Advancing the Student Experience at New Mexico Tech

Dr. Mohammad S. Alam, Dean

College of Science, Engineering, and Technology

Minnesota State University, Mankato, MN

Why Provost's Position at NMT?

- Initial research gave me the impression of a dynamic university with excellent academic and research units, a well-qualified faculty and staff, and a strong student body with teaching and research interests aligned with the mission of NMT
- My Interest in this position stems from NMT's potential for growth, its outstanding academic and research programs, its commitment to innovation, and its reputation as one of America's top STEM research university
- Broad administrative expertise, fiscal stewardship, and collaborative leadership align well with the expectations of leadership for this role
- 23+ years of track record at multiple institutions equipped me to advance NMT's mission as a premier STEM research university

Relish the opportunity to lead the Academic and Student Affairs at NMT by playing a defining role to continue the advancement and elevate the stature of the institution

Vision/Strategic Plan

- **A Provost must establish and communicate a clear vision that encourages and inspires the faculty, staff and students to function together as a team to enhance the reputation of the university as a center of learning, research and scholarship**
- **The Vision must be consistent with the mission and strategic priorities of the institution**
- **To Implement the Vision – Need a Strategic Plan**
  - Seek input from all stake holders (faculty, staff, students, alumni, employers, administrators, policy makers, …),
  - Understand the faculty and student body, their strengths and capabilities
  - Identify the available instructional/research infrastructure
  - SWOT analysis

One may come up with the best possible strategic plan, but it may not succeed until and unless all constituents are consulted and taken into confidence

Leadership

- An effective leader must have a clear picture of where he or she is going consistent with the mission of the institution
- **Ability to communicate that vision to stakeholders**
- Motivate others to work towards that vision
- **Work through the system to get things done**
- Benchmarking, Assessment, Evaluation, and Accountability

The ultimate test of a leader is whether he or she can inspire others to implement the vision

Dr. Mohammad Alam, Dean

- MSU Enrollment: 16K
- CSET: Enrollment: 3K
- Faculty/Staff: 250+

College of Science, Engineering and Technology (CSET)
Minnesota State University, Mankato
FY 27

Dr. Mohammad S. Alam
Dean, College of Science, Engineering and Technology

- **Sarah Lee** — Development Director
- **Kim Dirks** — Executive Assistant
- **Dr. Ruijun Zhao** — Associate Dean
- **Iron Range Engineering** — Director: **Dr. Cody Mann**
- **Student Advising Center** — **Ken Adams**, Director
  - **Lejla Alvarez** — CSET Advisor
  - **Derek Hanson** — CSET Advisor
  - **Crystal Phillips** — Advising Assistant
- **Katie VanErdewyk** — Director of Operations
- **(Vacant)** — DB & Grant Admin & Customer Relations Manager
- **MN State Engineering and Applied Manufacturing Center of Excellence**
  - **Jason Bruns** — Executive Director
  - **Melissa Huppert** — Director of K12/Outreach
  - **(Vacant)** — Administrative Support
- **Jenny Rosin** — College Operations Support Specialist
- **(Vacant)** — Director of Marketing and Communications
- **MNCAR** — Director: **Dr. Gary Mead**
  - **(Vacant)** — Administrative Support
- **Water Resource Center**
  - **Kimberly Musser** — Executive Director
  - **Angela Archer** — Research Assistant
  - **Kendra Daby** — Administrative Support
- **CTSI** — Director: **Dr. Mohamad Diab**
  - **(Vacant)** — Administrative Support
- **IRRA** — Director: **Dr. Susan Colvin**
  - **(Vacant)** — Administrative Support

Automotive and Manufacturing Engineering	Biological Sciences	Biochemistry, Chemistry and Geology	Computer Information Science	Construction Management	Electrical, Computer and Robotics Engineering	Integrated Engineering	Mathematics and Statistics	Mechanical and Civil Engineering	Physics and Astronomy
Dr. Gary Mead, Chair	Dr. Rachel Cohen, Chair	Dr. Dan Swart, Chair	Dr. Sarah Kruse, Chair	Dr. Leah Roue, Chair	Dr. Xuanhui Wu, Chair	Dr. Jennifer Karlin, Chair	Dr. Laura Yin, Chair	Dr. Shaobiao Cai, Chair	Dr. Andrew Roberts, Chair
Brenda Andre, Administrative Assistant	Katherine Nelson, Admin Assistant	Christine Cords, Administrative Assistant	Rachel Riska, Administrative Assistant	Stacy Hahn, Administrative Assistant	Jeni Meixner, Administrative Assistant	Melissa Weske, Administrative Assistant	Molly Engebretson, Admin Assistant	Brenda Andre, Administrative Assistant	Stacy Hahn, Administrative Assistant

Why is NMT here?

