2020 ASEE Research Leadership Institute

Research Development: Promising Practices

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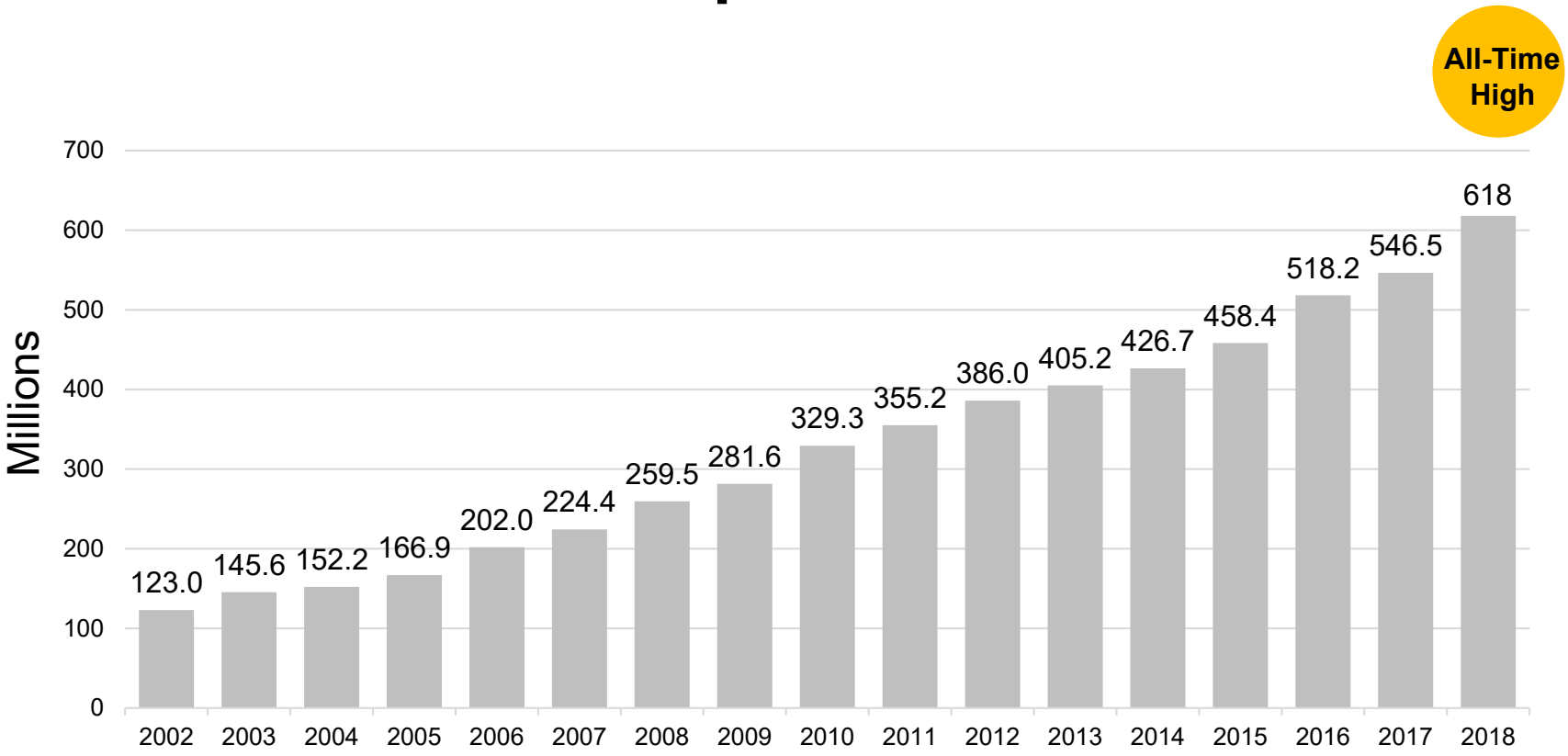
Ira A. Fulton Schools of Engineering
Arizona State University

Focus for today

- Context of ASU and the Fulton Schools of Engineering (FSE)
- Structure of research offices
- Services provided to support proposal development and project execution

