

Leveraging PSL for Recruitment and Development of New Mexico Aerospace Industries

Science, Technology, and Telecommunications Committee

New Mexico State University, Las Cruces

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The logo for New Mexico State University, featuring the letters "NM" stacked above "STATE" in a white serif font, set against a dark red square background that is shaped like the state of New Mexico.

NM
STATE

BE BOLD. Shape the Future.[®]
New Mexico State University

Physical Science Laboratory

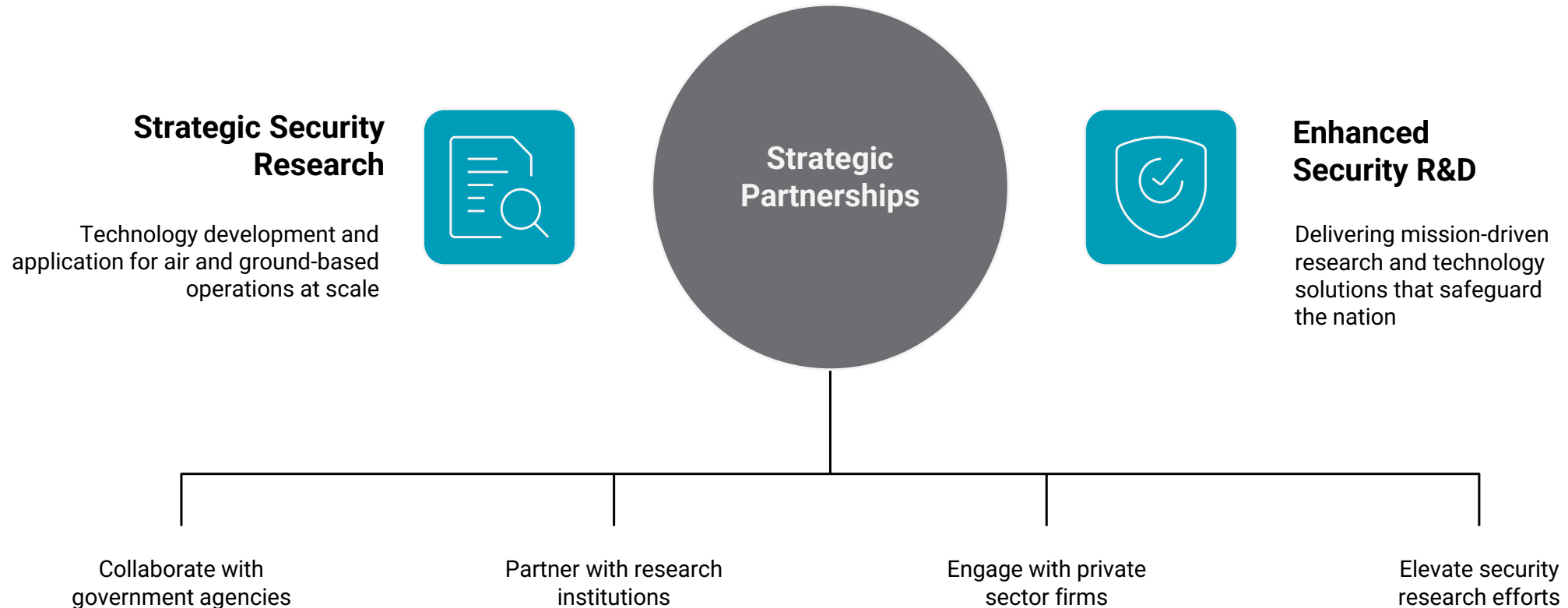
Nearly 80 years advancing innovation, strengthening national defense, and growing New Mexico's workforce



