

# Human Factors Division

## Research ♦ Transition ♦ Innovation

**Dr. Sharla Rausch, Head  
Human Factors Division**

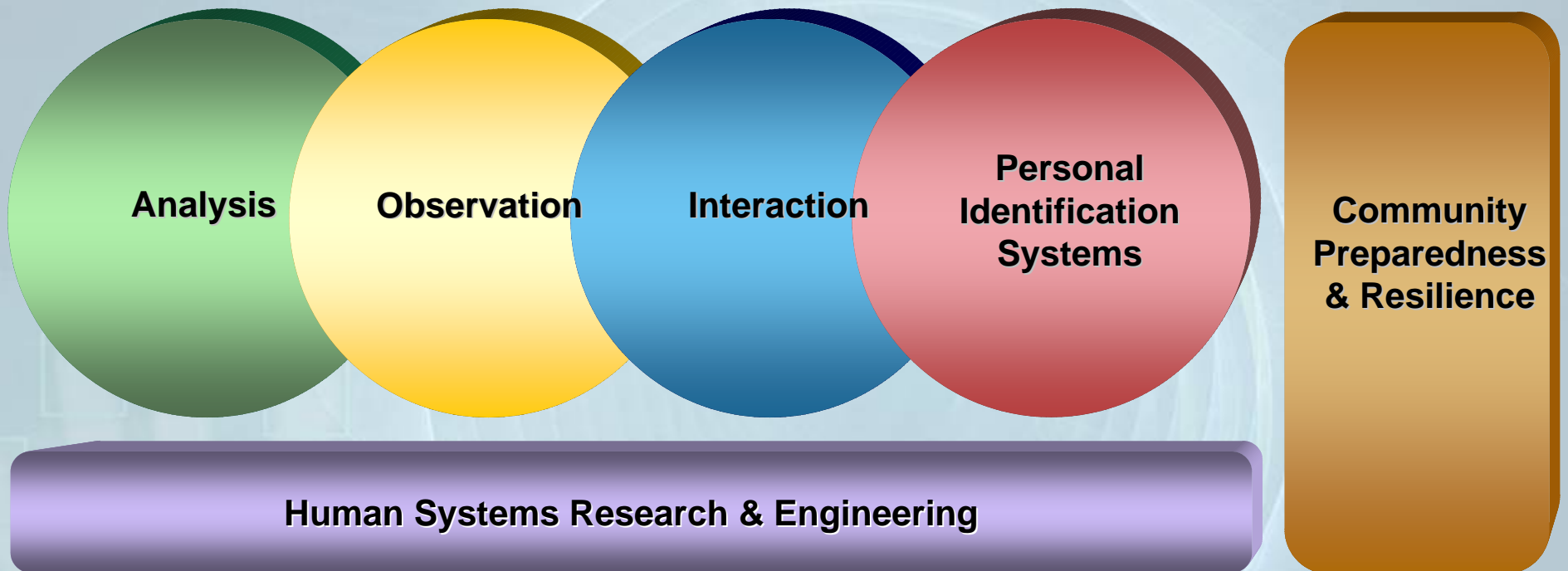
Science and Technology Directorate  
Department of Homeland Security

