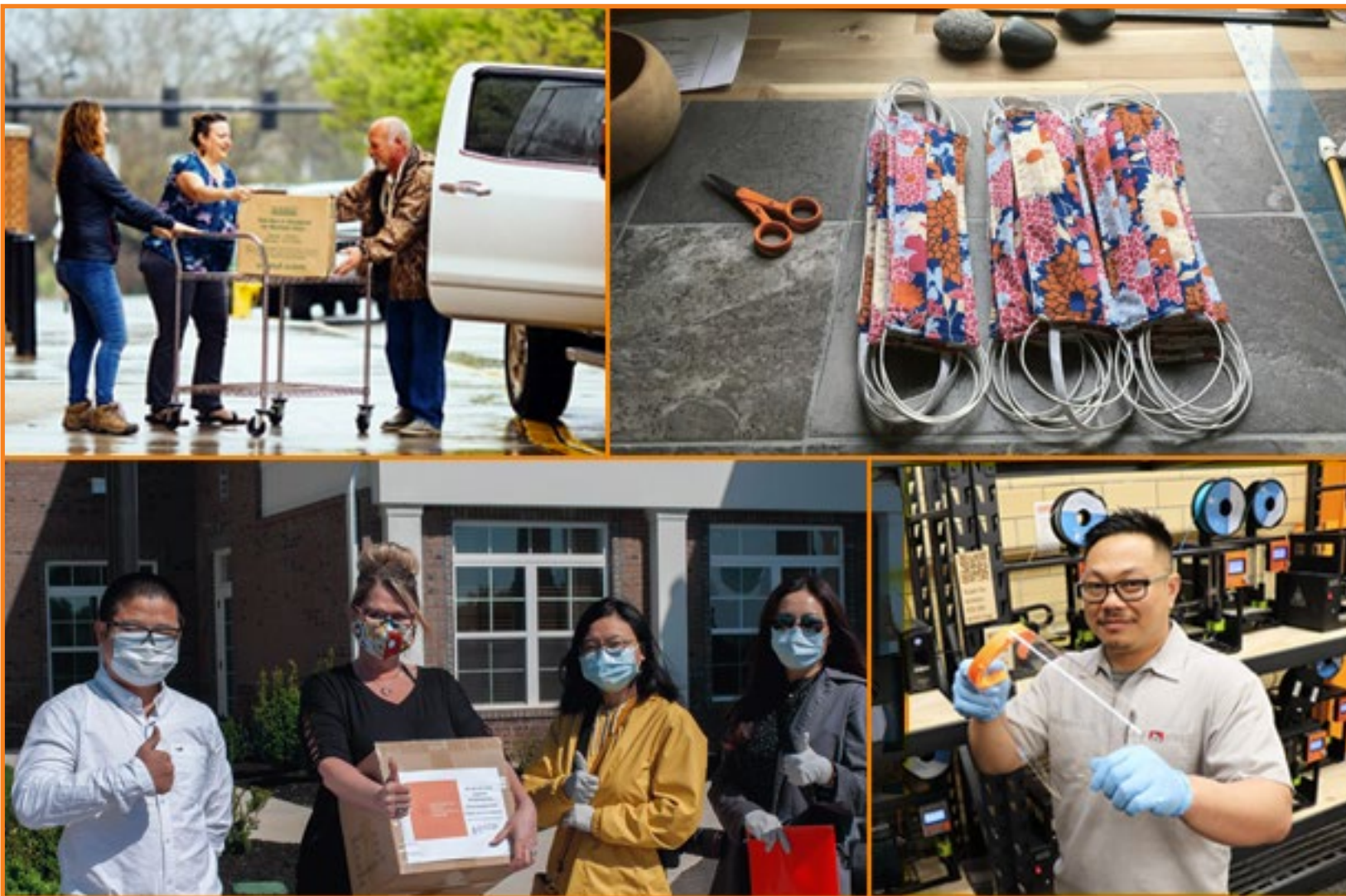


Quarterly Research Activity Report Q3 FY20

Cumulative for July 1, 2019 - March 31, 2020



University of Tennessee faculty, staff, and students banded together this spring to create, donate, and make personal protective gear to distribute to healthcare professionals throughout the state during the COVID-19 pandemic. Clockwise from top right: The Clarence Brown Theatre Costume Shop sewed more than 200 masks for medical professionals; Annette Engel and Audrey Paterson help load supplies they donated to a local health agency; Tom Duong, staff supervisor in the Tickle College of Engineering's Innovation and Collaboration Studio, had 20 machines running to print headbands for face masks; Wei Zheng, associate professor of business analytics and statistics, a staff member at The Villages of Farragut Senior Living, Luyi Yin, volunteer with East Tennessee Chinese/Chinese American Care, and Lei Xu, co-founder of ETCCAC were among more than 200 volunteers across the region who delivered nearly 30,000 items of personal protective equipment to East Tennessee.

Data Summary

Beginning with the third quarter of fiscal year 2020 (Q3 FY20), the University of Tennessee Institute of Agriculture data are included in quarterly reports. For this reason, data points reported prior to Q3 FY20 may not be directly comparable to the corresponding numbers in this quarter and future quarters.

Proposals

During the first two quarters of the fiscal year, proposal dollars requested lagged behind FY19, but the third quarter saw an increase in dollars proposed, with January, February, and March surpassing the proposed dollar amount during the same timeframe last year, even with slightly fewer proposals being submitted this year.

Awards

Award amounts have consistently remained higher in FY20 than in FY19, with \$165 million awarded by the end of Q3 FY20, compared to \$146 million awarded by the end of Q3 FY19 (approximately 13% increase). Federal agencies remained the largest source of awarded dollars at 62%, or \$102 million so far, this fiscal year. Of the federal agencies, the Department of Energy remains the largest source of federal funding, followed by the National Science Foundation. A majority of colleges were awarded more funding by the end of Q3 FY20 than they had by the end of Q3 FY19. Notably, the Space Institute received double the amount by the end of the third quarter this year as they had by the same time last year; up to \$5.5 million from \$2.7 million. The College of Communication and Information also received nearly double the awarded dollars; up to \$3.2 million at the end of the third quarter this year, as compared to \$1.7 million at the end of last year's third quarter.