Located on 7 acres on the NMSU Main Campus

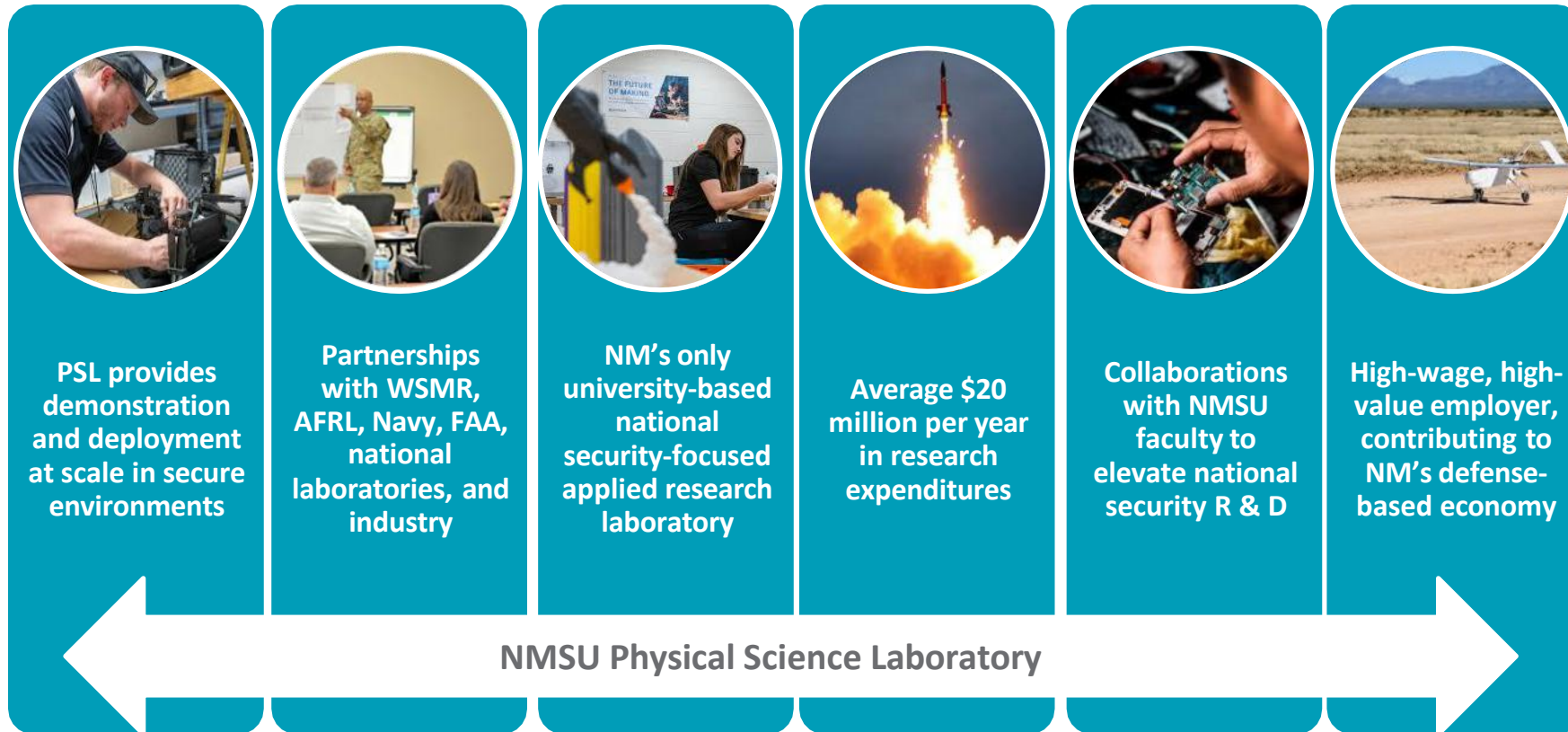
- Established in 1946 alongside pioneering post-war defense research institutions like John Hopkins APL and Penn State ARL, PSL stands among the nation's earliest university-based applied research laboratories, anchoring nearly eight decades of innovation and national service.
- PSL is a self-sustaining entity within NMSU, operating solely through competitively awarded federal and industry contracts.

Anchoring New Mexico's National Security and Defense Innovation Ecosystem



BE BOLD. Shape the Future.