ASU Total Research Expenditures



Fulton Schools Research – 2019

Early stage discovery	Translational research	Mission-focused impact
35+ young investigator awards from NSF CAREER, AFOSR YIP, DARPA YFA, ONR YIP, NASA and NIH over past three years. More than **$44M awards for 19 DARPA projects** in last two years supporting areas such as biological technologies, microsystems, & complex remote systems.	**NSF Engineering Research Centers:** Leading **QESST** & **CBBG** plus partnering on **NEWT** & **FREEDM** **NSF I/UCRCs** (Industry/University Cooperative Research Programs): PSERC, Connection One, SenSIP, WET, Center for Embedded Systems, Efficient Vehicles and Sustainable Traffic Systems, BRAIN **Launched new Clinical & Industry collaborations:** ASU-Mayo Center for Innovative Imaging Science and Technology Demonstration Centers (Wearable devices, Blockchain) Continued 20+ years **SRP** relationship with $2.5M annual funding	$18 million from **USAID** to establish the U.S.-Pakistan Centers for Advanced Studies in Energy (USPCASE) to improve power production in Pakistan Lead **DHS Center for Accelerating Operational Efficiency**. CAOE develops and applies advanced analytical tools and technologies to enhance planning, information sharing and real-time decision-making in homeland security operations. Lead **DOT Tier 1 University Transportation Center -** Teaching Old Models New Tricks (TOMNET)

~350 tenured and tenure-track faculty + 50 research faculty + > 100 post-docs + > 1200 PhD students

FSE entrepreneurship and innovation

Responsible for 192 patents and 24 startups in the last three years

#3 Licenses and options

Behind only Purdue and Carnegie Mellon

#4 IP disclosures

Behind only Carnegie Mellon, Caltech and Purdue

#4 Startups

Behind only Purdue, Carnegie Mellon and Stanford

Comparative data per $10 million in research expenditures, based on the Association of University Technology Managers annual report of top national engineering schools.

Evolution of the Fulton Schools of Engineering

School of Biological and Health Systems Engineering	School of Computing, Informatics, and Decision Systems Engineering	School of Electrical, Computer and Energy Engineering	School for Engineering of Matter, Transport and Energy	School of Sustainable Engineering and the Built Environment	The Polytechnic School
918 students	**6,735 students**	**3,324 students**	**3,820 students**	**1,734 students**	**5,454 students**
Biomedical Engineering	Computer engineering	Electrical engineering	Aerospace engineering	Civil engineering	Aviation Programs
Biological design	Computer science	Computer engineering	Chemical engineering	Construction engineering	Engineering programs
	Computer systems engineering	Robotics and autonomous systems	Materials Science and engineering	Construction management	Environmental and resource management
	Engineering management		Mechanical engineering	Environmental engineering	Global technology and entrepreneurship
	Industrial engineering		Robotics and autonomous systems	Sustainable engineering	Graphic information technology
	Informatics		Solar energy engineering and commercialization		Human systems engineering
	Robotics and autonomous systems				Information technology
	Software ei				Robotics and autonomous systems
					Management of technology
					User experience

