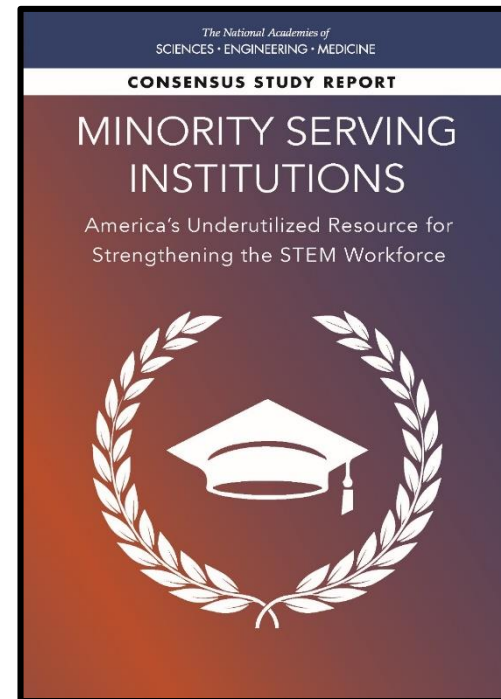# Translating Intentionality to Strengthen STEM Education and Workforce Readiness in Hispanic Serving Institutions

Presenters:
- **Tom Rudin**, National Academies of Sciences, Engineering, and Medicine
- **Priyanka Nalamada**, National Academies of Sciences, Engineering, and Medicine
- **Dr. Anne-Marie Nuñez**, The Ohio State University
- **Dr. Armida Ornelas**, East Los Angeles College

MINORITY SERVING INSTITUTIONS:
America's Underutilized Resource for Strengthening the STEM Workforce

Access report at:
www.nas.edu/MSISTEM

STATEMENT OF TASK

– Identify successful examples of programs on MSI campuses

– Identify key challenges, obstacles, and opportunities facing MSIs

– Identify key institutional components for scalability and sustainability of MSI programs

– Identify public policy interventions

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KEY REPORT MESSAGES

- Urgent national need for STEM professionals

- Educational outcomes and STEM readiness of students of color will have direct implications on America's workforce

- MSIs serve as a valuable resource to fill STEM workforce needs

KEY FINDING

Intentionality is Critical to Student Success

"A calculated and coordinated method of engagement used by institutions, agencies, organizations, and the private sector to effectively meet the needs of a designated population"

PROMISING PRACTICES AND STRATEGIES

- Dynamic, multilevel, mission-driven leadership
- Institutional responsiveness to student needs
- Campus climates that support a sense of belonging for students
- Student-centered academic and social supports
- Effective mentorship and sponsorship
- Undergraduate research experiences
- Mutually beneficial public- and private-sector partnerships

DOD INTEREST IN REPORT & DISSEMINATION

DoD HBCU/MI Program Goals:

- Enhance participation of HBCUs/MIs in DoD research

- Strengthen research and educational opportunities at HBCU/MI and increase number of minority graduates in STEM disciplines

- Build a more diverse pool of scientists and engineers to meet the future needs of defense-related programs

NASEM Upcoming Town Halls

- University of Texas El Paso, West LA Community College, Morgan State University, and others…

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DOD PRIORITIES

DoD call to MSIs:

Align your work with modernization priorities from National Defense Strategy

- Hypersonics
- Fully Networked Command, Control, and Communication
- Directed Energy
- Cyber
- Space

- Quantum Science
- Machine Learning
- Microelectronics
- Autonomy
- Biotechnology
- 5G

https://www.grants.gov/web/grants/view-opportunity.html?oppId=316548

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HSIs: Intentionality & Servingness

Dr. Anne-Marie Nuñez
Professor, Department of Educational Studies
The Ohio State University

MSIs: 7 SUCCESSFUL STRATEGIES

- Dynamic, multilevel, mission-driven leadership – "intentionality"