Notable awards include:

David Ader, Sharon Thompson, Sheri Pugh, and Tom Gill have been awarded \$613,000 from USAID for a Sustainable Intensification Farmer-to-Farmer program in Cambodia, a program which plans to increase agricultural sector productivity and profitability, improve conservation and sustainable use of environmental and natural resources, and strengthen agricultural sector institutions.

Hao Gan, Maria Prado, Shawn Hawkins, and John Wilkerson have been awarded \$350,000 from the Foundation for Food and Agricultural Research to develop a comprehensive sensing system that collects and synthesizes vision- and motion-based data to automatically assess KWI broiler gait score and flock activity. Completed system design will be ruggedized for deployment in commercial broiler houses as a welfare management tool, enabling farmers to monitor welfare indicators in real-time, measuring gait scores and flock activity levels, providing producers with quantitative feedback on bird and flock management performance.

\$7.6 million has been awarded to Jack Dongarra, Jakub Kurzak, and Stanimire Tomov in the Innovative Computing Lab for CLOVER (Computational Libraries Optimized Via Exascale Research) by the Department of Energy. The high-level objective of CLOVER is to provide scalable, portable numerical algorithms that facilitate efficient application simulations on exascale computers.

The Tennessee Department of Education awarded \$2.7 million to Shandra Forrest-Bank, Chris Hadjiharalambous, and Deidre Ford in the Office of Research and Public Service to conduct program evaluations and design, host, and maintain web-based database applications for the TN 21st Century Community Learning Centers and the Lottery for Education: Afterschool Programs.

Expenditures

Expenditures have remained consistent with FY19, at \$208 million spent by the end of March 2020 compared to \$207 million spent by the end of March 2019. While the expenditure increases were less drastic than the increases seen in awarded dollars, nearly every college had similar or slightly higher expenditures at the end of Q3 FY20 as they did at the end of Q3 FY19.

PROPOSALS, AWARDS, & R&D EXPENDITURES: FY20 Q1-Q3 vs FY19 Q1-Q3 (Table 1)

College/Center/Institute	Proposals Submitted				Awards Received				Estimated Total R&D Expenditures (HERD)	
	No.	% No. Change Over FY19	Amount Requested	% \$ Change Over FY19	No. ⁴	% No. Change Over FY19	Amount Received	% \$ Change Over FY19	Amount Expended	% \$ Change Over FY19
College of Architecture & Design	3	0%	\$81,391	1%	4	33%	\$107,845	-45.7%	728,264	-34%
College of Arts & Sciences	325	7%	\$122,892,178	38%	243	-1%	\$25,907,638	20%	42,179,732	-11%
Haslam College of Business	22	29%	\$3,366,097	111%	19	19%	\$2,285,168	7%	9,189,409	1%
College of Communication & Information	19	-17%	\$2,498,845	-71%	17	55%	\$3,232,584	89%	3,216,142	14%
College of Education, Health, & Human Sciences	82	6%	\$38,128,554	-4%	40	5%	\$7,905,160	-1%	6,468,376	5%
Tickle College of Engineering	502	2%	\$236,533,161	59%	441	-6%	\$62,588,428	27%	60,857,848	2%
College of Law	1	-67%	\$12,802	-96%	2	N/C*	\$112,802	N/C*	1,778,352	19%
College of Nursing	22	16%	\$9,586,944	38%	8	-43%	\$1,636,191	6%	1,681,371	4%
College of Social Work	27	-27%	\$5,746,360	-74%	27	17%	\$9,015,470	73%	1,688,888	22%
Research Centers & Institutes	140	-35%	\$37,633,249	-19%	199	-21%	\$14,039,867	-7%	19,940,893	11%
UTIA: AgResearch	285	11%	\$73,035,255	11%	143	-20%	\$9,533,592	-39%	\$47,215,547	4%
UTIA: Extension	150	-2%	\$19,760,938	-43%	130	19%	\$7,748,508	-44%	\$27,152	-18%
UTIA: Vet Med	62	-10%	\$20,246,831	-45%	22	-19%	\$5,503,251	65%	\$5,609,617	6%
UT Space Institute	17	-39%	\$2,045,681	-73%	30	15%	\$5,452,661	102%	\$4,004,147	18%
Other ³	24	118%	\$4,105,639	218%	33	38%	\$10,055,807	78%	\$3,539,723	4%
Total	1,681	-2%	\$575,673,925	13%	1,358	-5%	\$165,124,971	13%	\$208,125,461	0.7%

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.