Driving Innovation and High-Tech Growth in Southern New Mexico



Technical Domain Expertise and Geographic Reach

National Security Leadership		Unique test & evaluation capabilities	Alignment with DoD University Applied Research Centers (UARC)
Telemetry & Electronic Warfare Analysis		Electromagnetic environment (EME) analysis	Advanced hardware development Experimentation & Test & Evaluation in a congested, contested, & competitive EME
UAS Flight Test		FAA Flight Test Site	Bridging defense and commercial applications
Cybersecurity		AI/ML, cyber, analysis, and experimentation	High fidelity EME simulations in validated propagation and in 3-D terrain environments
Secure Data Center		PSL and NMSU faculty research	NM Office of Broadband SOC/NOC
Workforce		CREW & Defense Leadership	NMSU Global scalability



PSL Global Footprint

Advancing UAS Innovation and Flight Testing

Leading Flight Test Site for UAS Testing and Integration

- Long-term facility Certificate of Authorization(s)
- ~25 years of UAS FTS Ops and Flight Testing in the NAS
- FAA-Accepted processes for Public AW Assessments
- One of 7 FAA Approved UAS Test Sites
- Member of the ASSURE Group

18,000 Square Miles of Airspace

- Exceptional Weather and Visibility
- Sparsely Populated
- Adjoins WSMR call-up area
- Terrain varies from desert to alpine forest



Facilities and Assets

- 15,000 sq. ft. hangar
- Portable hangar and logistics support for remote operations
- Multiple UAS classes; Predator surrogate
- Chase aircraft

UAS Flight Systems – Customer test bed or Our test bed

- Support UAS system and conops developments
- Integrate into our vehicles and provide flight time/mission support

UAS research and flight testing – FAA UAS Center of Excellence, DoD, Agencies, and commercial companies



New UAS – Group 1 to Group 5, small to very large

- Perform the air worthiness and get customers flying!

Test Flights – We fly or Customer fly

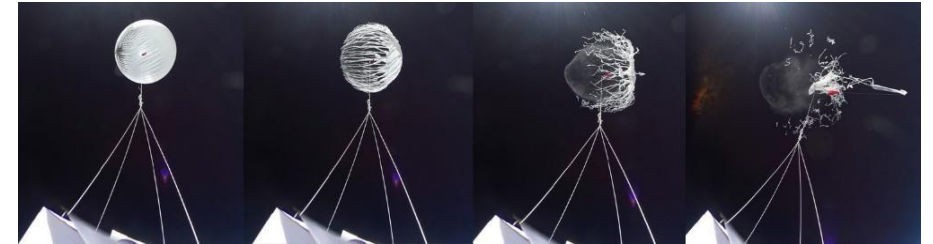
- Test fly customer vehicle to 10,000 ft MSL and above
- Support flight missions for safe operations under our Mission Control

Enabling flight and system testing for any USG or industry user...can fly operations anywhere in the USA

Testing and Proving Advanced Systems from the Stratosphere

Airborne Test Bed

- Flight durations (weeks) at various altitudes (up to 140,000 ft)
- Payload weight: ounces up to 8,000 pounds
- Remote location testing
- Refurbish and Refly
- Operation experience in Arctic, Antarctica, Oceanic – across air, sea, land, and space
- Airborne Technological proving ground – critical design formfactor evaluation (size and weight reduction)
- High-Altitude Test Extreme Environmental Platform – Qualification/Acceptance
- Balloons, airships, and solar powered aircraft



High Altitude Ballooning

- End to End Mission Support
- Lifetime Design Engineering
- Flight & Launch Hardware
- Structural & Thermal Analysis
- Product Fabrication
- Airborne Tracking
- Tropospheric, Stratospheric, Lower Mesospheric
- Short Duration – hours to days
- Long Duration – weeks to months
- Payloads Mass – ounces to tons

Advancing Cyber and Electronic Warfare Capabilities

History

- 50+ Years of expertise in supporting Electromagnetic Environment (EME)/Electronic Warfare (EW) Experimentation and Test and Evaluation for the Department of Defense (DoD)
- PSL/ISSS is the US Army's premier provider of advanced Airborne and EW systems used in the testing and acquisition of front-line air and missile defense (AMD) systems.



Current Major Efforts

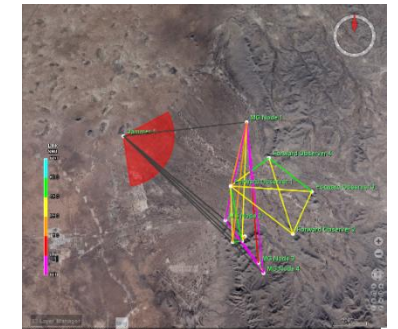
- US Army Development Command (DEVCOM) RDT&E Contract
 - \$92.7 M, 10-year contract
- University of Houston—Multidomain Operations
 - Artificial Intelligence/Machine Learning Electronic Warfare Assessment
- Sandia National Laboratories
 - Anomaly Detection in Synthetic Aperture Radar Imagery
 - Provide digital component used in field test.

