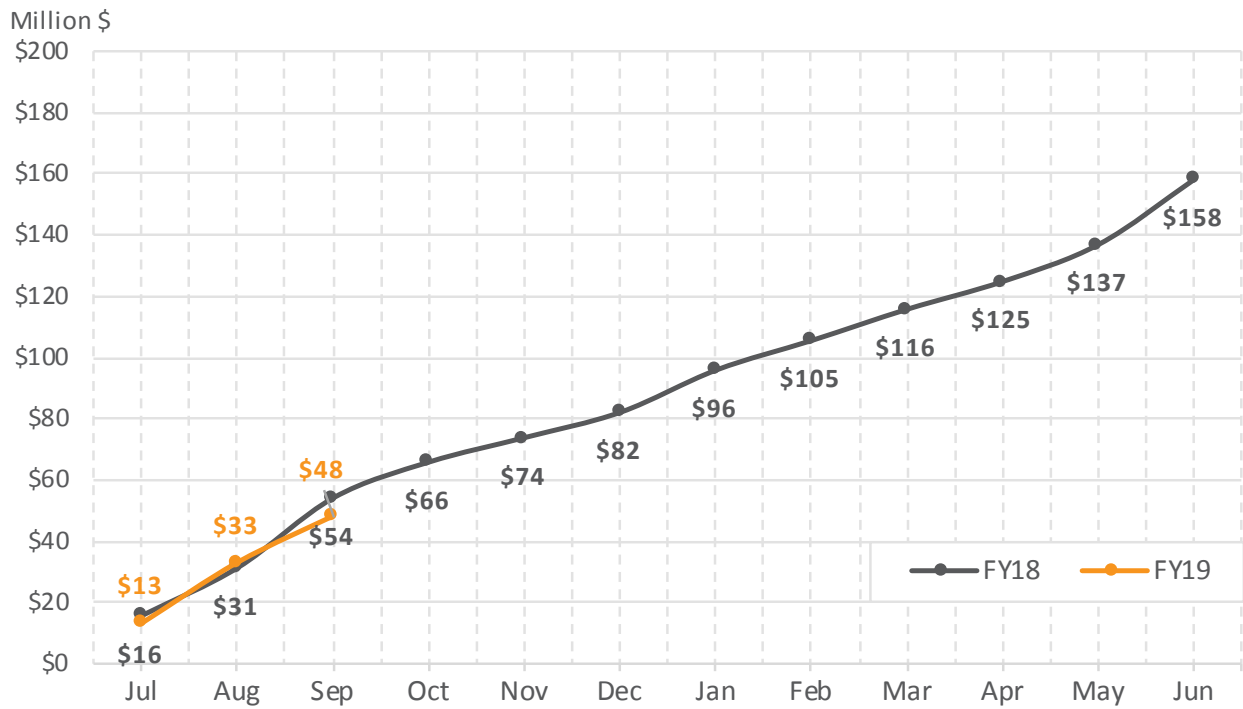
**CUMULATIVE PROPOSAL AMOUNT: FY19 vs. FY18 (Figure 1)**