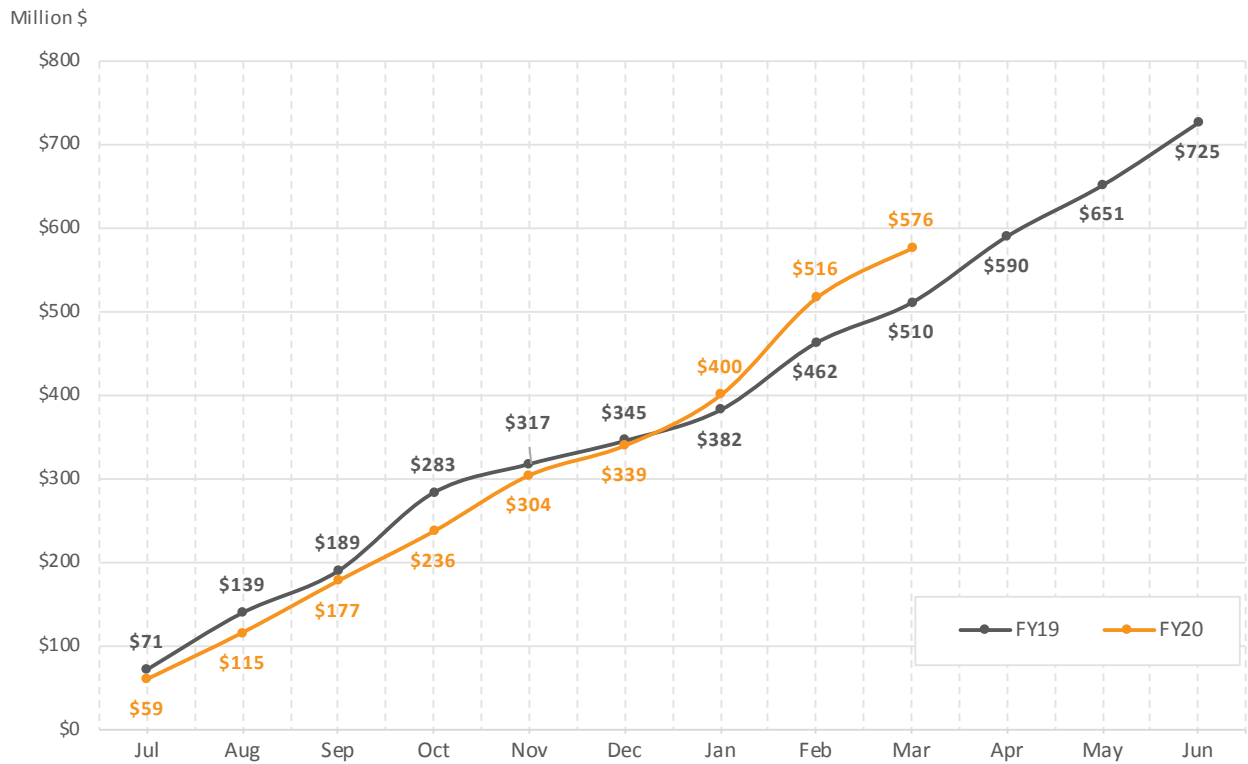
* N/C - Not Calculable

TOP 10 NEW PROJECTS: FY20 Q1-Q3 (Table 2)

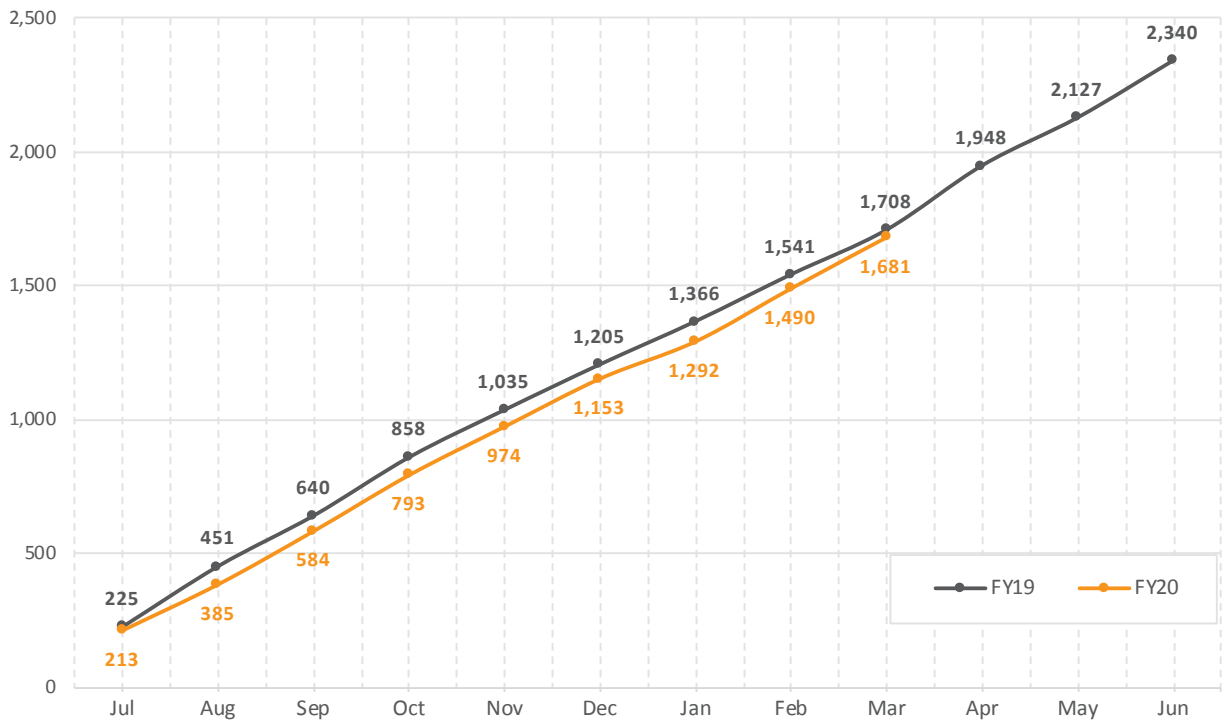
(by total anticipated dollar value)