- Institutional responsiveness to student needs

- Campus climates that support a sense of belonging for students

- Student-centered academic and social supports

- Effective mentorship and sponsorship

- Undergraduate research experiences

- Mutually beneficial public- and private-sector partnerships

FRAMEWORK OF "SERVINGNESS"

External Influences on Serving
Federal legislation
State legislation
Local legislation
Institutional governing boards
State governing boards
Advocacy groups
Community leaders
Alumni

White supremacy

Structures for Serving
Mission and values statements
Diversity plans
HSI grants
Institutional advancement activities
Engagement with the Latinx community
Compositional diversity: faculty, staff, administration, graduate students
Culturally relevant curriculum & pedagogy
Programs & services for minoritized students
Leadership & decision making practices
Incentive structures
External boundary management

Validating Experiences Within the Structures
Interactions with same-race/ethnicity peers
Cultural validation on campus
Spanish-speaking peers, faculty, & staff
Mentoring & support groups

Racialized Experiences Within the Structures
Discrimination
Harassment
Microaggressions

Academic Outcomes
GPA
Course completion
6-year graduation
College completion
Transfer
STEM degree completion
Post-bac enrollment
Labor market outcomes

Non-Academic Outcomes
Academic self-concept
Social agency
Racial identity
Leadership identity
Critical consciousness
Social justice orientation
Civic engagement
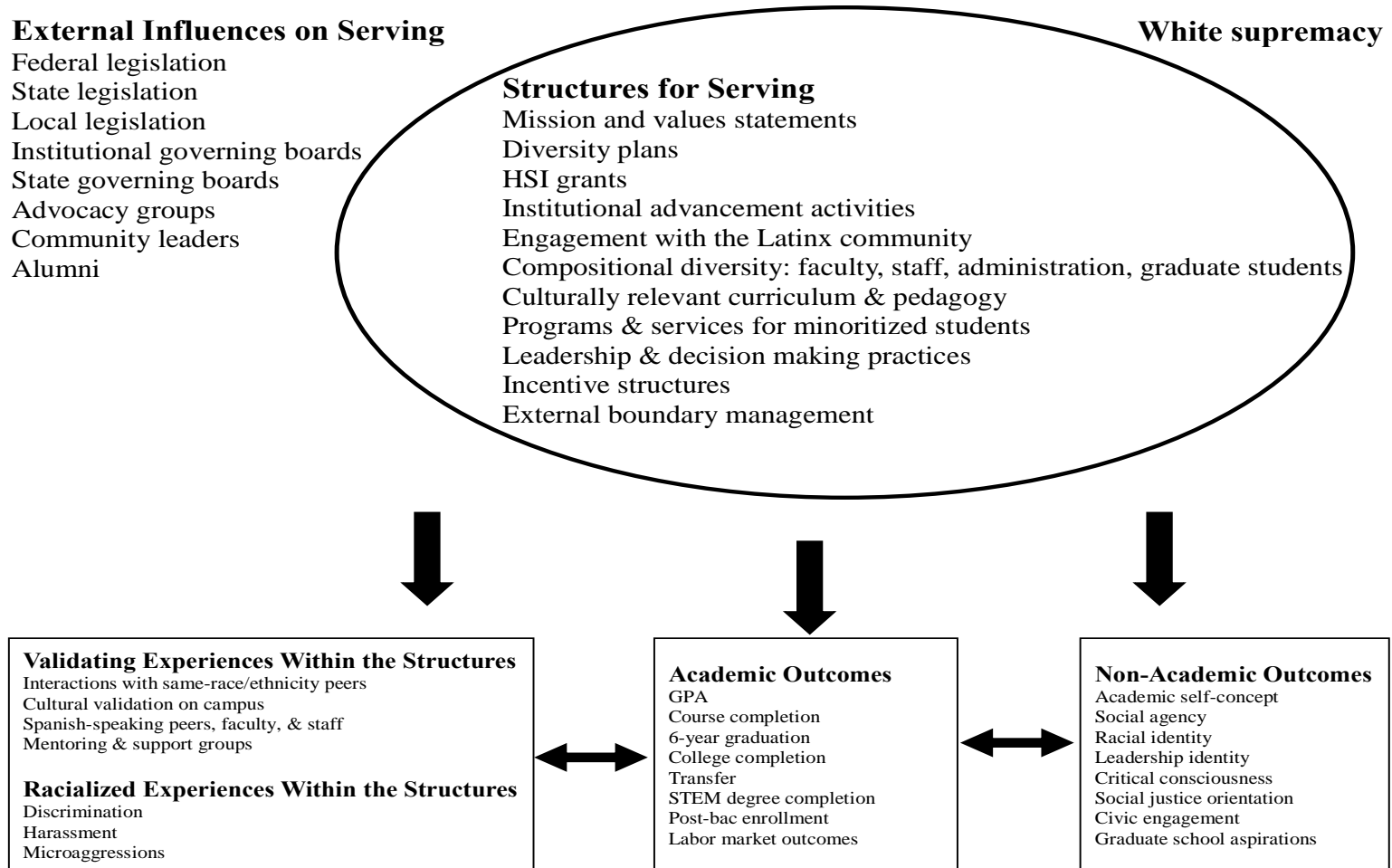Graduate school aspirations

