CPI Briefing
January 2018
TEES Across Texas

Regional divisions
Angelo State University
Blinn College
Del Mar College
Lamar University
New Mexico State University
Prairie View A&M University
Tarleton State University
Texas A&M International University
Texas A&M University
Texas A&M University at Galveston
Texas A&M University-Central Texas
Texas A&M University-Commerce
Texas A&M University-Corpus Christi
Texas A&M University-Kingsville
Texas A&M University-San Antonio
Texas A&M University-Texarkana
Texas State University
Texas Woman’s University
University of North Texas
West Texas A&M University

Regional offices
- Houston
- Mesquite

Award Amounts by Major Source

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Federal</th>
<th>State</th>
<th>Industry</th>
<th>Foreign</th>
<th>Local/Other</th>
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<tbody>
<tr>
<td>FY2013</td>
<td>$160,000,000</td>
<td>$140,000,000</td>
<td>$120,000,000</td>
<td>$100,000,000</td>
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<td>FY2014</td>
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<td>$120,000,000</td>
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<td>FY2015</td>
<td>$120,000,000</td>
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<tr>
<td>FY2016</td>
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<td>$80,000,000</td>
<td>$60,000,000</td>
<td>$40,000,000</td>
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<tr>
<td>FY2017</td>
<td>$80,000,000</td>
<td>$60,000,000</td>
<td>$40,000,000</td>
<td>$20,000,000</td>
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Return on Investment

Dr. Karen Kirkland – $1 million
Dr. Perla Balbuena – $1.2 million
Dr. Jim Morel – $1.4 million
Dr. Bahman Yazdani – $1.4 million
Dr. Jim Morel – $1.5 million
Dr. Bryan Rasmussen – $1.5 million
Dr. Xia Hu – $1.6 million

Dr. Luc Vechot – $1.7 million
Dr. Radu Stoleru – $1.8 million
Dr. Rodney Bowersox – $1.9 million
Dr. Melissa Grunlan – $1.9 million
Dr. Mladen Kezunovic – $4.4 million
Dr. Dimitris Lagoudas – $10 million
Dr. Gerard Cote – $40 million

$71.3 million total
Strategic Research Focus Areas

Energy Systems and Services
- Nuclear, Oil & Gas
- Smartgrid/Power

Healthcare
- EnMed

Information Systems and Sensors
- Autonomy/Sensors

Materials and Manufacturing
- Materials
- Manufacturing

Infrastructure and Transportation
- Center for Infrastructure Renewal

National Security and Safety
- Hypersonics
- Informatics/Cybersecurity

Energy Systems & Services
- Texas A&M Energy Institute
- Crisman Institute for Petroleum Research
- Energy Systems Laboratory
- Gas and Fuels Research Center
- Smart Grid Center
- Turbomachinery Laboratory
Healthcare

- Center for Bioinformatics & Genomic Systems Engineering
- Center for Remote Health Technologies and Systems
- National Center for Therapeutic Manufacturing

Information Systems & Sensors

- Center for Autonomous Vehicles and Sensor Systems
- Texas Center for Applied Technology
Materials & Manufacturing

• Center for Intelligent Multifunctional Materials and Structures
• Institute for Manufacturing Systems
• Processing Engineering R&D Center

Infrastructure

• Center for Infrastructure Renewal
• Offshore Technology Research Center
• Thomas & Joan Read Center for Distribution Research & Education
National Security & Safety

- Center for Large Scale Scientific Simulation
- Institute for National Security & Cyber Education & Research
  - Texas A&M Cybersecurity Center
  - Center for Nuclear Security Science & Policy Initiatives
- Lone Star Unmanned Aircraft Systems Center of Excellence
- Mary K. O’Connor Process Safety Center
- Nuclear Power Institute
- Nuclear Science Center

Governor’s University Research Initiative (GURI) and Chancellor’s Research Initiative (CRI)

*Indicates GURI recipient
Latest GURI and CRI Hires

M. Cynthia Hipwell, PhD
TEES Chair Professor
National Academy of Engineering
Mechanical Engineering

Roderic I. Pettigrew, MD, PhD
CEO, EnHealth and Executive Director, EnMed
National Academy of Engineering
National Academy of Medicine
Biomedical Engineering/College of Medicine