Investigators (Primary PI First)	Award Admin Dept	PI Home Dept	Project Title	Anticipated Amount	Sponsor	Activity Type	Project Period
Dongarra, Jack; Kurzak, Jakub; Tomov, Stanimire Zdravkov	Innovative Computing Lab	Innovative Computing Lab	2.3.3.13 CLOVER Computational Libraries Optimized Via Exascale Research	\$7,607,112	Dept. of Energy - Oak Ridge National Laboratory	Applied Research	12/1/2019 6/30/2023
Schmisser, John; Moeller, Trevor; Kreth, Phillip; Johnson, Jacqueline	UTSI MABE Program	UTSI MABE Program	CA4 - Materials Maturation for Hypersonics - BAA No. FA8650-18-S-5010	\$4,138,001	University of Dayton Research Institute / Dept. of Defense - Air Force	Applied Research	9/2/2019 1/31/2023
Mason, Michael; Lieberthal, Robert	Ctr for Behavioral Health Rsch	Social Work; Education, Health & Human Sciences - Administration	Treating Young Adult Cannabis Use Disorder with Text Message-Delivered Peer Network Counseling	\$3,460,291	Dept. of Health - National Institute on Drug Abuse	Basic Research	8/1/2019 5/31/2024
Schmisser, John; Balas, Mark; Moeller, Trevor; Kreth, Phillip; Bond, Ryan	UTSI MABE Program	UTSI MABE Program	Aerostructural Analysis Supporting the Development of Hypersonic Vehicle Flight Test Structures	\$3,362,906	University of Dayton Research Institute / Dept. of Defense - Air Force Research Laboratory	Basic Research	12/1/2018 8/24/2022
Anderson, David; Kania, Stephen; Cox, Sherry; Bemis, David; Dhar, Madhu; Mulon, Pierre-Yves; Hecht, Silke	Large animal clinical sciences	College of veterinary med-adm; Biomedical & Diagnostic Science; Large animal clinical sciences; Small animal clinical sciences	Advanced Development and Testing of a Nanomaterial-Based Scaffold for Bone Regeneration and Drug Delivery	\$2,666,465	University of Arkansas, Little Rock / Dept. of Defense - Army	Applied Research	8/15/2019 9/14/2023
Forrest-Bank, Shandra; Hadjiharalambous, Chris; Ford, Deidre	Office of Rsch & Public Service	Social Work - Administration; Office of Rsch & Public Service	TN 21st Century Community Learning Centers Database Support and Program Evaluation FY 20-24	\$2,655,151	Tennessee Dept. of Education	Public Service	10/1/2019 9/30/2024
Lloyd, Karen; Vishnivetskaya, Tatiana; Steen, Andrew	Microbiology	Microbiology; CEB	Linking compound-specific carbon degradation to greenhouse gas production during thaw and collapse of Arctic permafrost microbial communities	\$2,537,280	Dept. of Energy - Office of Biological and Environmental Research	Basic Research	9/15/2019 9/14/2022
Forrest-Bank, Shandra; Cunningham, Maryanne; Wallace, Heather Lynn	Office of Rsch & Public Service	Social Work - Administration; Office of Rsch & Public Service	FY 20 CCDF - UT SWORPS Child Care Supportive Services, Contract 34549-51318 Amendment 2	\$2,255,364	Tennessee Dept. of Human Services - Child Care Planning and Development	Public Service	10/1/2019 9/30/2020
Bosilca, George Martian; Herault, Thomas	Innovative Computing Lab	Innovative Computing Lab	Collaborative Research: Frameworks: Production quality Ecosystem for Programming and Executing eXtreme-scale Applications (EPEXA)	\$1,995,685	National Science Foundation	Basic Research	11/1/2019 10/31/2024
McCord, Rachel	Biochemistry, Cellular & Molecular Biology	Biochemistry, Cellular & Molecular Biology	Folding, Misfolding, and Unfolding: How human 3D genome structure resists, adapts, or succumbs to physical stresses in health and disease	\$1,839,781	NIH - NIGMS - National Institute of General Medical Sciences	Basic Research	9/1/2019 6/30/2024

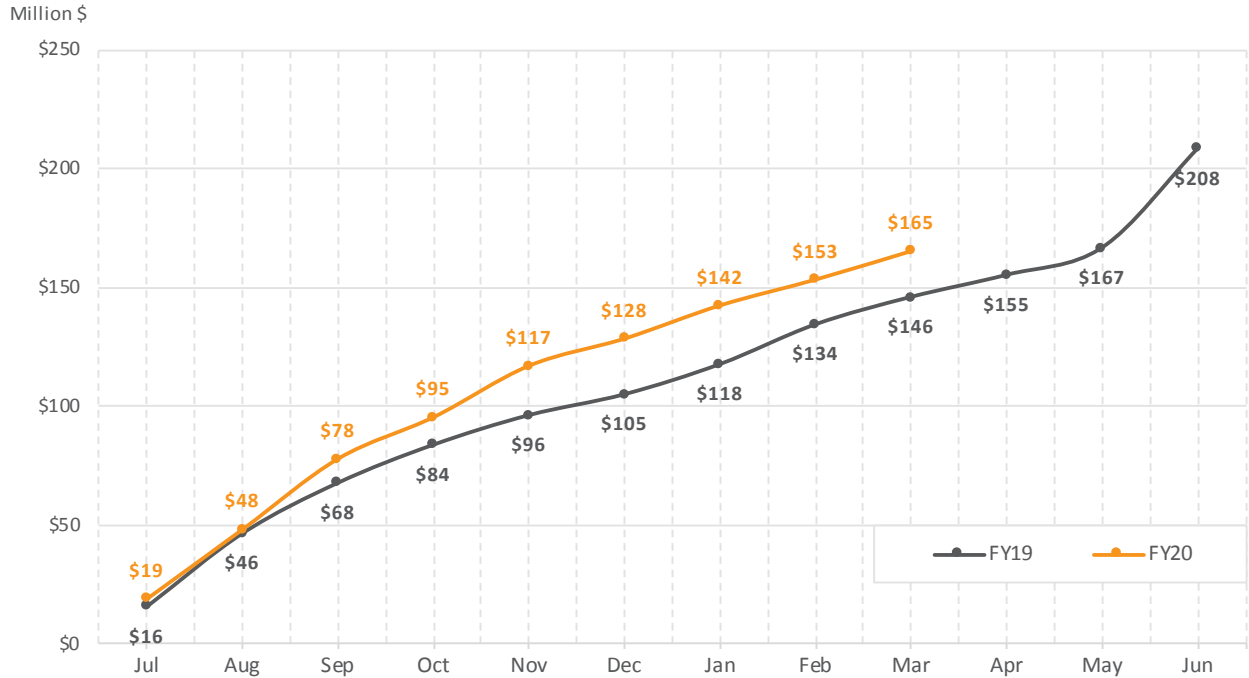
CUMULATIVE PROPOSAL AMOUNT: FY20 vs. FY19 (Figure 1)