Cybersecurity Team

- Cyber analysts support cyber assessments—vulnerability, exploitation, penetration assessments of military systems impacting cyber posture of the Army & wider DoD and after assessments of risk mitigation
- System & Networks administrators and Software Developers to assist in the development of cyber tools
- Cyber analysts have the credentials necessary to support the assessments

Modeling, Simulation, Visualization Tool

- In support of DoD, PSL has developed Sage, an advanced EME simulation to model complex radio frequency (RF) interactions in validated 3D terrain models. Used for test and experimentation planning and analysis, in addition to supporting large scale evaluations of Army EW warfighting systems.



Electronic Warfare (EW)

- PSL possesses a multidisciplinary team of engineers, scientists and technicians with unique knowledge, skills, abilities (KSAs) and the years of experience in EW.
- These capabilities enable the design, development, fabrication, operation, monitoring and analysis of existing and emerging contested and congested EW environments and support T&E of the DoDs most advanced warfighting systems.

Telemetry, Hypersonic Systems, and Mission Support

Contract Support and Internal Service Center

Hypersonics and Mission Support

PSL's role in Hypersonic, Hypervelocity and other vehicle launch programs over the past decade, is through hardware at the component level and system level and mission support. PSL leverages TMS Product of flight proven Encoder, Antenna, Power and Ground Systems to build robust flight systems from design to post flight data reduction.



HTB Flyer section displaying PSL rear flyer

Analysis: 6DOF LMA



PSL has developed and successfully utilized the 6 Degree of Freedom (DoF) Link Margin Analysis (LMA) toolkit that takes in Monte Carlo trajectory data generated by Sandia Labs Trajectory Analysis and Optimization Software (TAOS). The LMA software inputs a measured or simulated antenna Radiation Distribution Pattern (RDP), calculates the link between the ground station and the vehicle during the entire flight and plots the results to provide TM recommendations

Research and Development

PSL has a history of developing various flight solutions for flight vehicles. RF, Encoder and Ground Solutions to support all data-types and various transmitting bands. Most current designs are robust to meet needs of customer. TMS provides onsite fabrication of prototypes and flight hardware through the our Internal Service Center (ISC) Machine Shop and Electronic Fabrication Shop.



Erinyes(TM) Hypersonic Test Bed (HTB) launch

Assuring Excellence Across Every Mission

Tailored utilizing AS9003

Inspection and Test Quality Systems Requirements for Aviation, Space, and Defense Organization

- Contract Review
- Procurement
- Receiving Inspection – Ground Support and Flight Hardware
- Calibration
- Nonconforming Material
- Electrical/Mechanical Inspection
- Configuration/Data Management



- Electrostatic Discharge (ESD)/ Foreign Object Detection (FOD) Certification
- Solder Certification
- Fabrication Traveler Generation
- Contract oversight and Test Witness (Acceptance and Qualification)
- Acceptance/Qualification Data Review prior to shipment