Figure 4. Multidimensional Conceptual Framework of Servingness at HSIs

FUTURE DIRECTIONS

- Understanding organizational culture and institutional contexts of HSIs and MSIs

- Conducting research on serving Latinx students in HSIs and students of color in MSIs, in STEM fields

- Disseminating and centering insights from HSIs and MSIs in raising STEM attainment

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Working With Intentionality @ East LA College

Dr. Armida Ornelas
Vice President of Instruction, Continuing
Education & Workforce Development
East Los Angeles College

STRONG WORKFORCE PIPELINE @ ELAC

- CALL TO ACTION: **"More and better CTE"**
    - Increase quantity of CTE programs
    - Improve quality of CTE programs
    - More students complete/transfer
    - More students employed
    - More students improving their earnings

- Partner with the ever changing business and industry to develop programs that prepare students for success in college and careers by helping them acquire the skills, technical knowledge, academic rigor, and real-world experience for high-skill, high-demand, and highly successful careers.
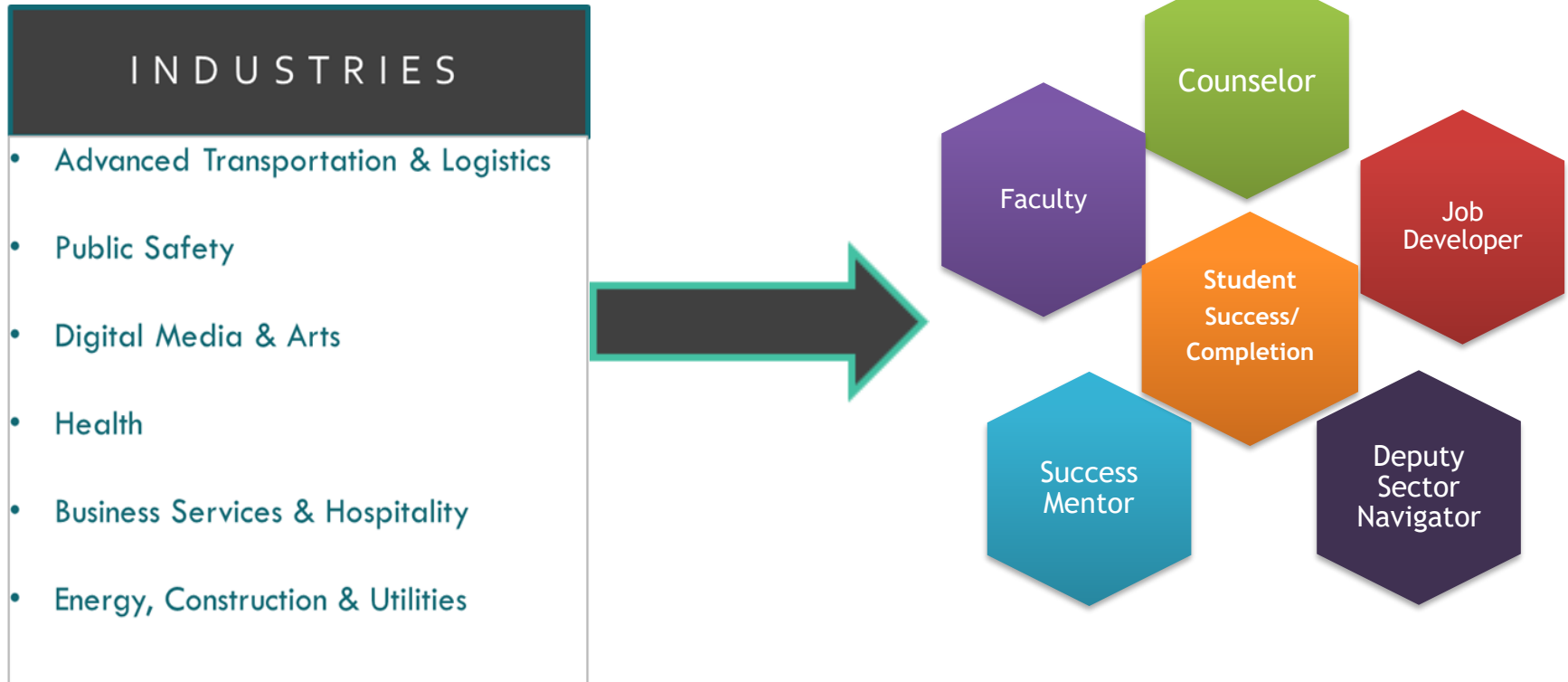
CURRICULUM DEVELOPMENT