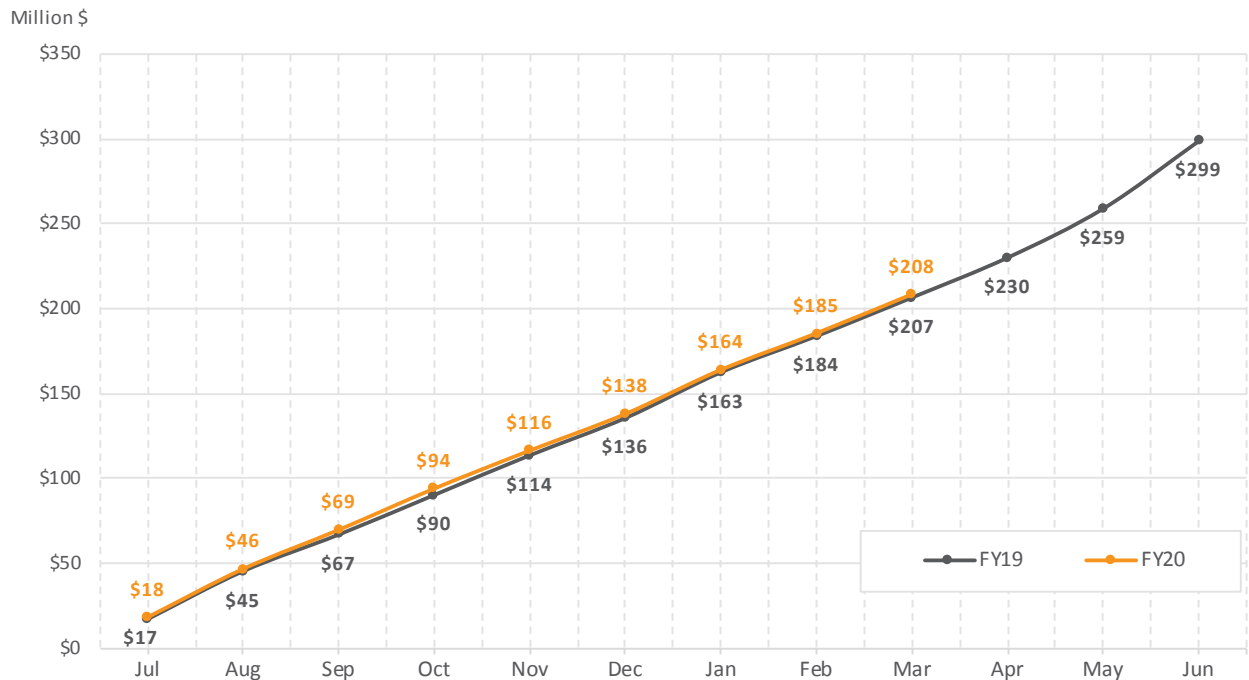
CUMULATIVE PROPOSAL COUNT: FY20 vs. FY19 (Figure 2)



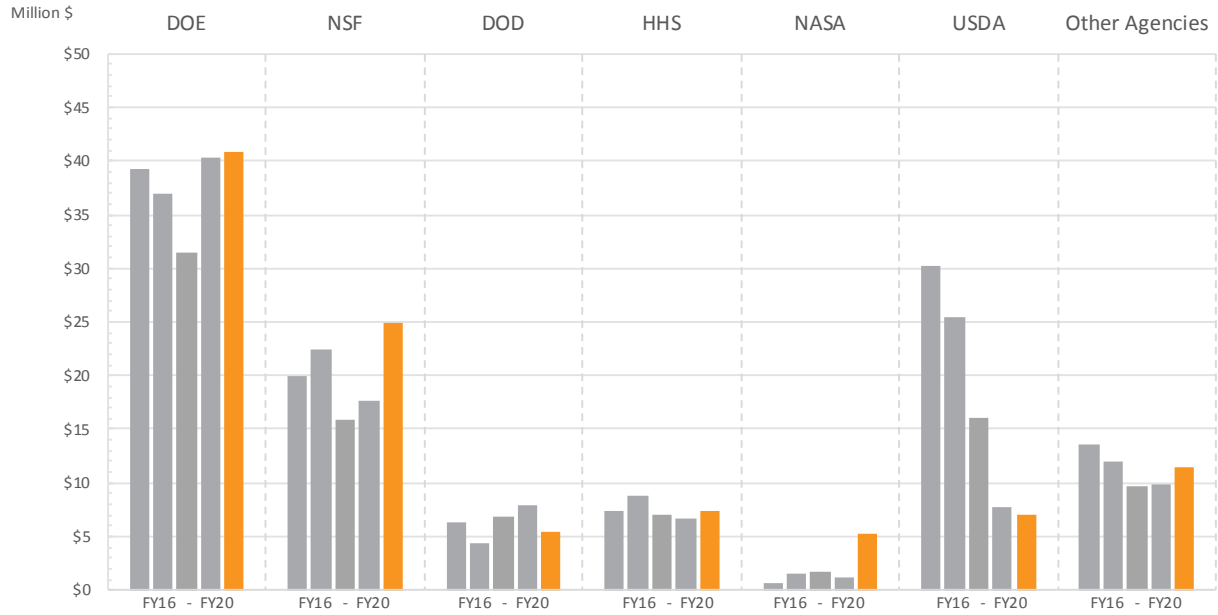
CUMULATIVE AWARD AMOUNT: FY20 vs. FY19 (Figure 3)