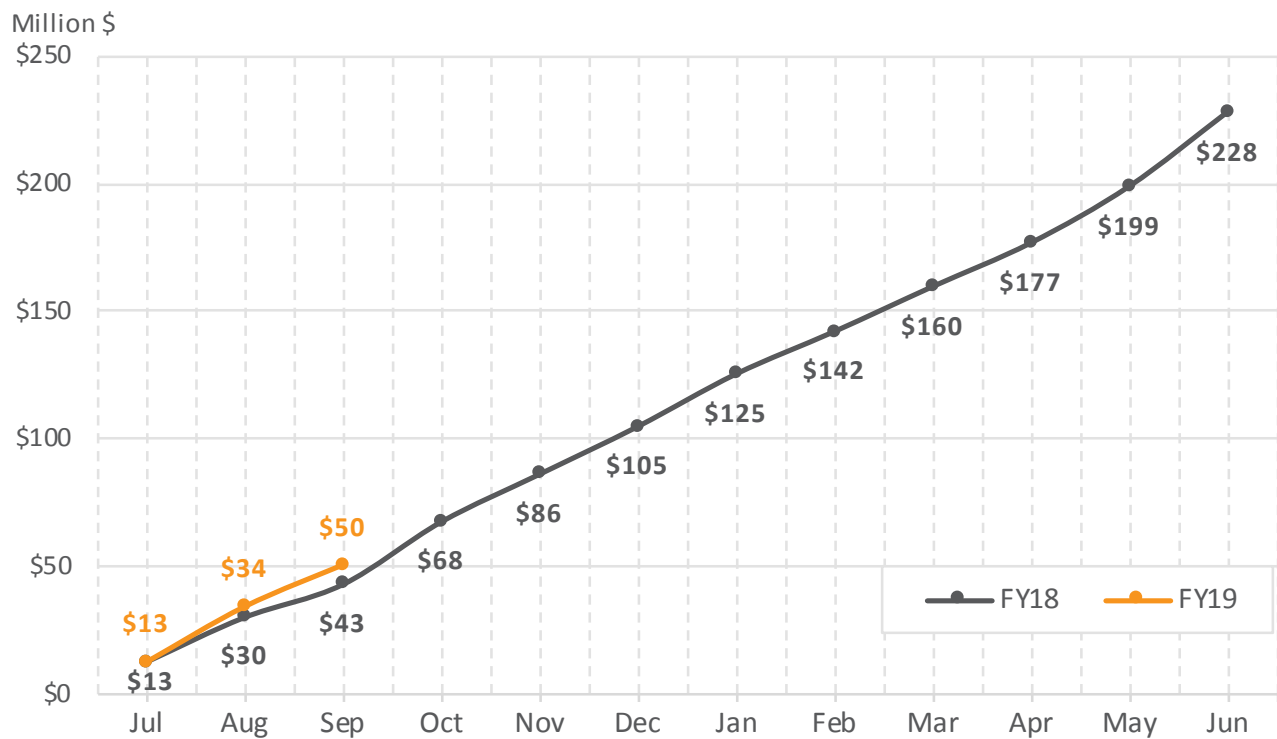
**CUMULATIVE PROPOSAL COUNT: FY19 vs. FY18 (Figure 2)**



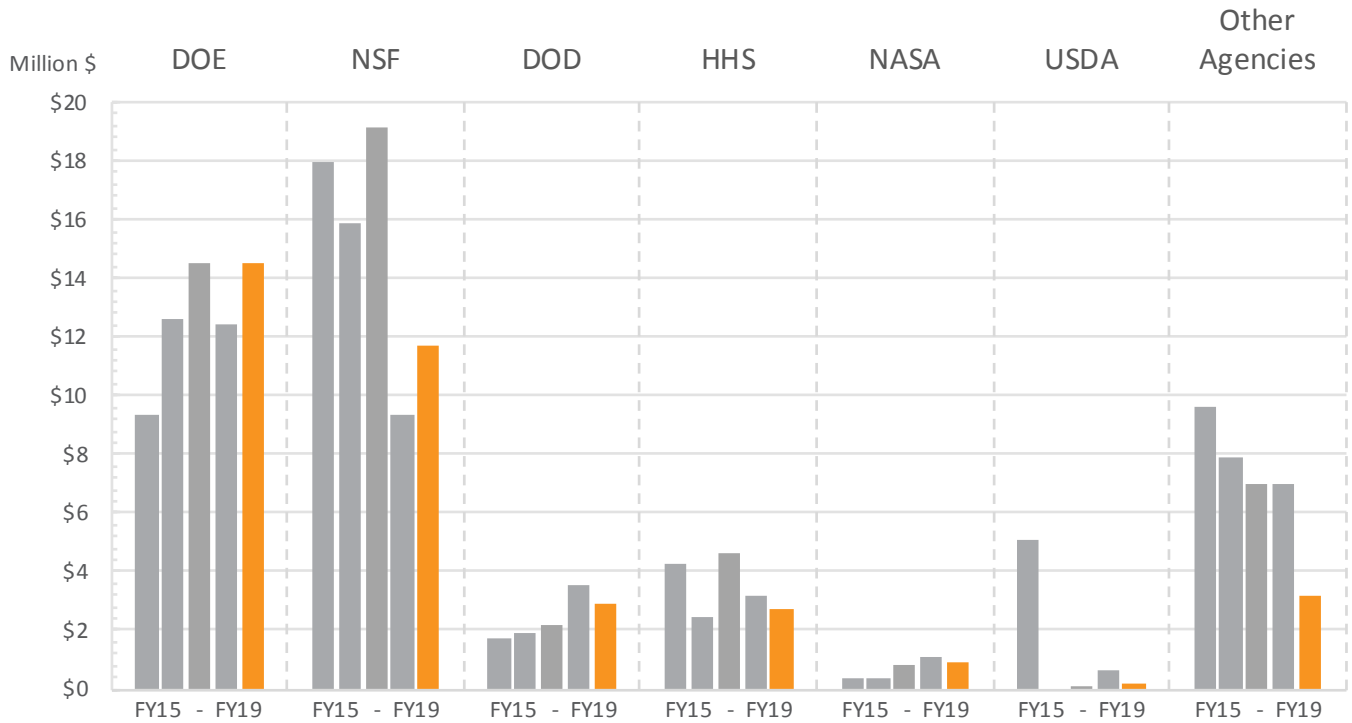
**CUMULATIVE AWARD AMOUNT: FY19 vs. FY18 (Figure 3)**