**June 4, 2008**



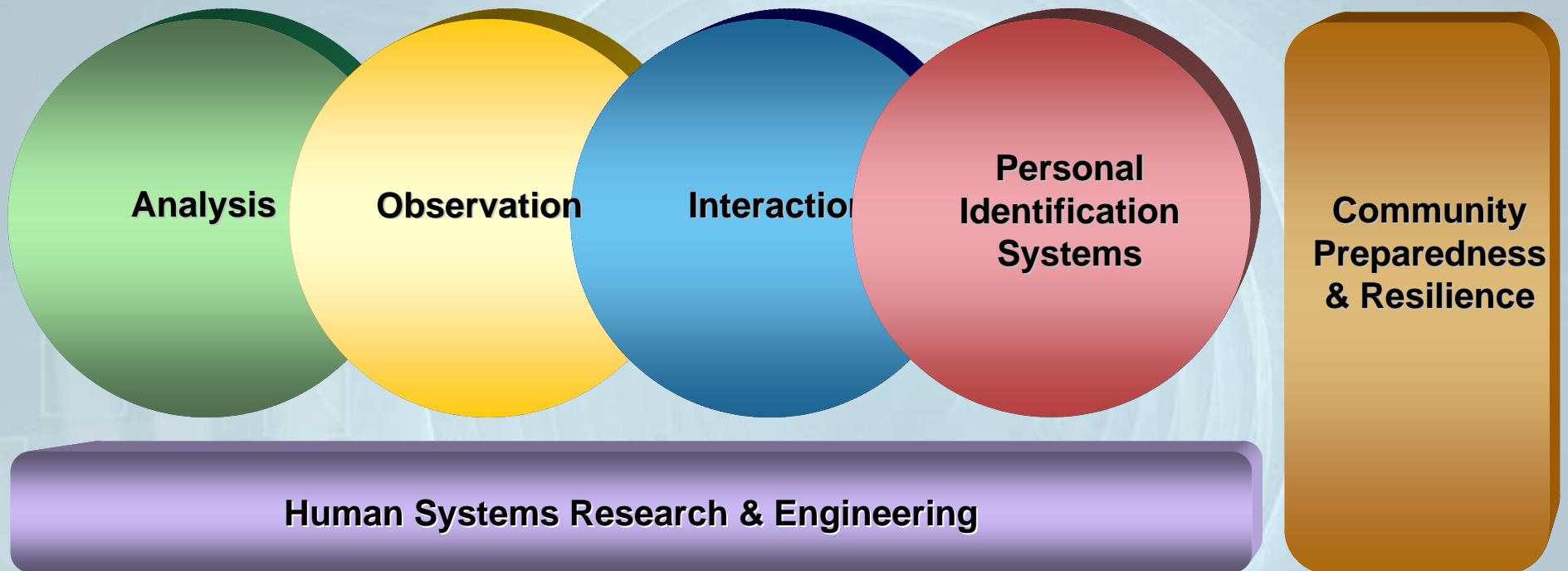
**Homeland  
Security**

# Human Factors S&T Focus Areas



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# Human Factors S&T Focus Areas



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# Analysis

BACH - RadicalizationIndicators-GroupCharacteristics.bach

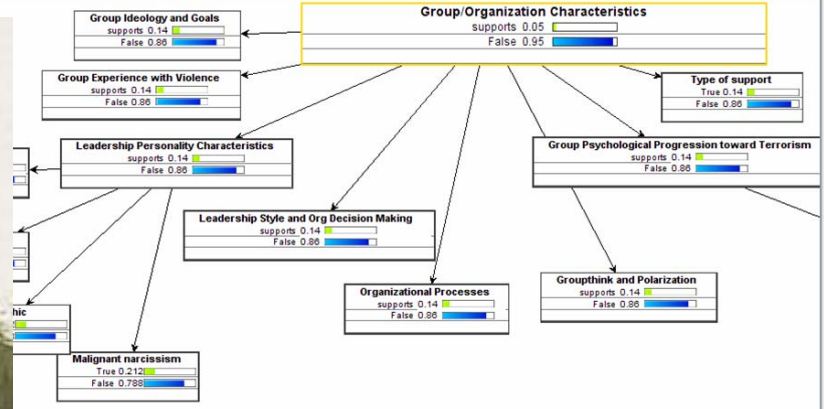
Events & Evidence Summary | Dependencies | Indicator Description

**Indicator Description**

Group characteristics that indicate a tendency towards political violence.

**Indicator Technical Background**

From Post et al:  
 "Although historical, cultural, and contextual features, along with the key actors affecting the group play an important role in assessing a group's risk for terrorism, the ultimate indicators of the group's progression toward violence and terrorism will be reflected in the group itself. The group's ideology and experience with violence, along with the type of leader and the way in which the group organizes its decision-making processes are structured



Search | advanced... | Logout

Issues: ADMINISTRATION, ECONOMY, ENVIRONMENT, LAW, MILITARY, POLITICS, RELIGION

Actions: ACCEPTANCE, ASSERTION, BELIEF, COARCTION, CRITICISM, EMPHASIS, EXPLANATION

Promoters: Police, Priests and academics, Prime Minister, Pro-government supporters, Pro-Israel officials in the vi, professor, Reporters

Targets: anti-war opponents, Assault on Tourists, authoritarian ruling elites, democracy, government and oppositio, 2005, 2006

Title: Criticize Frames

Generate Chart | Clear Query Selections | Clear Chart | Clear All Data

Export

**Sentence Query**

Years	Criticize Frames
2005	64
2006	146

Query Detail Screen - W...

On November 29, Amnesty International (AI) also condemned the detentions and called on the Government to release the detainees.

5 | 2005

The courts had been criticized for restricting for restricting the rights of defendants, particularly the right to appeal.

6 | 2005

The suit also charged the ministers of



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# Analysis

OI&A

IARPA

JIEDDO



JIPOE



DoD



NCTC

DOE Labs



DMSO

START

Enhance the analytical capability of the Department to understand terrorist motivation, intent, and behavior.

