Increasing Federal Research Expenditures: A Case Study of 12 Successful Institutions
Texas Tech University

**GOAL:** To be listed among the top American research universities (CMUP)

**NEED:** To reach $40M in STEM federal research expenditures

**2 Types of Case Studies:**
1. Successful at increasing overall STEM FREs
2. Successful in securing large, programmatic/center grants
1. 2015 NSF HERD Report
2. NSF Centers
3. 2015 CMUP Report
4. TTU’s List of Peer & Aspirant Schools

**Determining Characteristics:**
- Total student enrollment
- Increase in avg FReS (10 yrs)
- Relatively recent AAU member
- Center grants
- Recently exceeded $40M in STEM FReS
- Peer & Aspirational Peer

**METHOD:** Selection of Schools
Institutional Reps:
• RD Office
• OVPR/OVCR
• Other faculty with admin roles

Survey Questions:
• Increase federal funding
• Secure large programmatic/center grants
• Manage resulting increases in funding
• Institutional efforts needed to on-board, administer & sustain large center grants

METHOD: Procedure
12 Institutions:
- 6 peer institutions
- 4 aspirational peers
- 10 public
- 2 private
- Total student enrollment ranged from 7,000 – 77,000
- 2015 FREs ranged from $40M to $446M

METHOD: Sample
Qualitative Analysis:
- Case Study Research Design
- Open coding (in vivo coding)
- Pattern coding
- Themes
- Factoring

METHOD: Analysis
Faculty hiring:
• Track record of grants
• Teams of successful faculty
• Retiring faculty replaced with new faculty focused on research

Proposal development assistance and training for faculty:
• Grant proposal writing workshops for new faculty (conducted by company)
• Increased proposal development staff and post-award staff

RESULTS: Broad Strategies to Increase or Sustain Federal Funding
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Large-scale centers or larger sized proposals:
- Submitted 10–25 multi-investigator, multimillion dollar proposals ($5M+)
- Analyzed grants portfolio – discovered faculty were writing smaller grants compared to peers. Encouraged and incentivized faculty to think bigger.
RESULTS: Case Studies of Strategies to Increase Overall STEM FREs

Strategic with internal investments:
• Seed funding for teams of faculty
• Partnership with medical school for seed grants
• Topical seed funding
• Must submit external proposal
• Large center grant teams
• Matching funds on grant proposals
• Course release for grant writing
• F&A returns
Strategic in building institutional cultures:
• Strategic hires/cluster hires
• New faculty

Provided PD opportunities for faculty:
• Speed networking
• Junior faculty mentoring program
• Annual D.C. trips

RESULTS:
Case Studies of Strategies to Increase Overall STEM FREs
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Provided proposal development assistance:
• Grant editors
• Non-technical writing support
• Graphics
• Budget prep
• Templates
• Funding opps emails
• Coordinating proposal submissions with post-award
• RD experts in specific funding agencies
• Funding expectations for
Funding expectations for T&P:
• Extramural funding is often discipline specific
• Not explicitly required but expected
• Required for promotion to full

Increase in grant awards resulted in increases in staff:
• Sponsored programs
• Post-award
• IRB

RESULTS:
Case Studies of Strategies to Increase Overall STEM FREs
Strategic planning:

- Research areas in strategic plan – focus groups – seed funding – ERC award
- Building up centers through strategic hiring
- Leveraged strategic partnerships & locations
- Institutional culture – culture shift
- Junior faculty training
- Long-term planning
- Plan early
- Monthly reports on growth
- Review of current centers

RESULTS:
Case Studies of Strategies to Secure Large Programmatic/Center Grants
Strong PI leadership:
• Credentials & demonstrated leadership capacity
• Passionate
• Persistent
• Reputation
• Committed to team science
• Course release, seed funding

Teams with appropriate credentials & a demonstrated successful track record of publishing together:
• Meet–and–greet for grant opps

RESULTS:
Case Studies of Strategies to Secure Large Programmatic/Center Grants
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Increases in support staff:
- Communications
- Administration/Project management
- Extension/outreach
- Curriculum development
- Post-award staff
- IRB staff
- RD staff
RESULTS:
Case Studies of Strategies to Secure Large Programmatic/Center Grants

Strong support from RD office:
• Proposal review
• Graphics
• Templates
• Budget prep
• Project management
• Full-time job
• Full dress rehearsals
• Red team reviews
• Record dry runs of presentation for critique
At Texas Tech:
• Some of the same strategies but not…
  • Systematic
  • Consistent
  • Strategic
  • Large-scale
• And therefore NOT effective
• Developing and pursuing strategies
• Focusing on institutional culture
YOUR TURN:
What are some successful strategies you’ve implemented at your institutions?