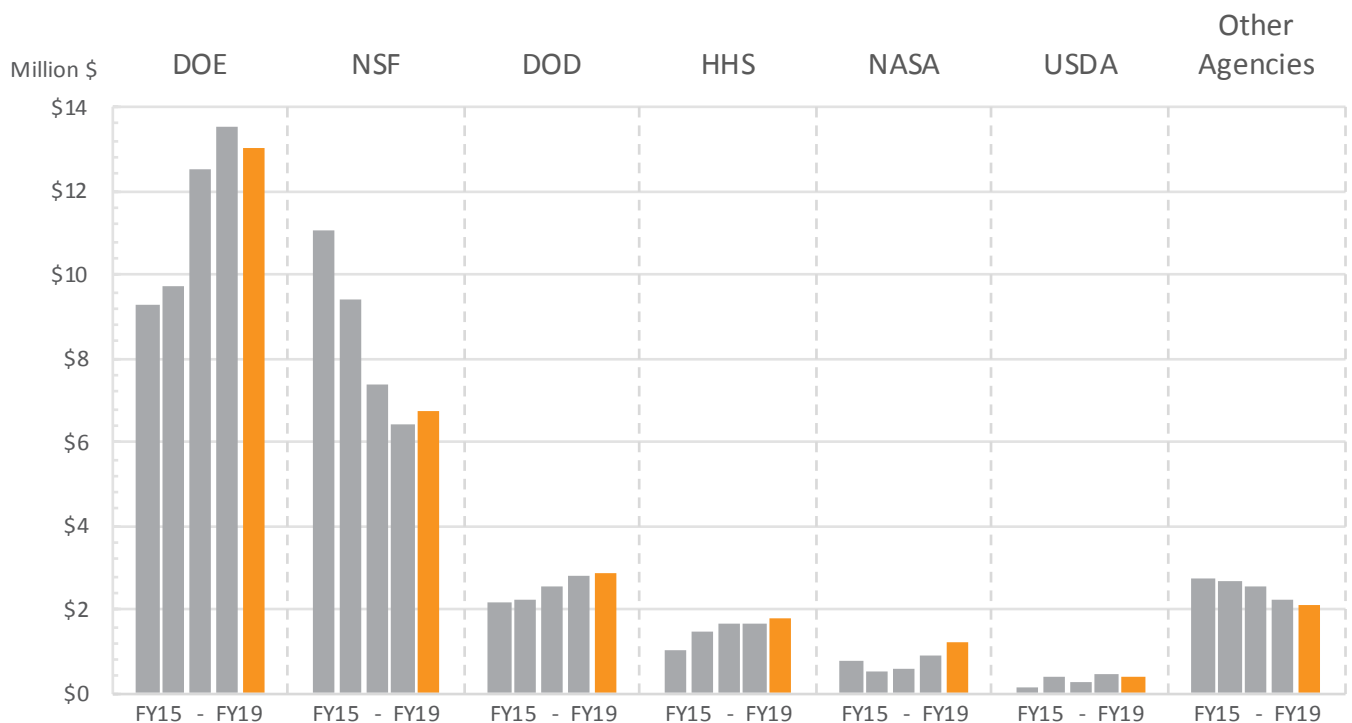
**CUMULATIVE AMOUNT EXPENDED ON R&D: FY19 vs. FY18 (Figure 4)**