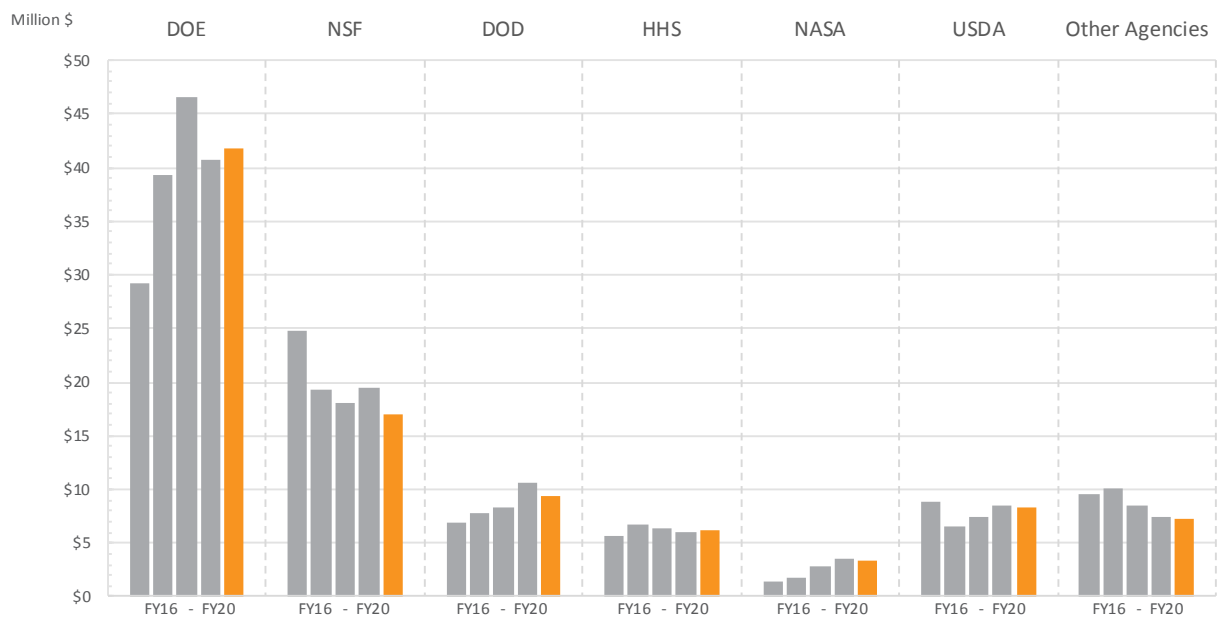
CUMULATIVE AMOUNT EXPENDED ON R&D: FY20 vs. FY19 (Figure 4)



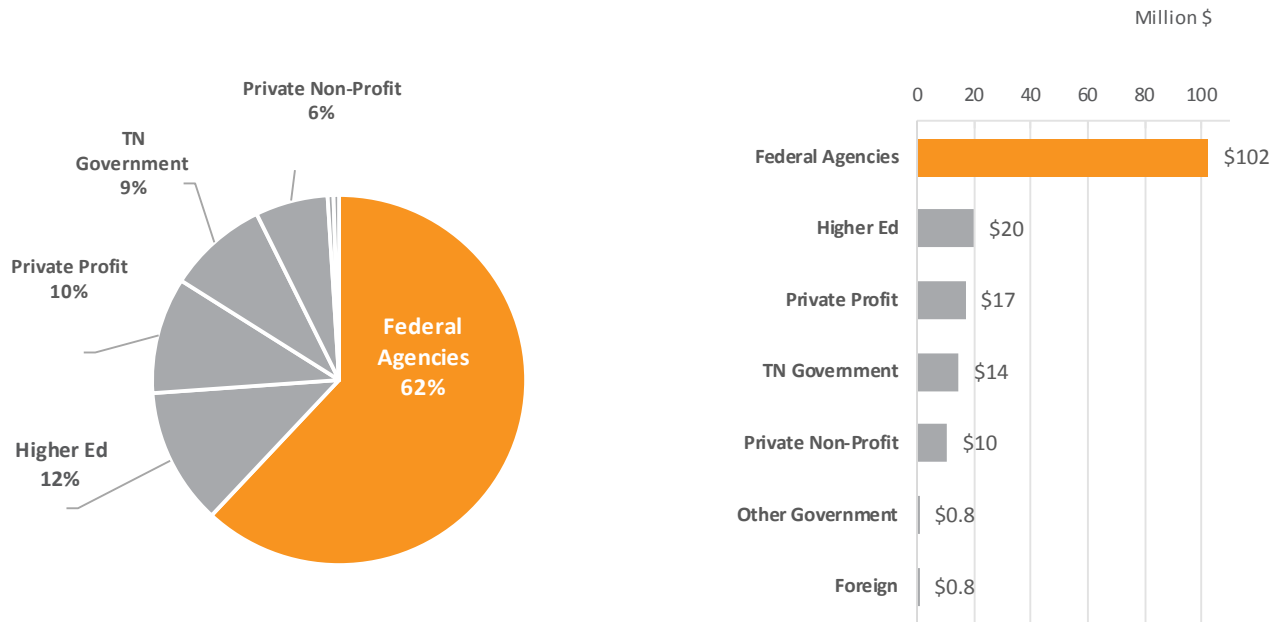
AWARDED DOLLARS BY FEDERAL AGENCY: FY16-FY20 Q1-Q3 (Figure 5)