Violent Intent Modeling and Simulation

Actionable Indicators of Radicalization

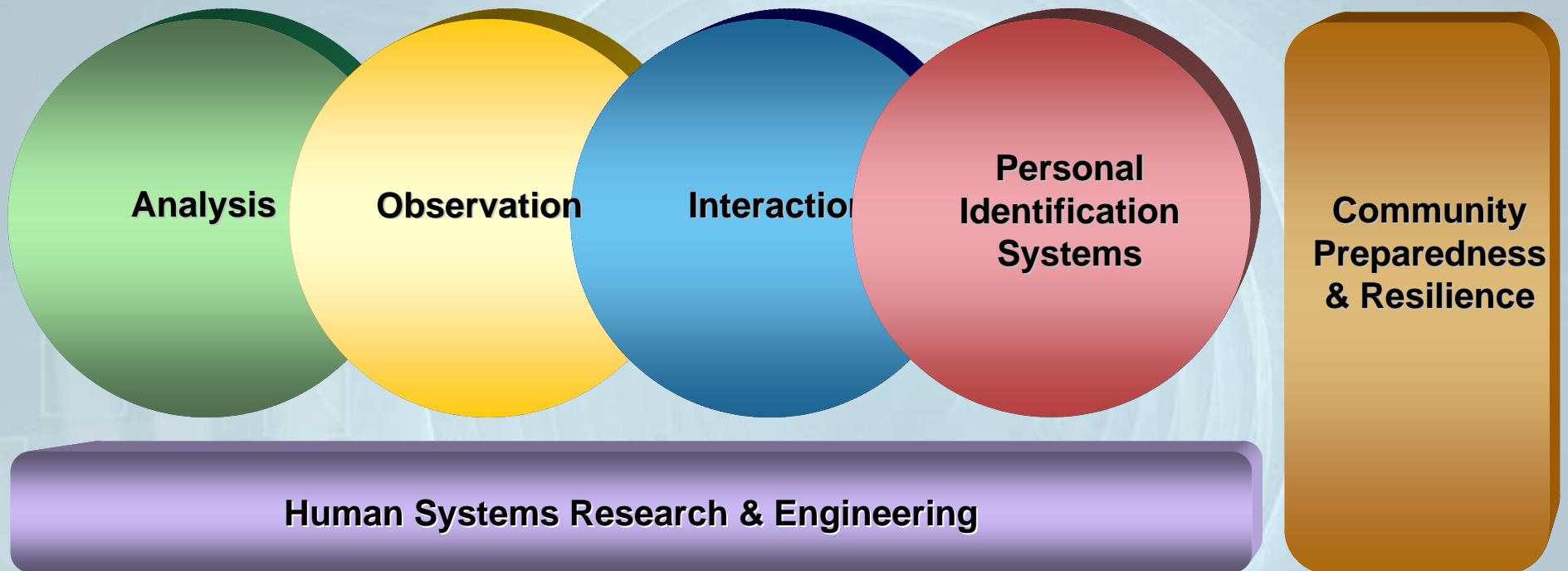
Risk Prediction

Tested IED Countermeasures



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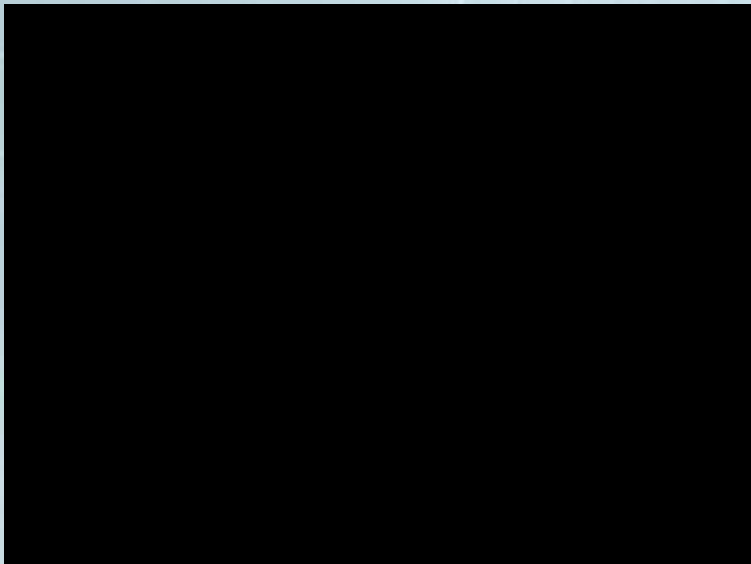


# Observation



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# Observation



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Observation

CBP



ICE

Hostile Intent  
Detection –  
SPOT Validation

TSA

Insider Threat  
Detection

Improve screening by  
providing a science-  
based capability to  
identify *unknown* threats  
indicated by deceptive  
and suspicious behavior.