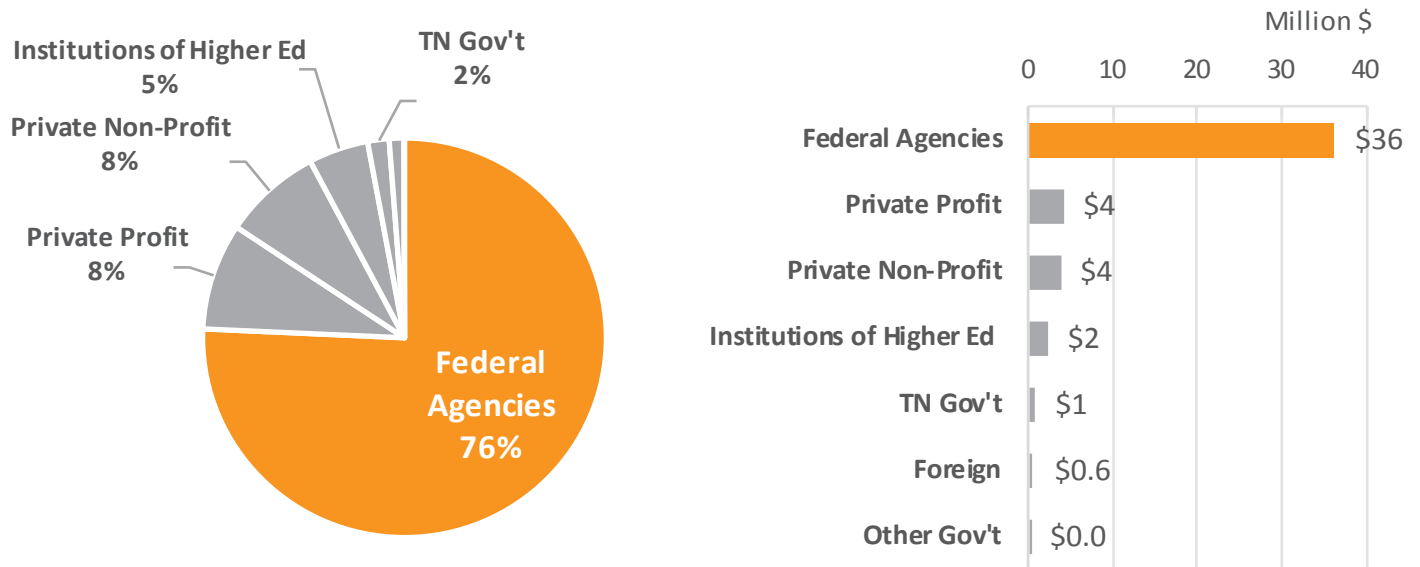
**AWARDED DOLLARS BY FEDERAL AGENCY: FY15-FY19 Q1** (Figure 5)