Cybersecurity Maturity Model Certification

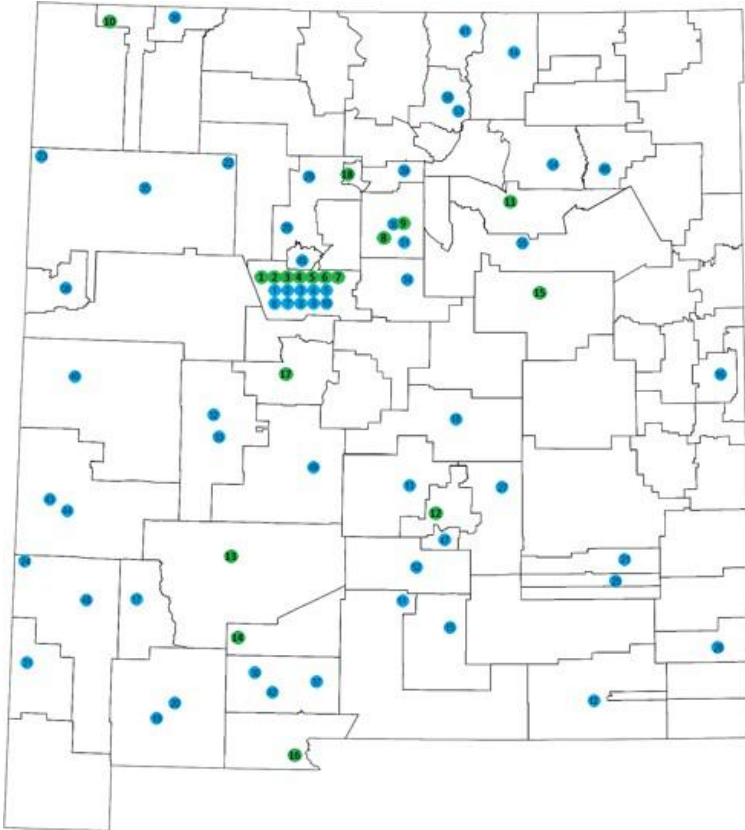


Any federal contract that will be receiving government CUI will have to have a CMMC Level 2 Certification.



- CMMC Level 2 must be maintained
- 110 Controls with over 300 auditable items.
- An external RPO (Registered Provider Organization) performed an audit in July 2025.
- We received a score of 91/110.
- Final step is C3PAO (Certified 3rd Party Assessment Organization) audit for certification.
- We anticipate receiving certification early 2026.

NM Statewide Education Network (SEN)



- The NM SEN is a school-centric broadband network built to connect hundreds of NM schools together and provide a more secure internet while enhancing education through shared classes, resources and various services.
- The NM SEN provides better connectivity and expert network management, especially for rural and sparsely populated areas where IT expertise may not be uniformly available.
- Enables high-performance connections between public schools, libraries, and higher education institutions across NM.
- When fully implemented, it is expected to support over 400,000 students statewide.
- PSL was retained by the NM Office of Broadband to leverage the facility's secure data center infrastructure to manage the NM SEN network and cyber infrastructure.

PSL Supporting Network and Security Operations

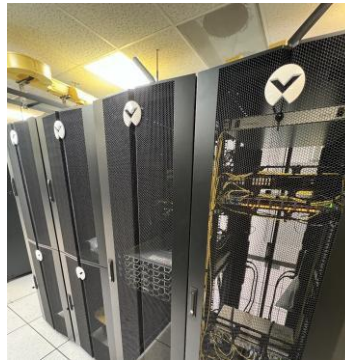
Network Operations Center (NOC)

- Endpoint setup / maintenance
- Performance monitoring
- Ticket resolution
- Tool development
- Update management
- Standards compliance



Security Operations Center (SOC)

- Continuous scanning
- Log collection and security
- Incident detection
- Incident management
- Security policy enforcement
- Compliance tracking

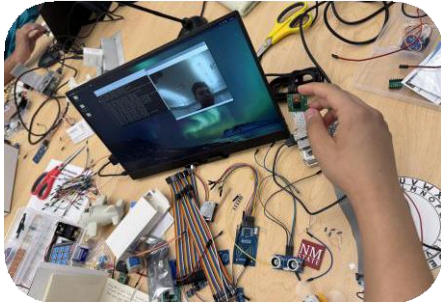


PSL NOC & SOC Operations: Empowering New Mexico's Cyber Workforce

Through the Statewide Education Network (SEN), PSL's Network Operations Center (NOC) and Security Operations Center (SOC) serve as hands-on, real-world training platforms for IT and cybersecurity students. By leveraging the school-centric broadband infrastructure that connects hundreds of New Mexico schools, PSL fosters scalable, practical learning experiences—building a pipeline of security-savvy, workforce-ready professionals to strengthen the state's digital resilience.

“Leveraging statewide broadband infrastructure to cultivate the next generation of cybersecurity talent.”

PSL Defense Workforce Development



Building the Future Workforce

200+ students & teachers trained

- STEM Mavericks
- NM PREP Academies
- Partnerships with 3 southern NM public school districts
- Partnership with 1 Tribal school



Pipeline to Classified Careers

121 graduates in CREW program



Upskilling the Defense Workforce

360 participants in Defense Leadership Certificate Program



Modernizing Defense Learning Facilities

**Secure Facility (ICD 705)
Cyber Learning Lab
AI Learning Lab**



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Questions?