Investment in Energy: The Texas A&M Energy Institute

Discovering Energy Solutions
Improving Quality of Life

Systems-Wide Thinking and Structure

Transform the Energy Research Landscape

Educate the Next Generation of Leaders in Energy

Establish a Vibrant External Partnerships Program in Energy

Gulf Coast Regional Manufacturing Center

Master of Science in Energy Certificate in Energy

Charter Partner Royal Dutch Shell

Modeling & Simulation Focus Area

Discovering Energy Solutions Improving Quality of Life

Texas A&M Superfund Research Center

Process Systems Engineering Group

Water-Energy-Food Nexus Initiative
Investment in Energy: New DOE Award

Dr. Dan Hill

- 8 Million DOE grant to create the Eagle Ford Shale Laboratory
- Partners
  - Lawrence Berkley National Laboratory
  - Stanford University
  - WildHorse Resource Development Corporation

Manufacturing USA

A National Network of Institutes Focused on Advanced Manufacturing Technologies
TEES Involvement - Manufacturing Innovation Institutes

**Advanced Regenerative Manufacturing Institute**
Function: Tissue Biofabrication  
**Lead Agency:** DoD  
Federally Funded through: ~2024  
**TEES POC:** Haridas

**Advanced Robotics Manufacturing**
Function: Robotics  
**Lead Agency:** DoD  
Federally Funded through: ~2022  
**TEES POC:** Pagilla

**National Institute for Innovation in Manufacturing Biopharmaceuticals**
Function: Biopharmaceuticals  
**Lead Agency:** NIST  
Federally Funded through: FY 2021  
**TEES POC:** Karim

**Clean Energy Smart Manufacturing Innovation Institute**
Function: Smart Manufacturing  
**Lead Agency:** DOE  
Federally Funded through: ~2021  
**TEES POCs:** Pistikopoulos/Schneider

**RAPID**
Function: Process Intensification  
**Lead Agency:** DOE  
Federally Funded through: ~2022  
**TEES POCs:** Pistikopoulos/Schneider

**America Makes**
Function: Additive Manufacturing  
**Lead Agency:** Formerly DoD  
Was Federally Funded: Now Independent  
**TEES POC:** Wren

International Manufacturing Conference

*Texas A&M Engineering will host the North American Manufacturing Research Conference (NAMRC)*  
June 18-22, 2018  

750+ Attendees  250 Students  84 Technical Sessions
PATHS-UP will:

- Engineer transformative, robust, and affordable, technologies and systems to improve healthcare access, enhance the quality of service and life, and reduce the cost of healthcare in underserved populations
- Recruit and educate a diverse group of scientists and engineers who are ready to lead the future in developing enabling technologies to improve health in underserved communities

Center for Infrastructure Renewal

Joint Center between TEES and TTI opening in March
NASA – University Leadership Initiative

Commercial supersonic flight represents a potentially large new market for aircraft manufacturers and operators
- Global demand for fast air travel is growing
- New supersonic vehicle production will lead to more high-quality jobs in the US

Environmental impact of supersonic flight must continue to be an overarching consideration
Restrictions on overland supersonic flight represent a major barrier to supersonic aircraft adoption

We will address overland supersonic boom
- We will sense conditions between the aircraft and the ground
- We will make distributed adjustments to the shape of the aircraft to reduce boom for all flight conditions

Example aircraft regions that will be adapted to reduce sonic booms as flight conditions change
Cybersecurity

Consolidated parts of national nuclear security and cybersecurity efforts as part of a broader realignment

- Institute for National Security & Cyber Security Education & Research (INCSER)
  - Texas A&M Cybersecurity Center
  - Nuclear Security Science and Policy Institute

IoT Apartment to be constructed at RELLIS

- Bio-medical focus opportunity to build community of interest among manufacturers, suppliers and users

NSA Cooperative Research and Development Agreements (CRADA)

National Security Agency – National Center for Academic Excellence for Cyber Defense