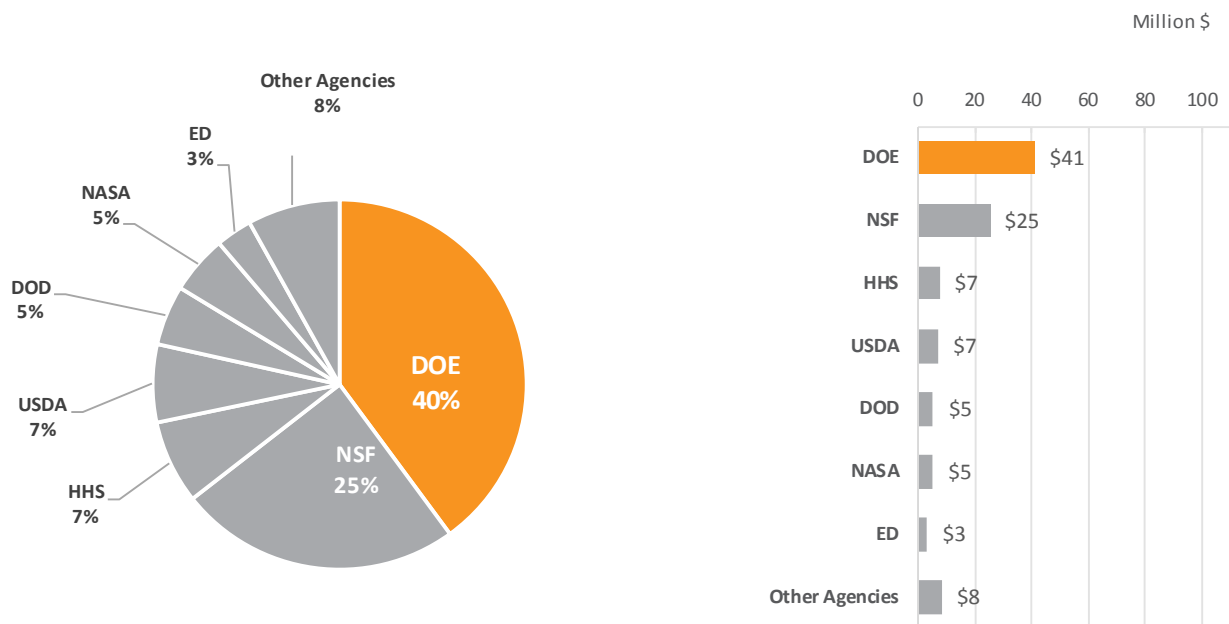
R&D EXPENDITURES BY FEDERAL AGENCY: FY16-FY20 Q1-Q3 (Figure 6)



AWARDED DOLLARS BY SOURCE: FY20 Q1-Q3 (Figure 7)



FEDERAL AWARDED DOLLARS BY AGENCY: FY20 Q1-Q3 (Figure 8)



PROPOSED AMOUNT BY UNIT: FY16-FY20 Q1-Q3 (Figure 9)
 (Dollars in Millions. Each chart has its own scale)

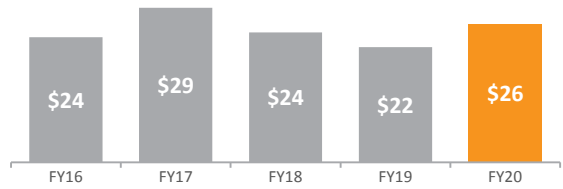


AWARDED AMOUNT BY UNIT: FY16-FY20 Q1-Q3 (Figure 10)
 (Dollars in Millions. Each chart has its own scale)