- Substance Abuse Assessor
- Business Information Worker (BIW)
- Hospitality
- Cloud Computing
- International Public Law
- International Business Law
- Unmanned Aerial Vehicle (UAV)
- Pharmacy Technician
- Commercial Music
- Costume Design and Technology
- Stage Production and Design
- Micro-Enterprise

- Advanced Manufacturing
- Cyber Security
- Enrolled Agent (Federal Tax Preparer)
- Information Technology Technician (ITTP)
- Medical Assistant
- Electrocardiogram Technician (ECG)
- Biotechnology Lab Technician
- Phlebotomy Technician
- Virtual/Augmented Reality Tech
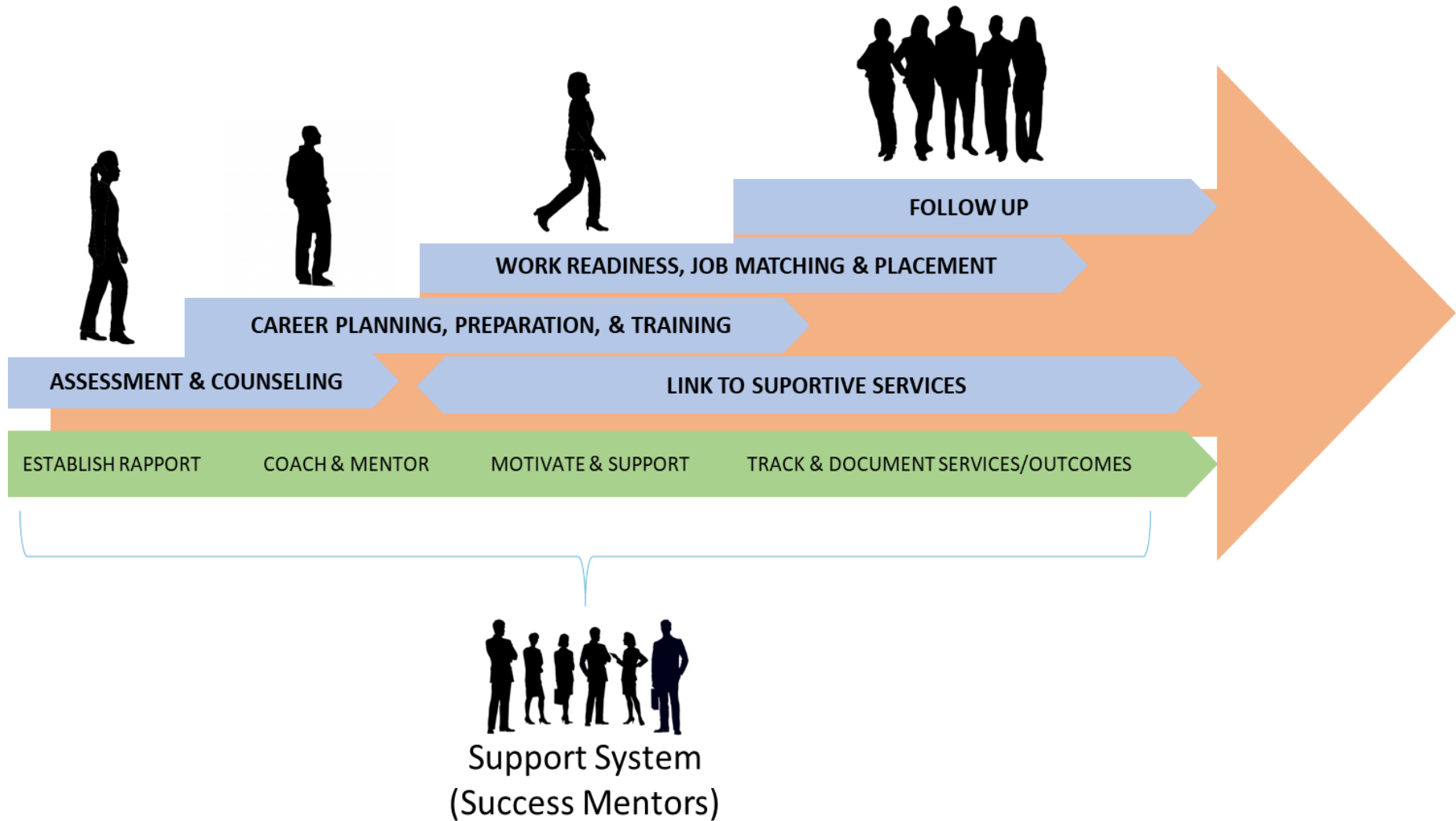- Wildland Fire
- Physical Therapy

From Fall 2017 to Present: 23 New Programs & 50 New Certificate of Achievement

INDUSTRY SECTORS

INDUSTRIES

- Advanced Transportation & Logistics
- Public Safety
- Digital Media & Arts
- Health
- Business Services & Hospitality
- Energy, Construction & Utilities

Counselor

Faculty

Job Developer

Student Success/ Completion

Success Mentor

Deputy Sector Navigator

SERVICE DELIVERY MODEL

FOLLOW UP

WORK READINESS, JOB MATCHING & PLACEMENT

CAREER PLANNING, PREPARATION, & TRAINING

ASSESSMENT & COUNSELING

LINK TO SUPORTIVE SERVICES

ESTABLISH RAPPORT · COACH & MENTOR · MOTIVATE & SUPPORT · TRACK & DOCUMENT SERVICES/OUTCOMES

Support System
(Success Mentors)

ELAC'S SPECIALIZED AMERICA JOB CENTER OF CALIFORNIA (AJCC)

- Partnership with the state's largest workforce development agency LA County Workforce Development Aging & Community Services (WDACS)

- First of its kind, dedicated solely to providing comprehensive employment opportunities for ELAC students

- Centered on student interests and alignment with their career & goals

- Tailored to their program of study specially related to CTE

- Allows for the leverage of County of LA resources and their existing workforce programs

  – including paid work experiences in industry

- Centers opened Fall 2019 at ELAC's Monterey Park and South Gate campuses.

https://youtu.be/jRtB1aKR8e8

QUESTIONS?

Access NASEM report: www.nas.edu/MSISTEM

To discuss hosting a town hall event contact Priyanka Nalamada at pnalamada@nas.edu