- **Student Experience**
- Engaged Learning and Scholarship
- Research and Discovery
- Entrepreneurship and Innovation
- Professional Development
- Workforce Development
- Economic Development
- Community Support
- Community Engagement

Student Experience

- Students are the reason for our existence in academia
- Student experience begins from the first contact moment
- Seamless learning experience - recruitment to graduation

- Outreach and recruitment
- Dedicated advising and academic progress monitoring
- Ensure a clear path to graduation

- Hands-on experiential learning (capstone design project)
- Engage in faculty research (REU, project, thesis, …)
- Infuse entrepreneurial mindset (EM)

- Career guidance and preparation
- Placement after graduation

- Engage in extra-curricular activities (marketable skills)
  - Volunteer work, student organization, assist in outreach, …
- Living Learning Community - students with same majors or interests live in a assigned section of a residence hall
- Flipped classroom: Pre-class (review material), In-class (interactive exercise), Post-class (assess understanding)

Student Access/Success

- Critical for any academic institution to ensure equal access and success of a diverse student body, faculty and staff members
- In public universities, a large portion of the students come from low-income, first-generation, minority, and non-traditional backgrounds who typically face significant hurdles towards achieving academic success
- Innovative and transformational approaches are needed to ensure access and success of these underserved student population encompassing recruitment, retention, academic progress, and graduation
- Ensured student success by investing significant resources from the college to provide dedicated advising, supplemental instruction, tutoring, leadership skill development, and career guidance through the Engineering Student Success Center
- Increased FTIC retention rate from 67% to 78% and 6-year graduation rate from 42% to 48%

Outreach and Recruitment at NMT

- **Branding**
  - 137 years of tradition and track record
  - Top-ranked STEM institution
    - #1 in NM, Academics: A, Value: A+ (10/1563)
    - Best small college (#21/1010), Overall: A
  - New Mexico's Hidden Gem
  - National leader in research (attract top-notch students)
  - Small student-faculty ratio (9:1)
- **Digital Marketing/Outreach**
  - Real time data analytics (clicks, impressions, …) using tools like Google Analytics
  - Outreach to prescribed demographics based on location, interest, online behavior, …
  - Blind broadcasting to general crowds does not work
  - Focused messaging
- **Targeted On-Campus Events/Online Experience**
- **Show case state-of-the-art instructional/lab facilities**

Outreach/Recruitment

- **Developed and implemented data-driven, result-oriented marketing strategies for outreach and recruitment**
  - Developed strong bond with K-12 teachers and counselors
  - E-Week/S-Week, E-Sports for potential students
  - Periodic visits to high schools (lecture+demo)
  - Open House for potential students and parents
  - Co-teacher model (high school teachers + MSU instructors)
  - VEX Robotics competition
  - Summer Bridge Program- Improve college prep for HS students
  - Dynamic website - sole source for relevant information
  - Social media-based outreach/recruitment strategies
  - Achieving the Challenge to Excel (ACE) for minority students
  - Developed 2+2 articulation agreements with community colleges for seamless transfer of students

Outreach/Recruitment

- **Implemented effective strategies for int'l student recruitment**
  - Articulation agreements with international institutions (1+3, 2+2, …)
  - Professional student recruitment firms (Ethiopia, Nepal, Nigeria, Bangladesh)
  - Recruit students with foreign government scholarships
  - Periodic visits to targeted international institutions
  - Research collaboration with international institutions
  - Study abroad program, int'l exposure for students
  - Initiated the conversation to establish an external campus in Bangladesh
- **Transforming Tomorrow Together (TTT) 2040 Initiative**
  - Core components of TTT 2040
    - Develop local talent
    - Retain future workers for emerging fields
    - Strengthen regional competitiveness
- **Rural Experiential STEM Education Partnership Initiative (RESEPI)**
  - RESEPI directly advances the Talent Hub pillar of TTT by building strong education-to-career pathways that prepare rural students for high-demand technical careers
  - RESEPI provides high-quality STEM education programs that directly strengthens the Talent Hub workforce pipeline
  - Partners - CSET, CoE and Regional Industry

Retention/Graduation/Placement

- Implemented effective strategies for retention, timely graduation and placement of students
- Interaction between faculty and students outside the classroom
- Hybrid instructional delivery for place-bound students
- Provide scholarships, internships, and co-op opportunities for students
- Academic progress monitoring for timely graduation
- Show case track record for placement after graduation
- Provide state-of-the-art facilities, recreational opportunities
- Living learning communities for students