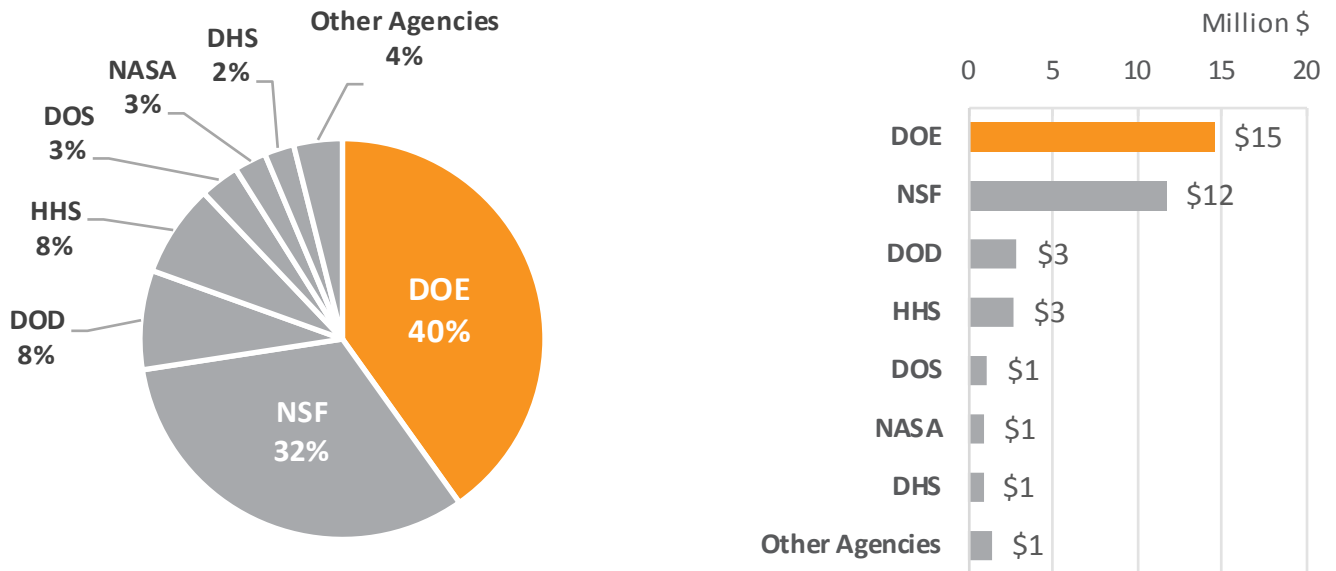
**R&D EXPENDITURES BY FEDERAL AGENCY: FY15-FY19 Q1** (Figure 6)