IED  
Predictive  
Screening

DOD-  
CIFA

OSD-  
SCO

Future Attribute  
Screening  
Technology

Academia

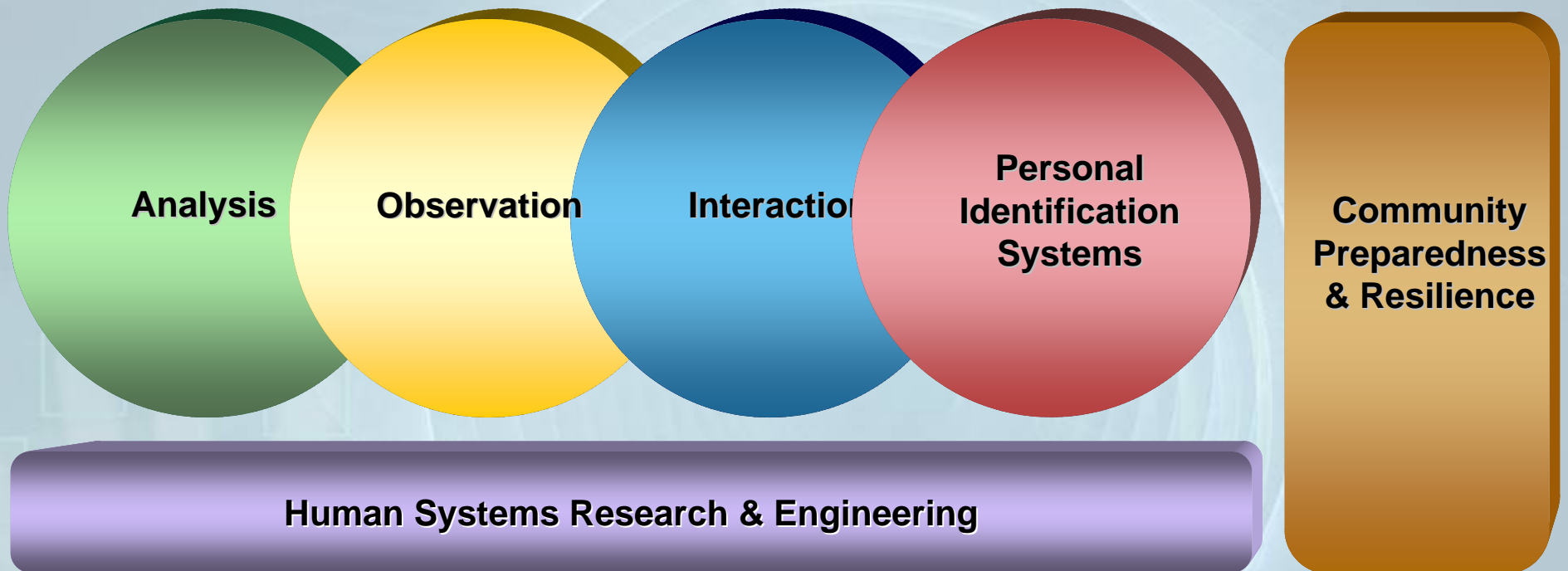
Army Night  
Vision  
Laboratory

Defense  
Academy  
Credibility  
Assessment



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# Interaction

The screenshot displays the 'Project Hostile Intent' software interface from the Naval Research Lab. The main window is titled 'Project Hostile Intent Naval Research Lab' and contains several data visualization components:

- Emblems:** A chart showing activity levels for 'No', 'Yes', and 'Shrug'.
- Microfacials:** A chart showing activity levels for various facial features, labeled with numbers 1 through 20.
- Physiological:** A section containing three sub-charts: 'Pulse', 'Pupil', and 'Audio', each displaying a waveform.

To the right of the main window is a 'Video Controller' window showing a video frame at 5641. The video depicts a man with dark hair, smiling and resting his chin on his hand. A timestamp '+00:03:08:00' is visible in the bottom right corner of the video frame. Below the video frame are standard playback controls, including a progress bar and buttons for play, stop, and navigation.

The Windows taskbar at the bottom shows the Start button, several application icons, and the following text: 'Java - FacsFolder.java - E...', 'My Documents', 'Project Hostile Intent...', and the system clock '10:19 AM'.



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**Interaction**



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Interaction

JIEDDO

CBP



Hostile Intent Detection – Automated Prototype

TSA

ICE

Improve screening by providing a science-based capability to identify *unknown* threats indicated by deceptive and suspicious behavior.