Innovative Program Offerings

- **Streamlined program offerings through a comprehensive academic portfolio review**
  - Phasing out 26 undergraduate, graduate and certificate programs
  - Added 7 in-person and 4 asynchronous online program
  - BS in Automotive Engineering, Robotics Engineering, Software Engineering, Manufacturing Engineering, ISAT, Agronomy, MS in AI, …
- **Integrated Engineering (Project Based and Work-Based Program)**
  - Differential Tuition-based
  - Funding from Iron Range Foundation
- **BS in Computer Science (Project Based Program)**
  - 98% Placement
  - Industry sponsored projects
  - Funding from Mavericks software, BYTE software, and Federated Insurance
- **BS in Construction Management**
  - 100% Placement
  - 100% Students get one or more co-op or internship opportunities
- **BS in Software Engineering (Project Based Program)**
- **BS in Robotics Engineering (First program in the State)**

EQUITY 2030

- System-wide strategic commitment to close educational attainment and outcome gaps for BIPOC, low-income, and first-generation students by 2030
- Critical for Minnesota's economy and workforce needs

Student Access/Success/Experience

- CSET Student Success Advising Center
- MavPASS Program – To improve DFW Rates
- Mid-semester Warning - To assist struggling students
- Supplemental Instruction
- Tutoring by senior students and officers of student branches of professional societies (online/in-person)
- MoonShot – To enhance socioeconomic opportunities for students
- Career preparation/guidance by alumni who went through similar experiences
- Career guidance by industry professionals (professional from regional industry, Industrial Advisory Board members, …)