**AWARDED DOLLARS BY SOURCE: FY19 Q1** (Figure 7)



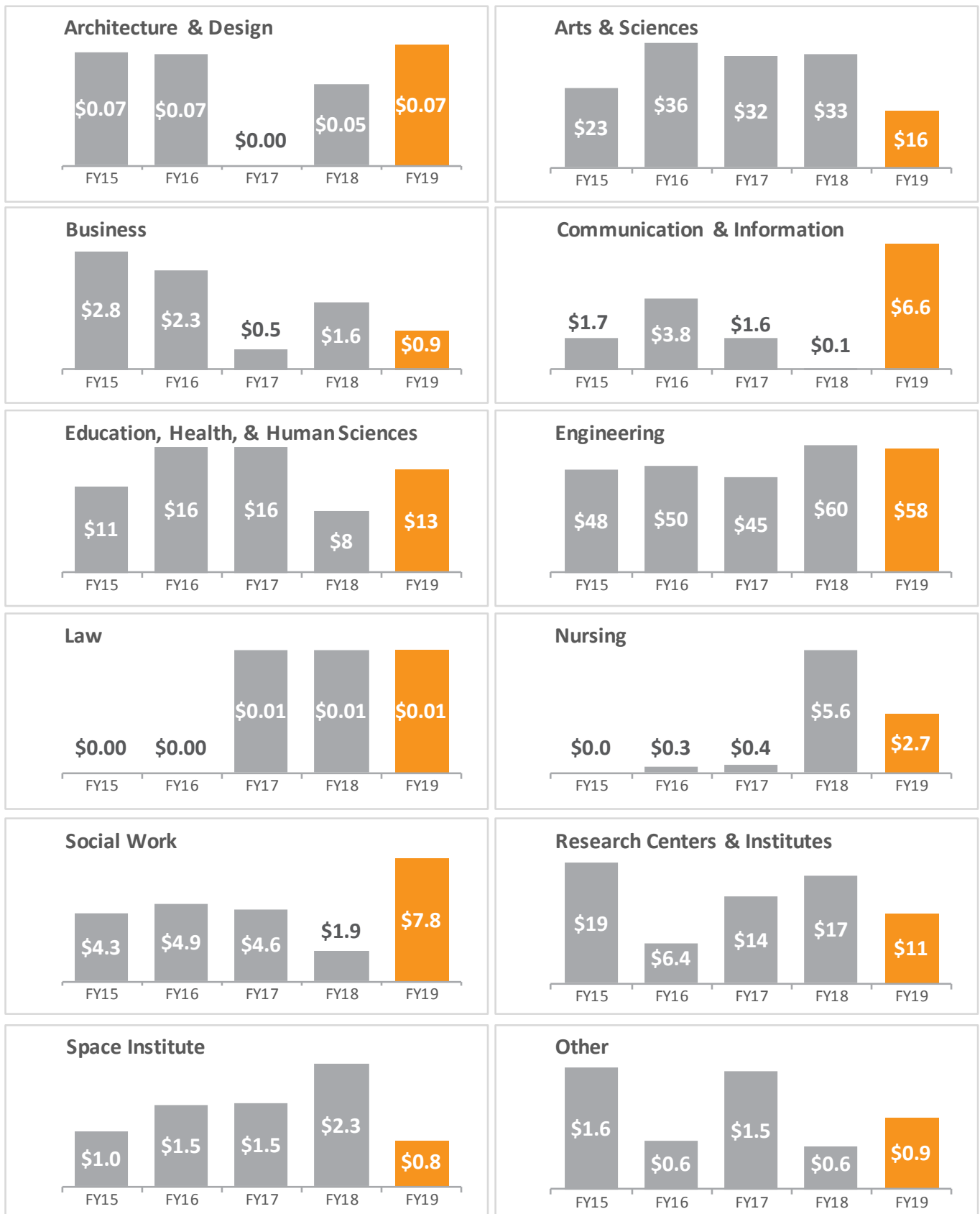
**FEDERAL AWARDED DOLLARS BY AGENCY: FY19 Q1** (Figure 8)





