



Building Enduring Partnerships: Universities and Laboratories

**DOE Day of Science
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**Wendy R. Cieslak, Ph.D.
Sandia National Laboratories
Albuquerque, New Mexico**



Begin with a Partnerships Strategy

Our strategy is to establish enduring partnerships with a focused set of universities to nurture talent, collaborative research, and national advocacy.

Recruit, retain and develop the best and brightest



Build two-way relationships of mutual benefit and advocacy

Conduct collaborative world-class R&D to support mission needs

Corporate investments in research, recruiting, and education are aligned with the focused set of partner universities.



Establish criteria to guide your choice of partners

Academic Quality – Nationally recognized rankings by discipline relevant to Sandia; competitive awards; publications.



Research Investment – Dollar amount of Sandia research contracts, FY03-FY05 inclusive.



Talent Capture – Number of hires (FY03-FY05) in top hire fields.



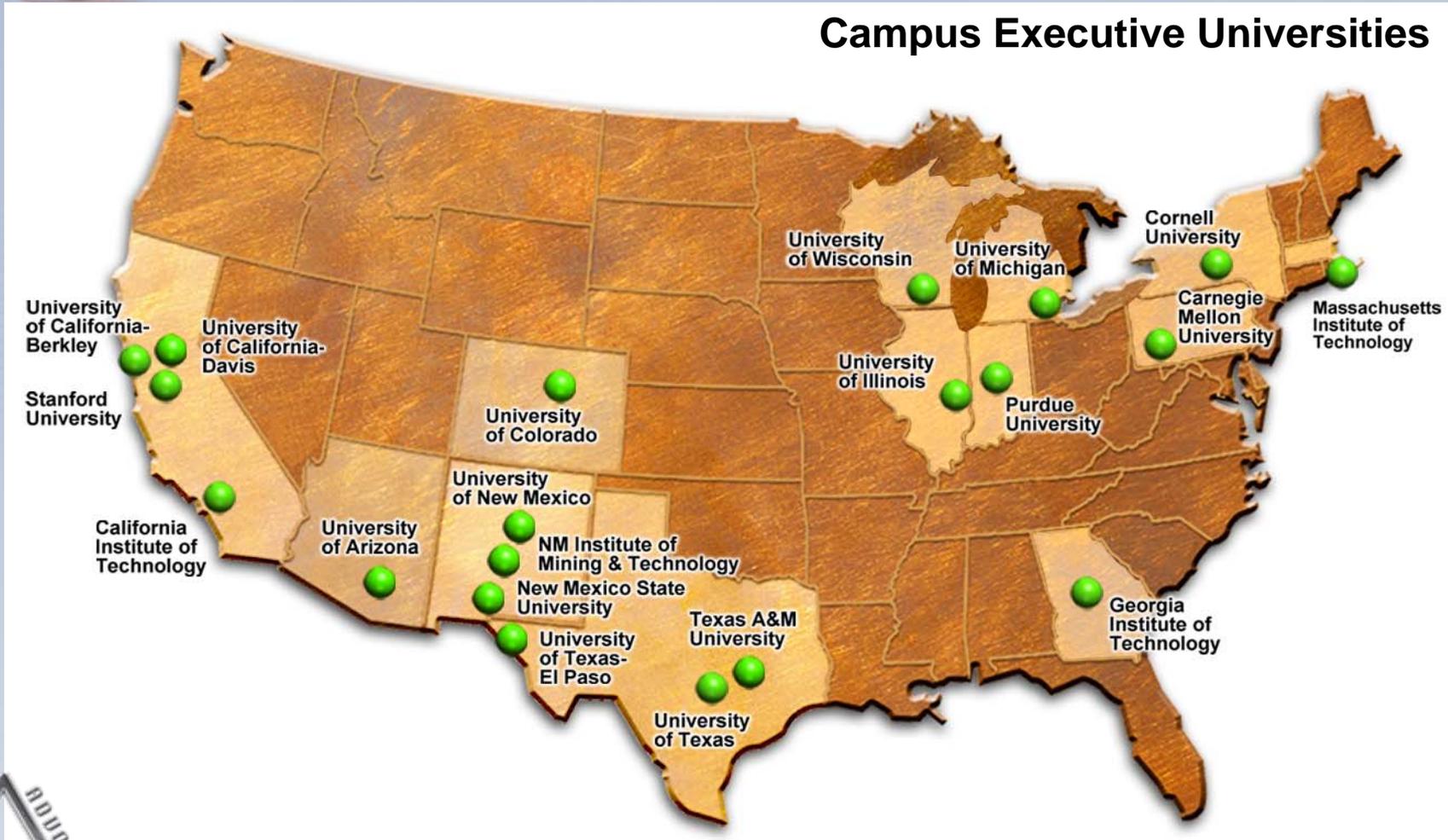
Diversity – Number of degrees awarded to members of under-represented groups.