IARPA

Hostile Intent Detection – Training Simulation

Biometrics Task Force

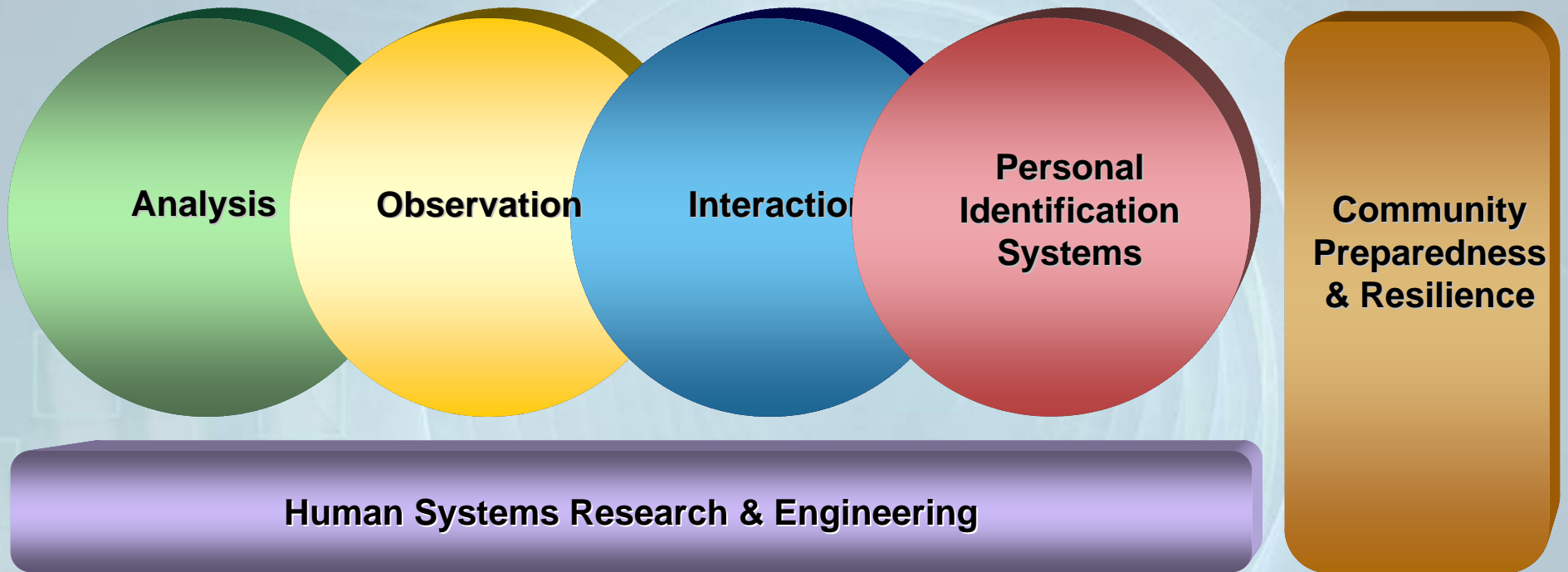
NIST

Army



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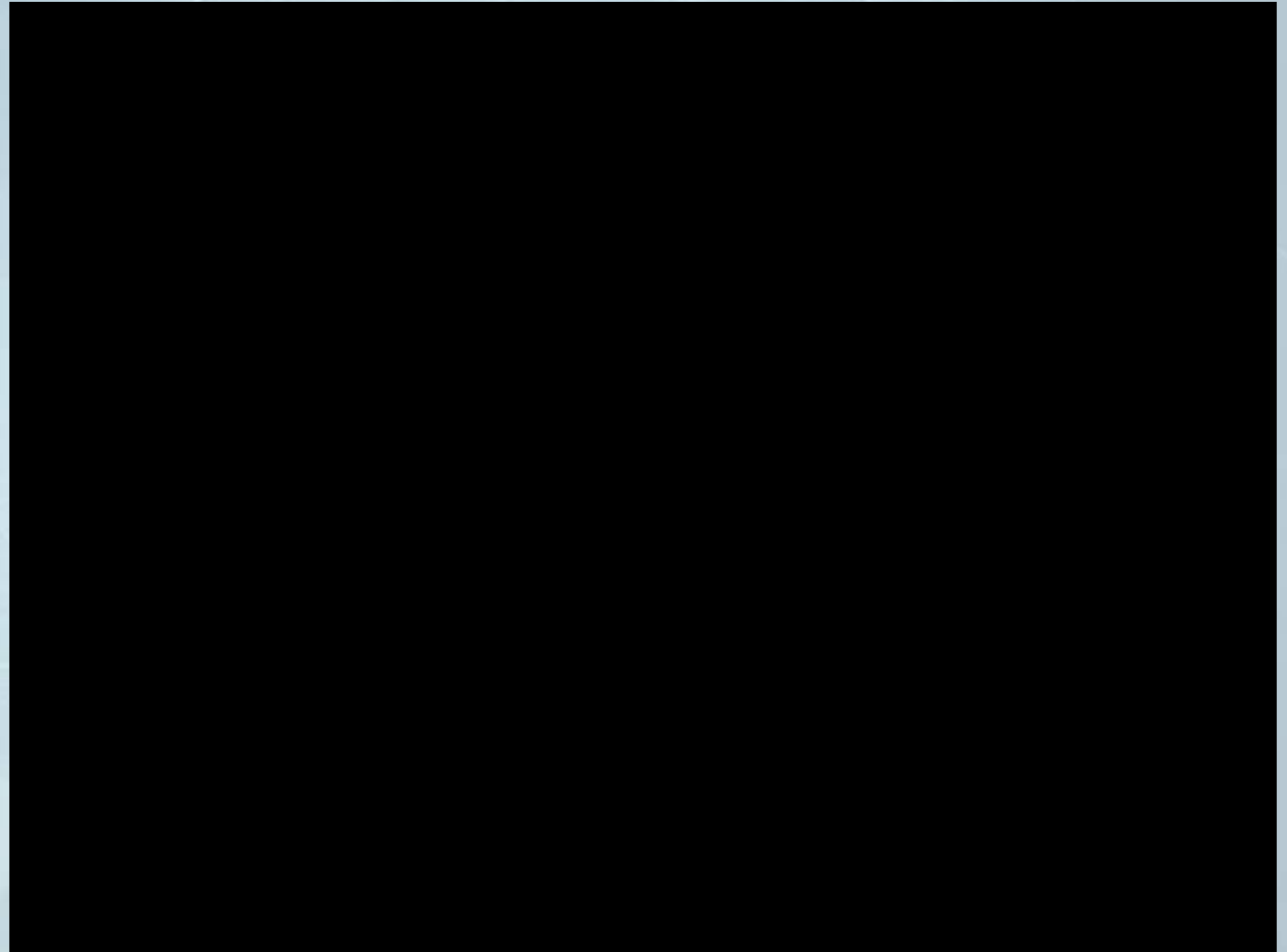


# Personal Identification Systems





**Personal  
Identification  
Systems**



# Personal Identification Systems

DHS  
Biometrics  
Coordination  
Group



Mobile  
Biometrics

Multi-Modal  
Biometrics

USCG  
Mona  
Pass

Biometric  
Detector

Improve screening by providing a science-based capability to identify *known* threats through accurate, timely, and easy-to-use biometric identification and credentialing validation tools.