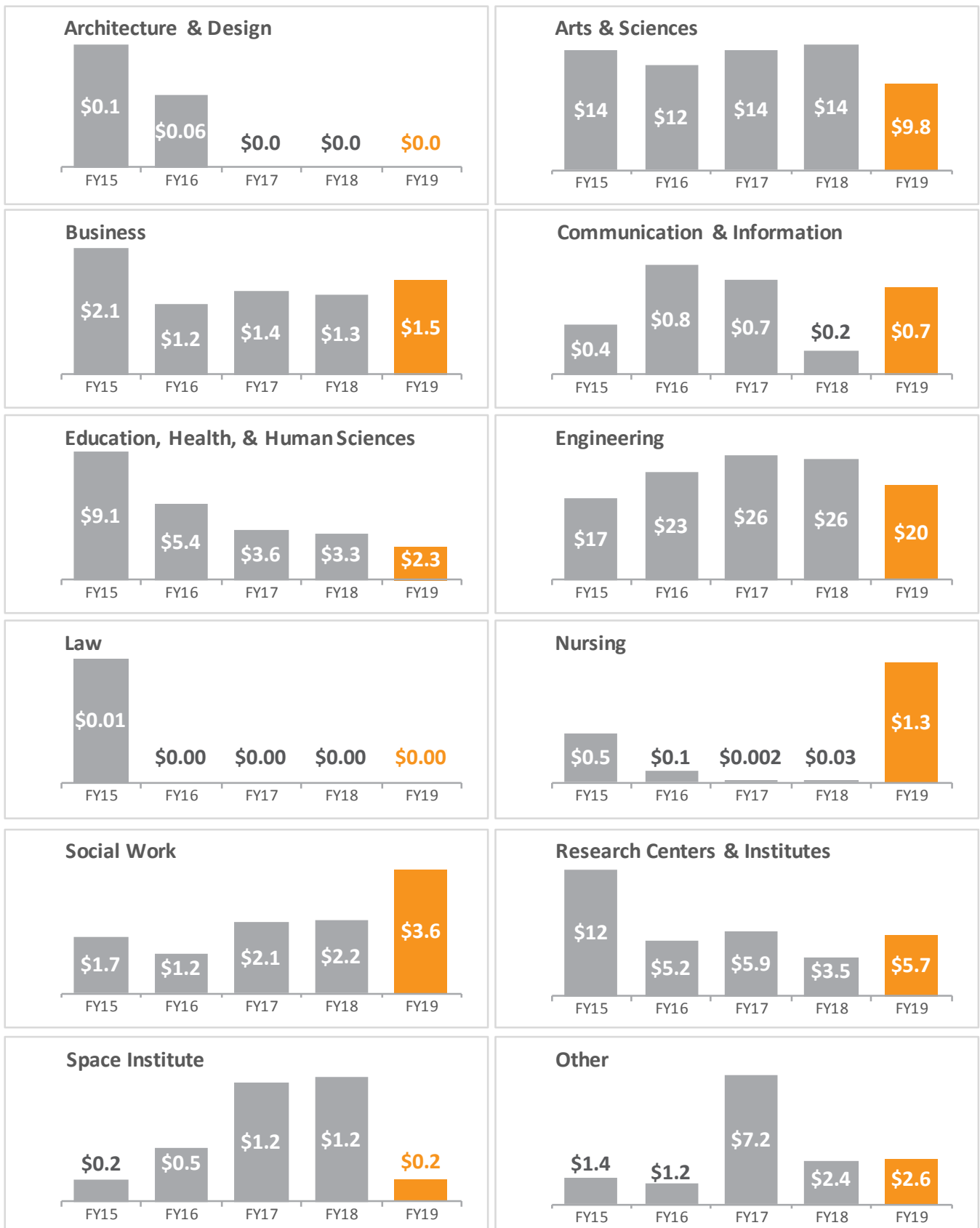
**PROPOSED AMOUNT BY COLLEGE: FY15-FY19 Q1 (Figure 9)**

(Dollars in Millions. Each chart has its own scale)