Look at the whole picture

Campus Executive Universities



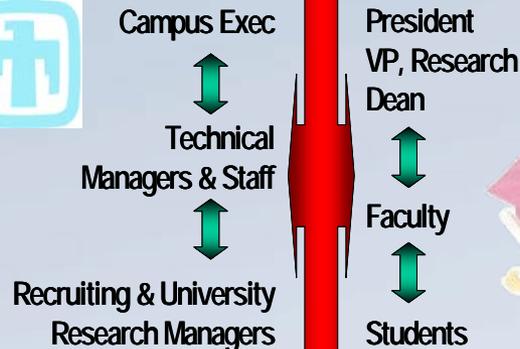


Develop an action plan for each partnership



The Campus Executive is responsible to:

- Consider the interdependency of all three areas and align when making decisions about talent, research, and building partnerships.
- Nurture a forward-looking theme area in collaboration with each school.
- Encourage and offer incentives for activities with the partner university.
- Implement a tailored approach based on the specific needs of Sandia and the partner university.



Relationship-building across multiple levels in both institutions is critical to success in building the partnership.

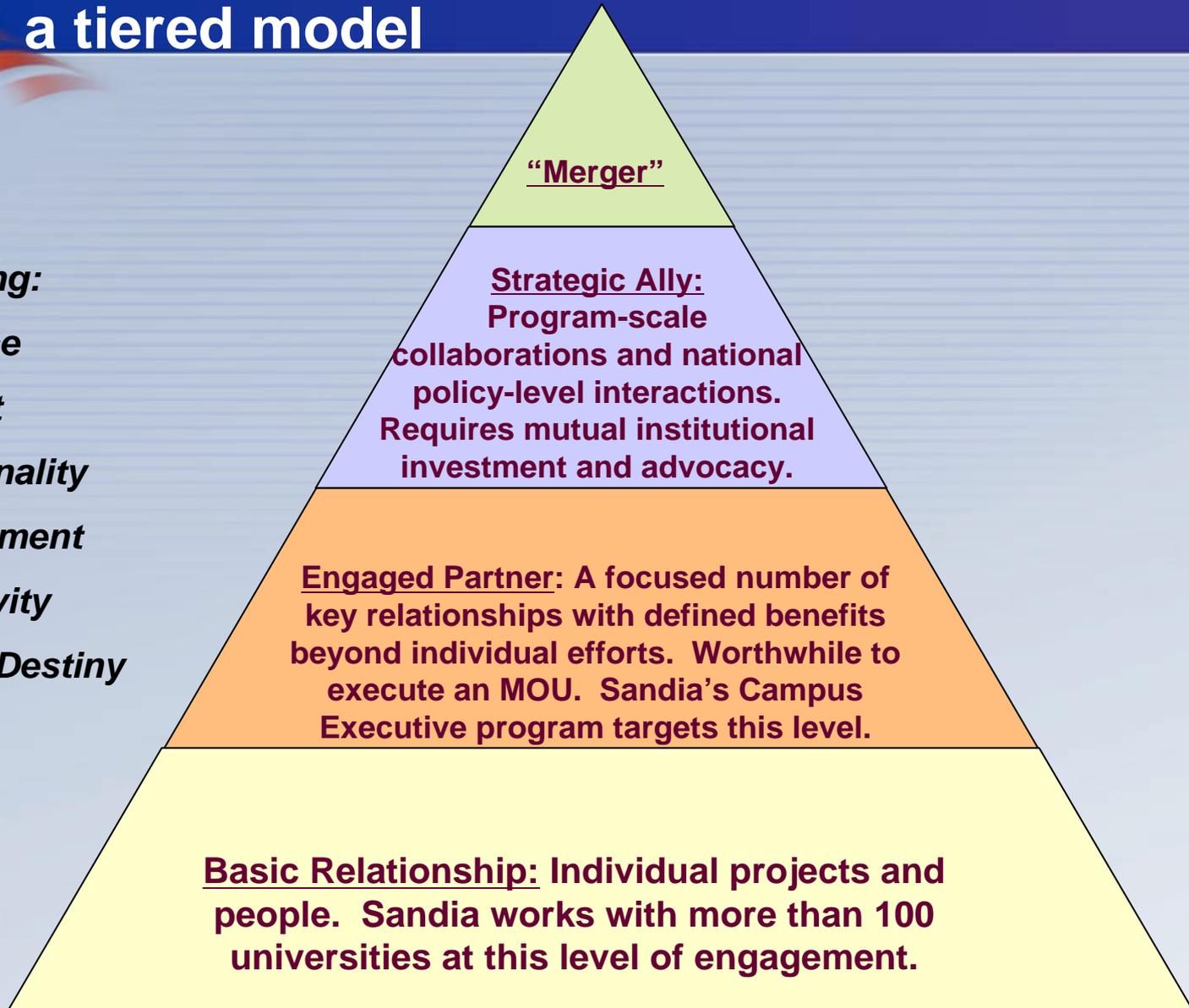


Strength of partnerships may be depicted in a tiered model



Increasing:

- **Influence**
- **Skill Set**
- **Intentionality**
- **Commitment**
- **Exclusivity**
- **Shared Destiny**



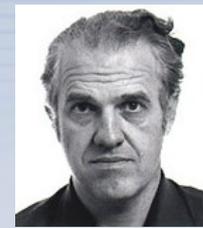
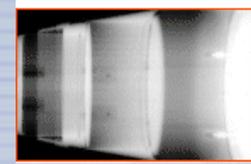
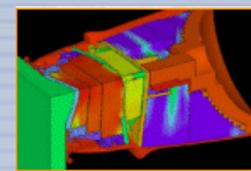


Partnerships are built upon interactions: Faculty

- Collaborative research
 - ~ \$30M annually
 - Mission related

- Sabbaticals and summer research appointments
 - ~ 20 appointments annually
 - 4 weeks to full year

- **PECASE** (President's Early Career Award for Scientists & Engineers)
 - \$250K award
 - New faculty with prior lab relationship
 - Currently 6 awardees





Partnerships are built upon interactions: Students

- Graduate Fellowships
 - ~ 80 annually: MFP, SMP, DSP, GEM, NPSC, LDRD

- Internships & Co-ops
 - ~ 800 technical interns annually
 - Year-round (semester/quarter) or summer
 - Annual Symposium
 - Critical Skills Institutes (next slide)

- Post Doctoral appointments
 - ~ 140 onroll
 - 1-3 year appointments
 - 2-3 Truman Fellows annually





Critical Skills Development Program (NNSA/RTBF)