6 interdisciplinary programs

25 undergraduate programs

46 graduate programs

2 campuses + ASU Online

The Global School

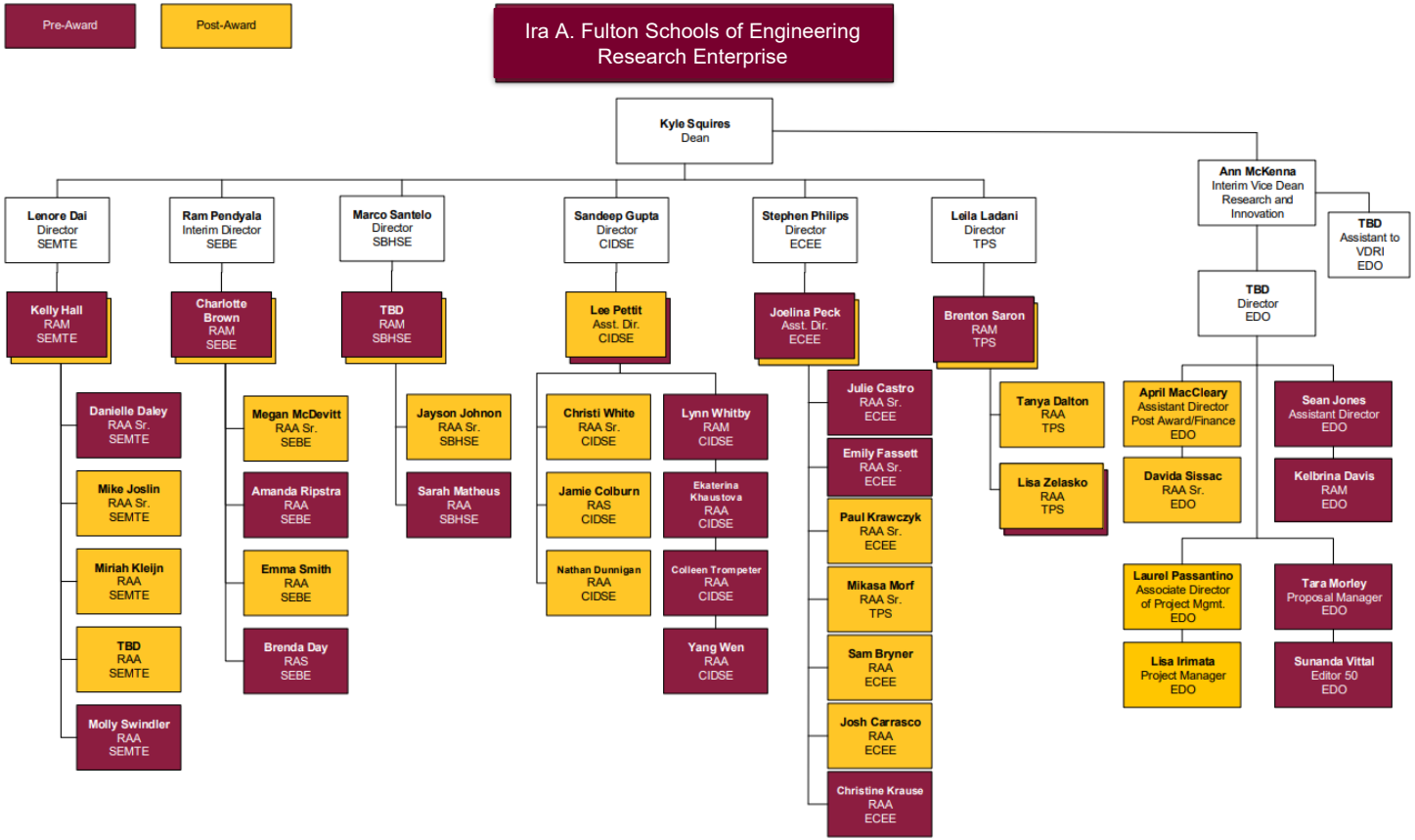
Advancing engineering design on a global scale

"The Engineering and Design Institute: London (TEDI)"

Produce new kinds of graduates:
- Creators and innovators
- Entrepreneurs and problem solvers
- Global citizens who are the engineers and technologists of the future

Attract new kinds of learners:
- Diverse
- International
- Attract students with the "engineering design mindset" and build skills along their learning path