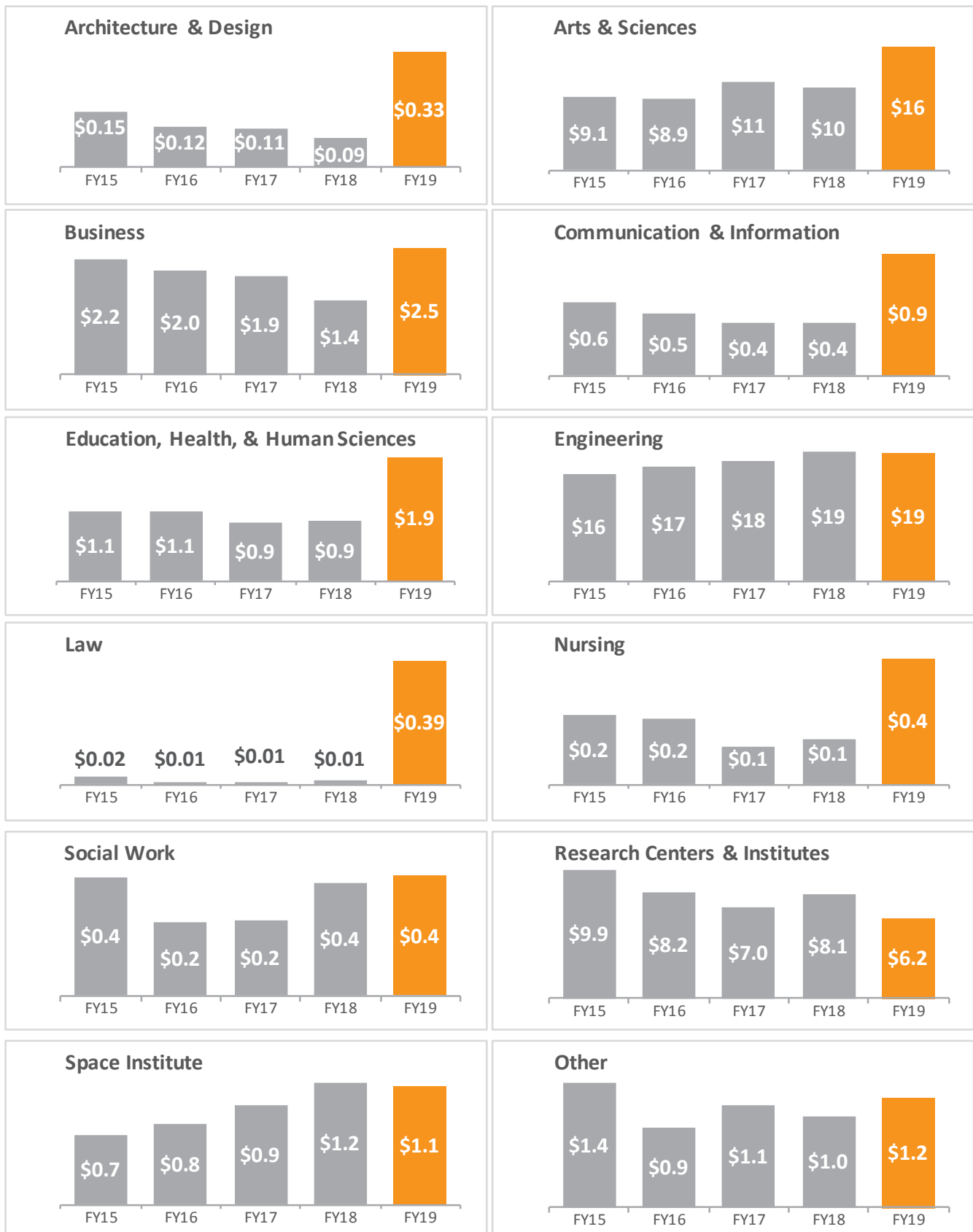
### AWARDED AMOUNT BY COLLEGE: FY15-FY19 Q1 (Figure 10)

(Dollars in Millions. Each chart has its own scale)



### AMOUNT EXPENDED ON R&D BY COLLEGE: FY15-FY19 Q1 (Figure 11)

(Dollars in Millions, Each chart has its own scale)



## Data Notes

Each Quarterly Research Report is a cumulative fiscal year-to-date summary. Award, proposal, and expenditure data include UT Knoxville, UT Space Institute, and University Wide Administration. Data depicting colleges and research centers and institutes is presented to show trends within each unit.

Award and proposal data is collected from Cayuse SP (electronic system for routing of sponsored projects) and includes projects sponsored for Basic, Applied and Developmental research activities as well as for Public Service, Training, Instruction, Scholarship, and Fellowship activities.

To ensure consistency of the Office of Research and Engagement reports, all quarterly and annual report award selection is based on the UT Report Date (award effective date). The proposal selection is based on the Proposal Approval Date.

R&D expenditure data is collected from the “NSF Research Survey Estimate” report provided by UT IRIS Data Warehouse. The data for the “NSF Research Survey Estimate” report is collected and reported according to the NSF HERD Survey and covers three R&D activities - basic research, applied research, and development. These R&D activities can have the following sources of funds: U.S. federal government, state and local government, business, nonprofit organizations, institutional funds, and other sources such as funds from foreign entities and gifts designated by the donors for research. Please visit the following link to learn more about the survey and R&D definitions: <https://www.nsf.gov/statistics/srvyherd/>.

The “NSF Research Survey Estimate” report provides an estimate of the R&D expenditures for UT colleges and research centers and institutes. This report does not contain expenditure data from the UT Research Foundation, which is included in the official NSF HERD survey during the submission of the survey. The expenditures data provided in the Office of Research & Engagement quarterly research activity report should be treated as an estimate reflecting trends for UT colleges and research centers and institutes only.

There are occasionally variations in the numbers reported for each quarter as information is updated into Cayuse SP and IRIS on a daily basis. The data for this report were collected on December 18th, 2018. The annual report will represent the final amounts for that fiscal year.