Remote  
Biometrics  
Capture

TSWG

DoD  
DDR&E



TWIC  
Credentialing

Next Generation  
Ten-Print  
Capture

Commercial  
Data Sources



Center for  
Identity  
Technology  
Research

NIST

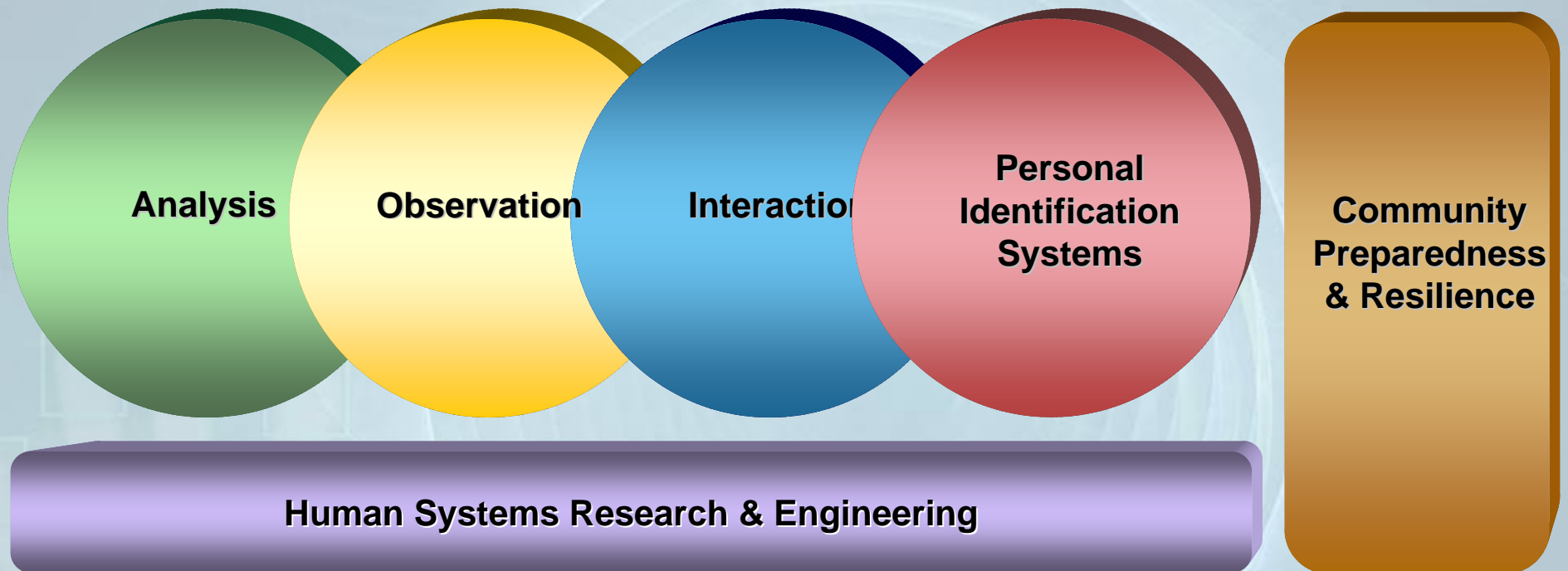
NSTC  
Biometrics and  
Identity  
Management  
Subcommittee



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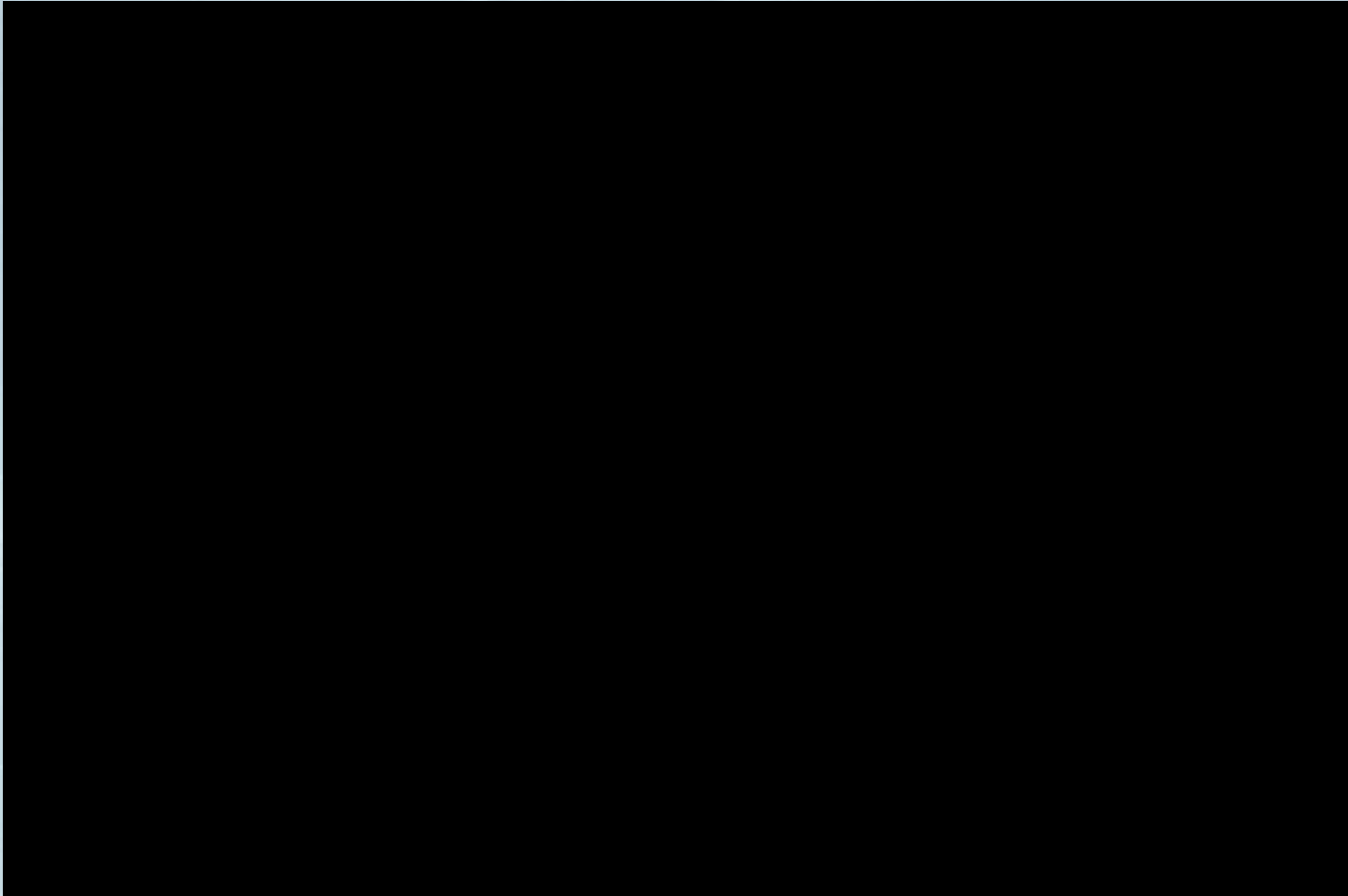