4.4 Million National Science Foundation Scholarship for Service Award

Army Research Lab South

TEES was instrumental in the establishment of ARL South as a hub in Texas through partnerships with other Texas universities to accelerate discovery, innovation and transition of science and technology

- Cooperative Agreement in Synthetic Biology – Up to $5 million over 5 years
- Funded Projects in Electric Power --$150K this year, working toward making this a cooperative agreement
- Joint Work Statements in Materials and Manufacturing
- Joint Proposal in Cybersecurity Education
NSF Grants for Rapid Response Research (RAPID)

- Shankar Chellam, Water impacts of Hurricane Harvey
- Ali Mostafavi, Establishing Disaster System-of-Systems Requirements for Network Centric and Data Enriched Preparedness and Response
- Ali Mostafavi, Assessment of Risks and Vulnerability in Human-Physical Networks of Houston’s Flood Protection, Emergency Response and Transportation Infrastructure
- Robin Murphy, Collaborative Research: Unmanned Aerial Systems Datasets from Hurricanes Harvey and Irma
- Le Xie, Powering Through the Hurricane: Self-Organizing Power Electronics Intelligence at the Network Edge
- J Am Womble, Preservation of 3D Damage Data for Reality-Capture-Enhanced Modeling of Engineered Steel Structures on the Texas Coast Subjected to Harvey
Junior Faculty Assistance

- **Junior Faculty Proposal Writing Academy**
  (campus-wide in partnership with Texas A&M Division of Research)
  - jfa.tamu.edu
- **Engineering Faculty Bootcamp**
- **Young Investigator Program assistance**
  - Strategy/interpreting the RFP
  - Timeline
  - Technical generalist review/editing
  - Broader impacts linkages
  - Addressing reviews in a resubmit
- **TEES Research Development Website:**
  - teesresearch.tamu.edu
  - List of Young Investigator Programs

Highlights 2017 - Commercialization

- 71 Invention Disclosures
  Highest in 5 years!!
- 41 Provisionals
  26 Patent Filings
- Texas-wide
  New Ventures Competition
- Commercialization
  Boot Camps

- 7 Startup Companies
## TEES Start-Up Portfolio & Pipeline

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<thead>
<tr>
<th></th>
<th>2012 – 2016 (9)</th>
<th>2017 (7)</th>
<th>2018 &amp; Beyond (10)</th>
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<tr>
<td>Claridge-Culp</td>
<td>Incendium</td>
<td>Herottrak</td>
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<tr>
<td>Allvar</td>
<td>LT2</td>
<td>Indoor GPS</td>
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<td>TexasLDPC, Inc</td>
<td>Thermascape</td>
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<td>Li Ion Battery NewCo</td>
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<td>BNE International Pty Ltd</td>
<td>Saber</td>
<td>Nanodiamonds</td>
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<td>Dexneo</td>
<td>Fortis Biosciences</td>
<td>Wearable Healthcare</td>
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<td>Adallo, LLC</td>
<td>Vozi</td>
<td>Nuclear Engineering NewCo</td>
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<td>LifeMotion Technologies, LLC</td>
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<td>Electrochemistry Start-up</td>
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<tr>
<td>Asteros Technologies, LLC</td>
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<td>Microfluidics Device</td>
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<tr>
<td></td>
<td></td>
<td>OCT Device System</td>
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## Industry-Driven Workforce Development Programs

### Sample of Current Certificate Programs
- Lean Six Sigma Yellow & Green Belt
- Asset Management and Economics
- Process Safety Practice
- Distribution Manager
- Intensive Inventory Management
- Optimizing Distributor Profitability
- New Science of Customer Service
- Certificate in Energy
- Sales and Marketing Optimization

### Certificate Programs – in Development
- Additive Manufacturing
- Advanced Manufacturing
- Quality Assurance
- Cybersecurity in Advanced Manufacturing
- Engineering Systems Management
- Data Center Operations
- HealthCare Informatics
Researchers gathered at Prairie View A&M University

Multi-institution collaborations pitched to a panel of judges at the end of the conference

Multi-institution collaborations awarded $2,500 in seed funding to continue their work together