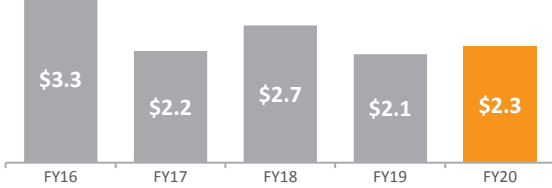
Architecture & Design



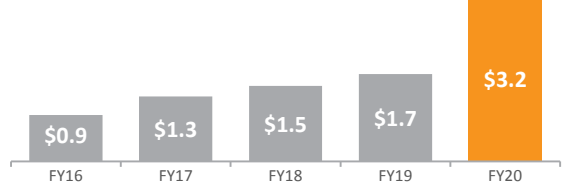
Arts & Sciences



Business



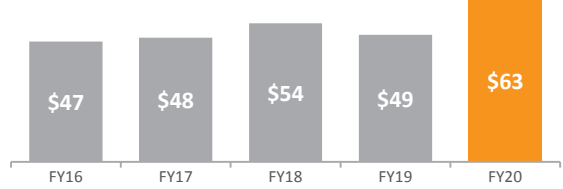
Communication & Information



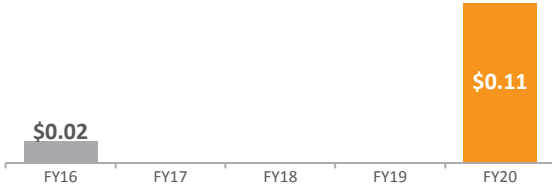
Education, Health, & Human Sciences



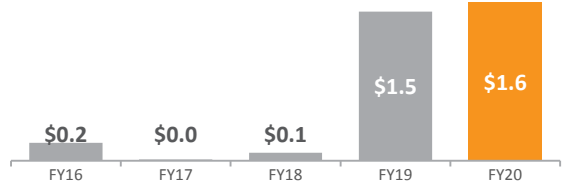
Engineering



Law



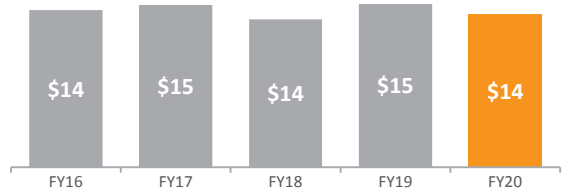
Nursing



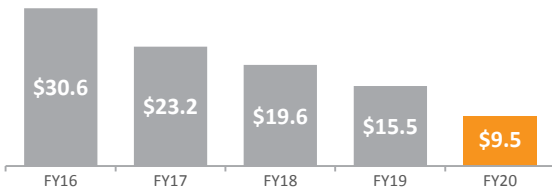
Social Work



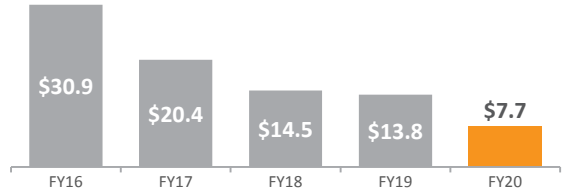
Research Centers & Institutes



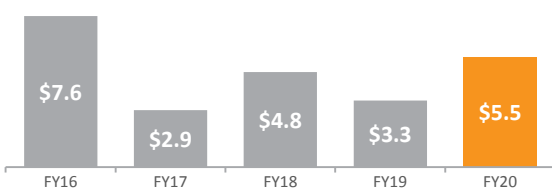
UTIA: AgResearch



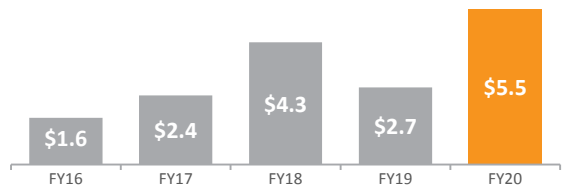
UTIA: Extension



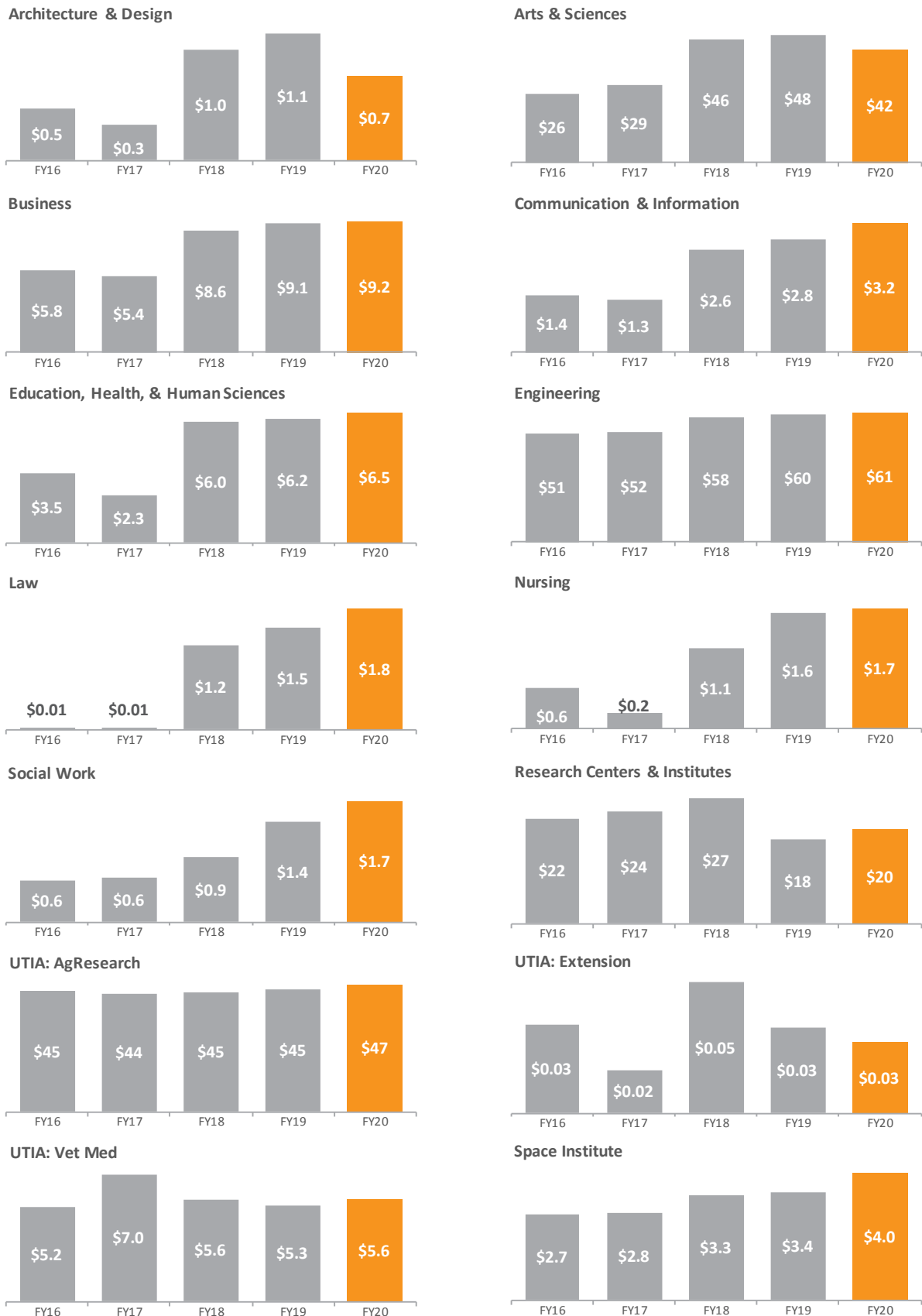
UTIA: Vet Med



Space Institute



AMOUNT EXPENDED ON R&D BY UNIT: FY16-FY20 Q1-Q3 (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. **Beginning with the third quarter of fiscal year 2020 (Q3 FY20), the University of Tennessee Institute of Agriculture data are included in quarterly reports. For this reason, data points reported prior to Q3 FY20 may not be directly comparable to the corresponding numbers in this quarter and future quarters.**

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 between June 9-19, 2020. The annual report will represent the final amounts for that fiscal year.