# Human Factors S&T Focus Areas



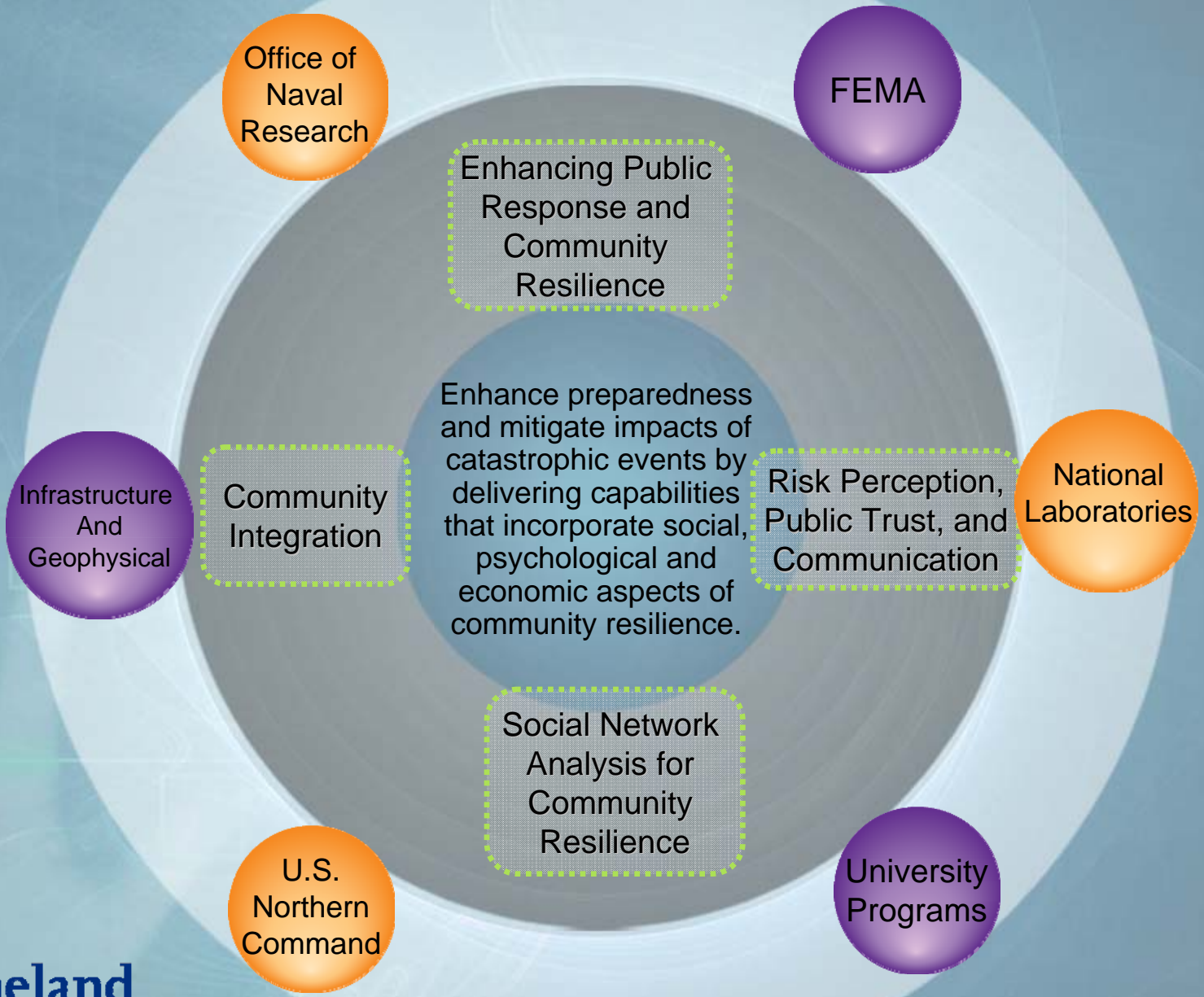
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**Community  
Preparedness  
& Resilience**



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**Community Preparedness & Resilience**



Office of Naval Research

FEMA

Enhancing Public Response and Community Resilience

Enhance preparedness and mitigate impacts of catastrophic events by delivering capabilities that incorporate social, psychological and economic aspects of community resilience.

