Center for Accelerating Operational Efficiency (CAOE)
A Nationwide Consortium Led by Arizona State University

A DHS Center of Excellence

CAOE develops and applies advanced analytical tools and technologies to enhance planning, information-sharing and real-time decision-making in homeland security operations. The Center also develops educational programs to meet current and future workforce needs across the Homeland Security Enterprise in visual and data analytics, operations research and systems analysis, economic analysis, and risk science.

Research and Education Capabilities

- Predictive analyses
- Screening for threat assessment and resource allocation
- Risk detection and mitigation
- Education and training for current and future homeland security workforce

About CAOE

LAUNCH	2017
PARTNERS	More than 38 university, non-profit, private industry, and national laboratory partners
EXPERTISE	Global security, computer science, engineering, cybersecurity, economics, risk science, policy studies, supply chain management, data analytics, and operational research
DHS ALIGNMENT	U.S. Customs and Border Protection (CBP), Cybersecurity and Infrastructure Security Agency (CISA), DHS Privacy Office, Office of Intelligence and Analysis (I&A), DHS Procurement Innovation Lab (PIL), DHS Science and Technology (S&T), Transportation Security Administration (TSA), U.S. Coast Guard (USCG), U.S. Citizenship and Immigration Services (USCIS)

Feedback from Our Partners

"The Transportation Security Administration team in Arizona has had the privilege to partner with ASU and the Center for Accelerating Operational Efficiency for the past several years. We are particularly excited to have the opportunity to partner with CAOE on a project involving Artificial Intelligence (AI). With the use of AI rapidly growing across government and private sector organizations around the globe, there is significant value in increasing public awareness and confidence in this technology."

Brian W. Towle, Assistant Federal Security Director, Mission Support, Transportation Security Administration

University Partners

College of William and Mary
Elizabeth City State University*
Emory University
Fayetteville State University*
Georgetown University
Illinois Institute of Technology
Indiana University
North Carolina A&T State University*
Northeastern University
Northwestern University
Pennsylvania State University
Rutgers University
San Carlos Apache College*
San Diego State University*
Texas A&M University
Texas State University*
The Ohio State University
University at Albany   State University
     of New York
University of California at Irvine*
University of the District of Columbia*
University of Florida
University of Illinois at Urbana Champaign
University of Maryland, Baltimore County*
University of Nebraska at Omaha
University of North Carolina at Pembroke*
University of Notre Dame
University of Southern California
University of Texas at Arlington*
University of Wisconsin - Madison

*Minority Serving Institutions (MSI)

Enterprise Partners

Business Executives for National Security
Duality Technologies
MIT Lincoln Laboratory
Notre Dame IDEA Center
Pacific Northwest National Laboratory
RTI International
Sandia National Laboratories
SkySong Innovation Center
Washington Homeland Security
     Roundtable

For a complete list of partners
and more information, please visit
www.caoe.asu.edu
For more information on DHS
Centers of Excellence, please visit
**www.dhs.gov/science and
technology/centers excellence**

Impacts

Improving Airport Checkpoint Performance

With more than 2.5 million passengers flying each day through U.S. airports, CAOE is working with TSA to improve airport checkpoint performance using resource allocation decision tools that evaluate passenger demand. Outcomes include reduced average wait time, improved customer service, and quicker responses to unplanned events without compromising security.

Evaluating the Reliability of AI-Enabled Technology

Artificial Intelligence (AI) is being used more frequently in homeland security applications but there are challenges to determining the reliability and accuracy of AI-enabled systems. CAOE is developing tools that can help government and industry evaluate the trustworthiness of AI technology. These tools have the potential to streamline technology development and acquisition of AI-enabled systems and increase organizational confidence in the technology.

Improving Detection of Border Threats

The challenge of securing the safe, orderly, and humane processing of migrants who arrive at the Southwest border is rendered increasingly complicated due to the growing volume and substantial variations of this influx of migrants. CAOE is developing a deep learning-based approach to model the intersections of data, such as census surveys and satellite imagery to advance the ability to understand variations in migration patterns. The software developed will deliver a framework and analytical capabilities to assist DHS in planning resource allocation to optimally respond to migration-related stress along the border.

Developing Cross-Disciplinary Education Resources for the Future Workforce

CAOE strives to support workforce and professional development efforts. The Center's research and education programs produce skilled graduates and have advanced relationships with Minority Serving Institutions (MSIs). Key components of the Center's program are the cross-disciplinary Summer Research Teams (SRTs) and the Virtual Summer Experience in Quantitative Analytics (SEQAL). These educational experiences span multiple traditional disciplines while simultaneously teaching practical skill sets to support existing and emerging mission needs.