FSE Research Services Team



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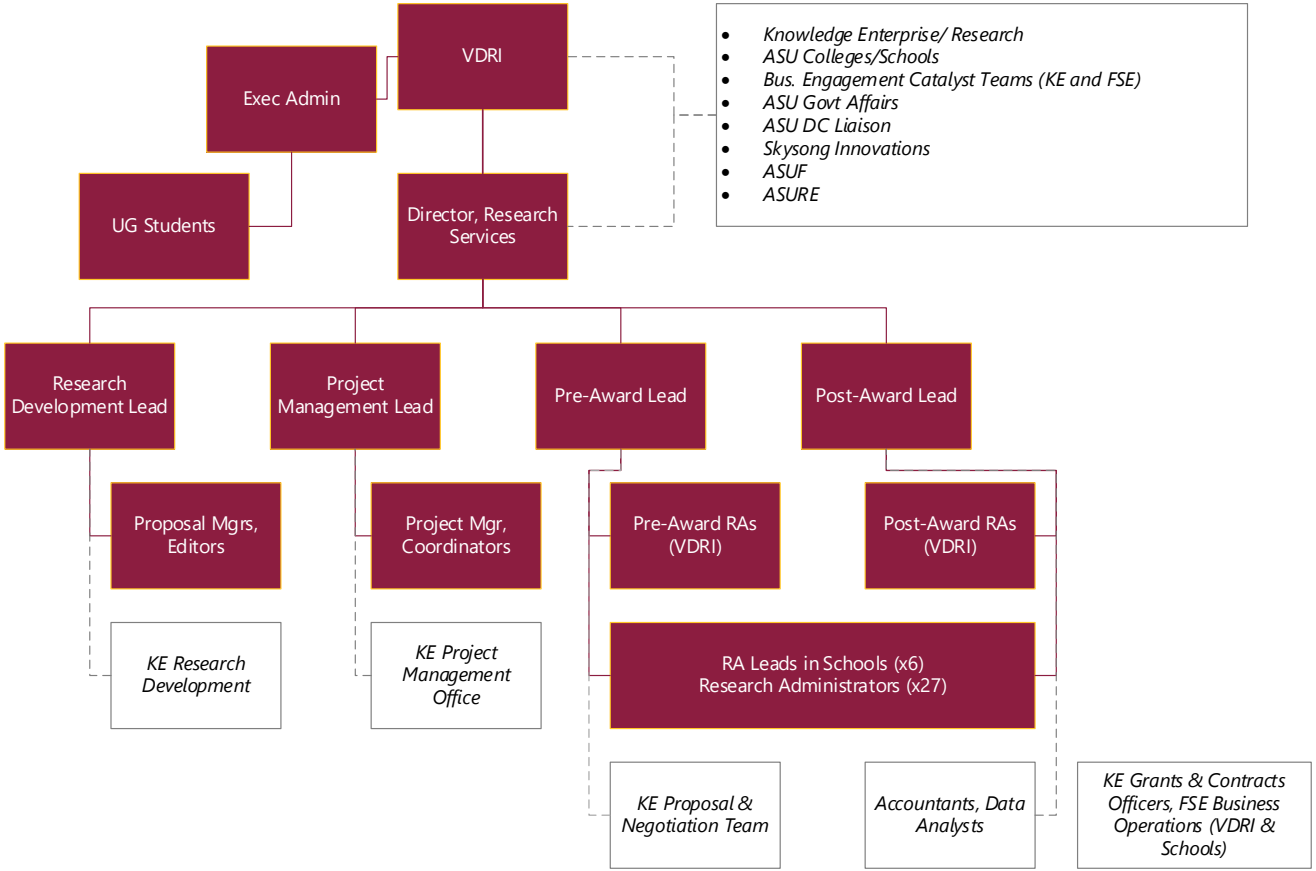
Touchpoints between ASU Units & FSE Research Services



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Knowledge Enterprise Services (ASU)

- Opportunity Kick-Offs
- Competitive Intelligence
- Limited Submissions
- Graphics and Journal and proposal editing services
- Research Administrators, Grants and Contracts Officers
- Project Management Office
- Proposal Management: *Focus on support to Tier 2 and 3 opportunities*

Annual budget	Opportunity Development	Proposal Management						
		Proposal Planning		Proposal Production			Site Visit	Debrief
		Evaluation	Pursuit	Writing	Graphics	Reviews		
Tier 3 ≥$5 million	Y	Y	Y	Y	Y	Y	Y	Y
Tier 2 ≥$1 million	Y	Y	Y	Y	Y	Y	N	Y
Tier 1 <$1 million*	N	N	N	N	N	Y	N	N

Engineering Research Services

FSE resources complement what is offered by KE:

- Faculty workshops
- Pre- and Post-Award Research Administrators (x33 FTE)
  - *Dedicated staff at each of the six Fulton schools to support faculty*
- Project Management team (x2 FTE)
  - *Ad hoc or dedicated support to multi-investigator/large teams*
- Proposal Manager (x1 FTE)
  - *Supports Tier 1/2 funding opportunities of $1M+*
- Editor (x.5 FTE)
- Graphics
- Seed Funding Programs
- Internal collaboration point with ASA and Business Engagement Catalysts

ASU Charter

ASU is a comprehensive public research university, measured not by whom it excludes, but by whom it includes and how they succeed; advancing research and discovery of public value; and assuming fundamental responsibility for the economic, social, cultural and overall health of the communities it serves.