- **Four broad Institutes established in FY07**
 - Cyber Security
 - Extreme Environments
 - Enabling Predictive Simulation
 - Nuclear Weapon Surety
- **Engages both Sandia's CA and NM sites**
- **Minimum line match = 1:1**
- **67 students from ~35 universities**
- **Average GPA = 3.8**





A Success Story

Claudia Arias

- **Attending Rice University on Fellowship**
(Fall 2007 - Ph.D. Program in Mechanical Engineering and Materials Science)
- **Sandia Senior Capstone projects at UTEP**
 - “Validation and verification study of a bolted lap joint: quasi-static analysis” 2004-2005
 - “Validation and verification study of a bolted structure: modal analysis” 2005-2006
- **Internships at Sandia National Laboratories**
 - Running models on massive parallel supercomputing platforms
(Summers 2006 & 2007)





We are conducting a Senior Capstone Project with Howard University

- Academic Years 2006-2008
- Prof. Emmanuel Glakpe, Howard Mechanical Engineering Department
- Tim O'Hern, Sandia Engineering Sciences Center
- Project Goal: Fully characterize the shape, concentration, and velocity of a falling particle curtain, perform multiphase computational fluid dynamics simulations of such flows, and compare the results.
- Project team meets weekly by teleconference





Develop a model and the tools to support it

- Graduate Fellowships
- Internships and Co-ops
 - Critical Skills Institutes
- Post Doctoral Appointments
- Informing national policy
- Building relationships at multiple levels
- Leadership Outreach Committees



- Collaborative Research
- Sabbaticals and Summer Appointments
- PECASE
- Capstone Projects



Education programs will go live on Sandia's homepage (www.sandia.gov) this week



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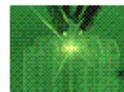
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