Grand prize collaboration—CHIME: Continuous Health Intervention and Monitoring for the Elderly—awarded $20,000 (Principal Investigator: Justin Foreman, Prairie View A&M University; Team Members: Farzan Sasangohar, Texas A&M University & Austin Riddle, TEES Texas Center for Applied Technology)

Facility Investments

- Giesecke Engineering Research Building
- Center for Infrastructure Renewal
- TEES Health Technologies Building
- Testing and Characterization Facility
- Industry Lab
- TEES HQ and Mary Kay O’Connor Process Safety Center
- Industrial Distribution Research and Education Building
Facilities Under Construction

TEES/TTI Center for Infrastructure Renewal
• Opening March 2018

Health Technologies Building
(Formerly Coastal Engineering Lab)
• Opening 2019

Projects at RELLIS Campus

TEES Headquarters Building
• Construction begins 2018

Industry Lab
• Construction begins 2019

Rowlett Industrial Distribution Building
• Construction begins 2019
Council of Principal Investigators

January 17, 2018

Agenda

• Project Status Summary
• Workday Go Live Metrics
• Financial System Discovery Update
Project Status Summary

Top Line Status

- Workday Go Live occurred on time and under budget for December 17
- Issues have remained minor with low noise
- The first monthly and biweekly payroll completed
  - Monthly – 26,979 checks and DD – 0.57% error rate
  - Biweekly – 23,979 checks and DD – 0.16% error rate
Workday Go Live Metrics

Total Sign-On Activity – Week 1/2 Overview

Grand Total: 108907
Total Sign-On Activity – Week 2/3 Overview

Sign-On Activity by Day

- 12/31/2017: 1082
- 1/1/2018: 1980
- 1/2/2018: 14287
- 1/3/2018: 14126
- 1/4/2018: 14247
- 1/5/2018: 12611
- 1/6/2018: 1537

Grand Total: 59900

Total Sign-On Activity – Week 4 Overview

Sign-On Activity by Day

- 1/7/2018: 1695
- 1/8/2018: 15980
- 1/9/2018: 15251
- 1/10/2018: 16594
- 1/11/2018: 20948
- 1/12/2018: 20984
- 1/13/2018: 1201

Grand Total: 92653
Workday System Metrics – by Member

Users Signed-In Since 12/17/17

- AL-EXT: 1290
- AL-RSOH: 2040
- HSC: 1525
- PVAMU: 1353
- SO: 318
- TAMU: 992
- TAMUC: 1200
- TAMUCC: 1753
- TAMUCT: 271
- TAMUG: 378
- TAMUK: 1224
- TAMUSA: 512
- TAMUT: 263
- TARLETON: 2013
- TEES: 1286
- TEEX: 20
- TFS: 520
- TTI: 653
- TVMDL: 485
- WTAMU: 168
- (blank): 983
- (blank): 1208

Grand Total: 30417

Workday System Metrics – Workday Support

Workday Support Questions – 12/06/2017 – 01/16/2018

- Benefits: 280
- Data/Reporting: 188
- HR/Compensation: 1162
- Time/Absence: 364
- Talent/Recruiting/Performance: 167
- Security: 209
- Payroll: 170
- New/Other: 6
- Unassigned: 6

Grand Total: 2552
Resolved: 90%
Finance System Discovery Update

Finance System Discovery Timeline

- September 2016: Formation of working group
- November 2016 – April 2017: Develop, issue and evaluate RFI
- May – June 2017: Vendor presentations with Oracle and Workday
- August – October 2017: Corporate site visits, other university site visits
- October 2017: **Decision** to pursue deeper dive with Workday
- March – September 2018: Gap analysis, vendor demos, process mapping
- October 2018: Decision point
  - Implementation
  - Re-evaluate
  - Wait
Finance Discovery Working Group

- Representation from every member of the A&M System
- Includes:
  - Representation from SRS
  - TAMU Vice President for Research
  - AgriLife Research
  - TEES

- Discovery process will include demonstrations of Workday Finance modules which will be open to all faculty and staff the A&M System

Thank You!