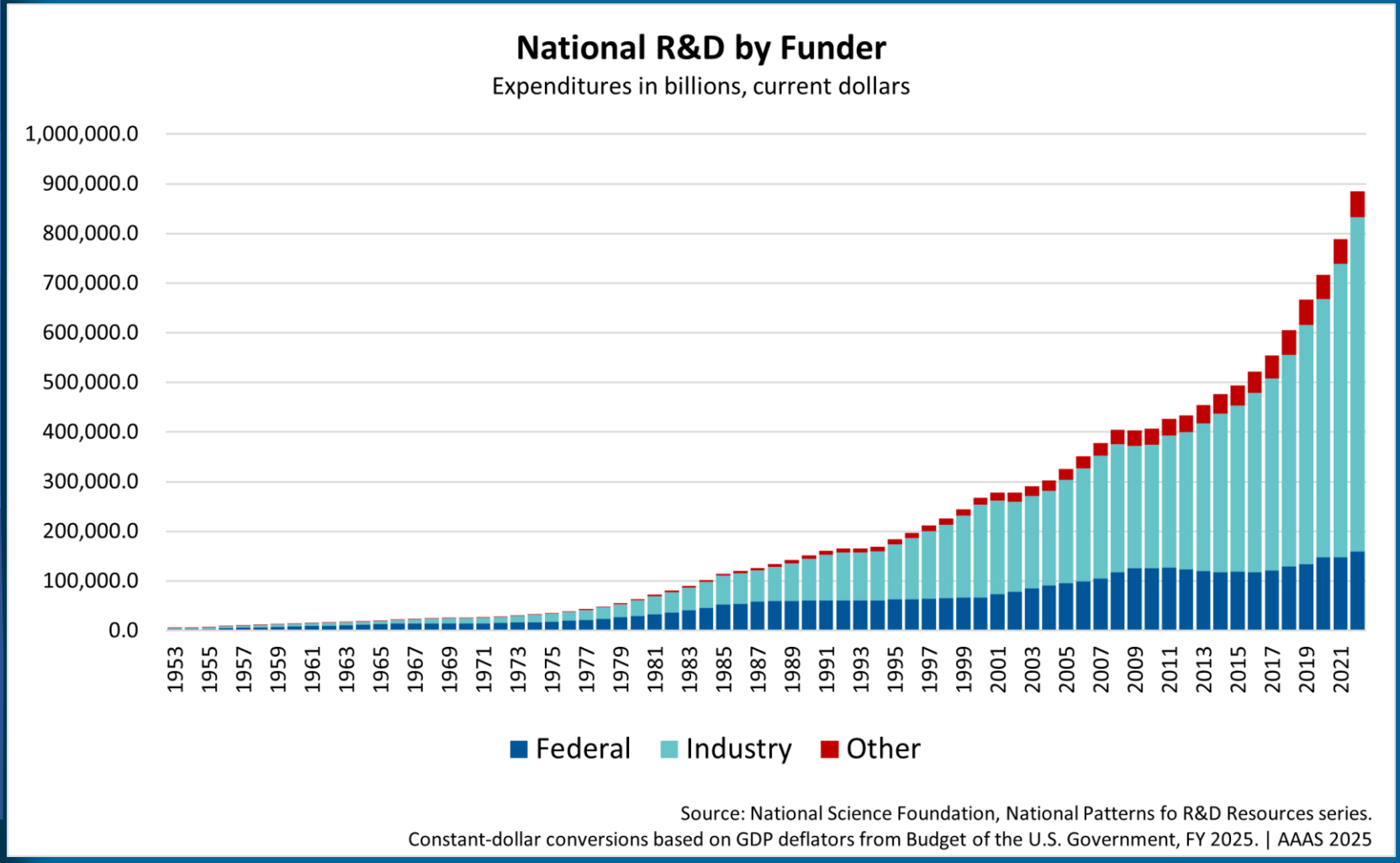
Fund Raising

- **Building Relationships**
  - Strong ties to local industry, alumni, and community members are crucial for the well being of the College and the University
  - It may take months to build a positive relationship, years to get a major gift, but only a few minutes to break it
- **Donations and Gifts from the Private Sector**
  - Introduced effective fund raising strategies
  - Raised nearly **$57M** at MSU, TAMUK, and USA
- **Endowed/Chaired Professorships**
  - Established the first endowed chair in Civil Engineering (Eugene E. Dawson Endowed Chair) at TAMUK
  - Establish the first Endowed Chair in the history of the College at USA
- **In-Kind Donations and Gifts**
  - Received a **$41M** (oil/gas reservoir sim from the Schlumberger Technology Co
- **Alumni Hall of Fame**

Enhance the Research Agenda

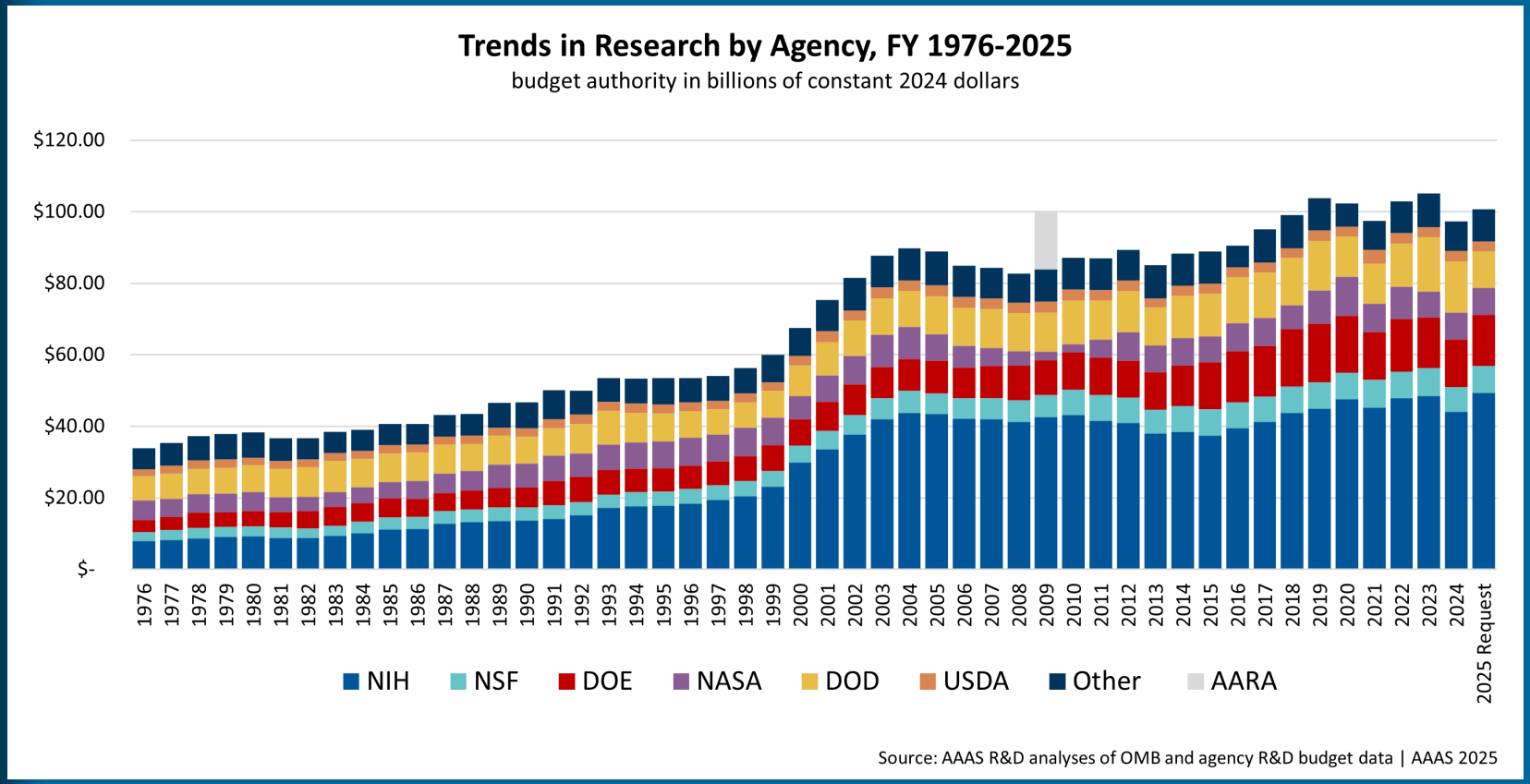
- Strengthen/Complement Existing Capabilities
- Promote Basic and Applied Research Activities
- Multidisciplinary Proposals
  - Explore the addition of interdisciplinary research clusters
- Build Alliances with Industry/Businesses
  - NSF-GOALI, SBIR, STTR, …
- Cultivate Relationships with Private Foundations
  - Sloan Foundation, Carnegie Foundation, Whitaker Foundation,...
- Explore/Strengthen Collaboration with
  - Regional and national educational/research institutions
  - National research labs (LLNL, SNL, …)
- Explore Opportunities with Other Institutions

National R&D by Funder



- Strengthen Relationships with Los Alamos National Laboratory, Sandia National Laboratory, …

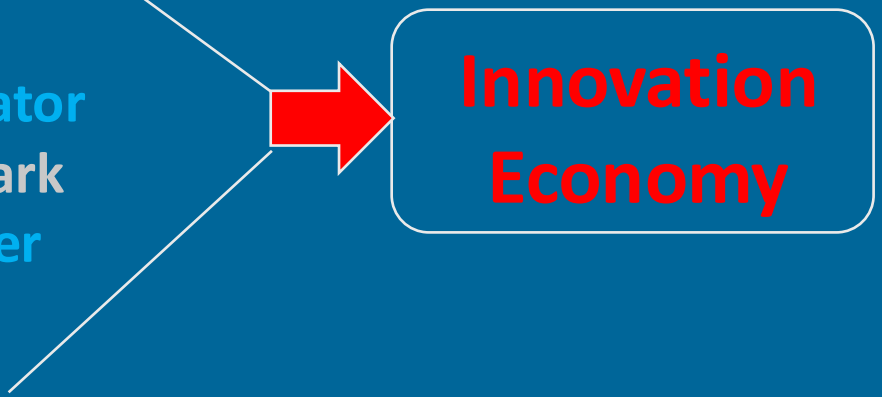
R&D Trends by Agency



Source: AAAS R&D analyses of OMB and agency R&D budget data | AAAS 2025

Research & Economic Development

- NMT should serve as a catalyst for economic development of the region
- Cultivate applied research and technology transfer
- Target areas with potential for commercialization
- Outreach to investors and business leaders
- Leverage the best aspects of public/private partnerships
- Foster partnerships in niche areas
  - Joint Research labs
  - Applied Research Projects
  - Technology/Business incubator
  - Research and Technology Park
  - Patents - Technology Transfer
  - Venture Capital



Economic Development

Economic Impact of NMT - $276M

- Played an active role from the inception to the establishment of the Research and Technology Park
- Excellent vehicle for applied research with industry
- Incubator space, vehicle for technology transfer
- Co-op/internship opportunities for students
- Joint R&D projects for faculty
- Engineering Innovation Center
- Economic development engine of the university

Facilities/Infrastructure Development

- Intimately involved from the inception, planning and development of resources for a new building for the College of Engineering (155,000 sq. ft.)
- Involved in the design, programming and implementation of the entire building
- Total Cost - $40M

Conclusion

- NMT is on a rising trajectory in its stature and prominence in the nation
- As Provost, I will work tirelessly to build upon the strengths of the university while providing a clear vision and strategic direction to enhance this upward trajectory towards a goal of becoming one of the topmost universities in the region offering state-of-the-art academic programs, pursuing cutting-edge research, and cultivating economic development opportunities for the region
- I will nurture a culture of excellence in a collegial and collaborative environment while providing strong leadership towards enhancing the reputation and national and international visibility of NMT

THANK YOU