Community Integration

Risk Perception, Public Trust, and Communication

National Laboratories

Infrastructure And Geophysical

Social Network Analysis for Community Resilience

U.S. Northern Command

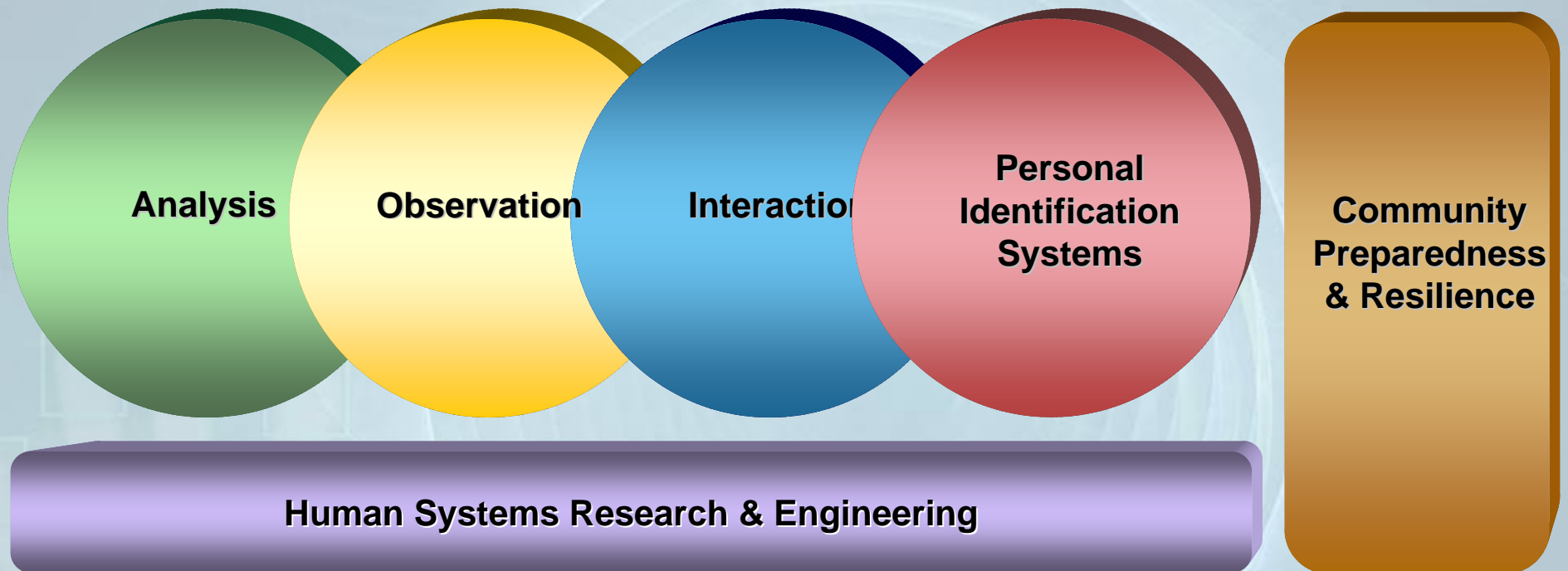
University Programs



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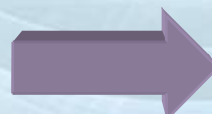
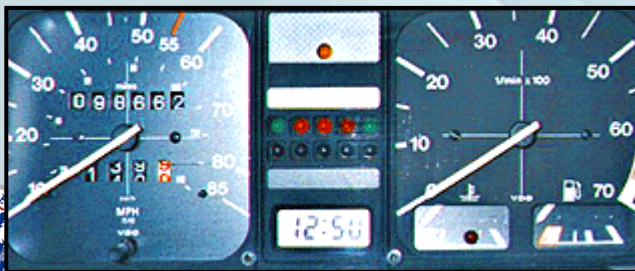


# Human Factors S&T Focus Areas

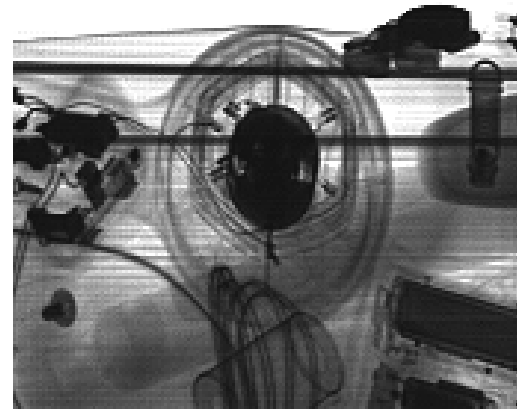
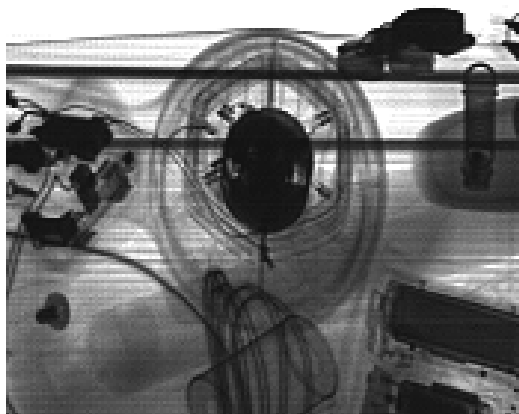


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# Human Systems Research & Engineering

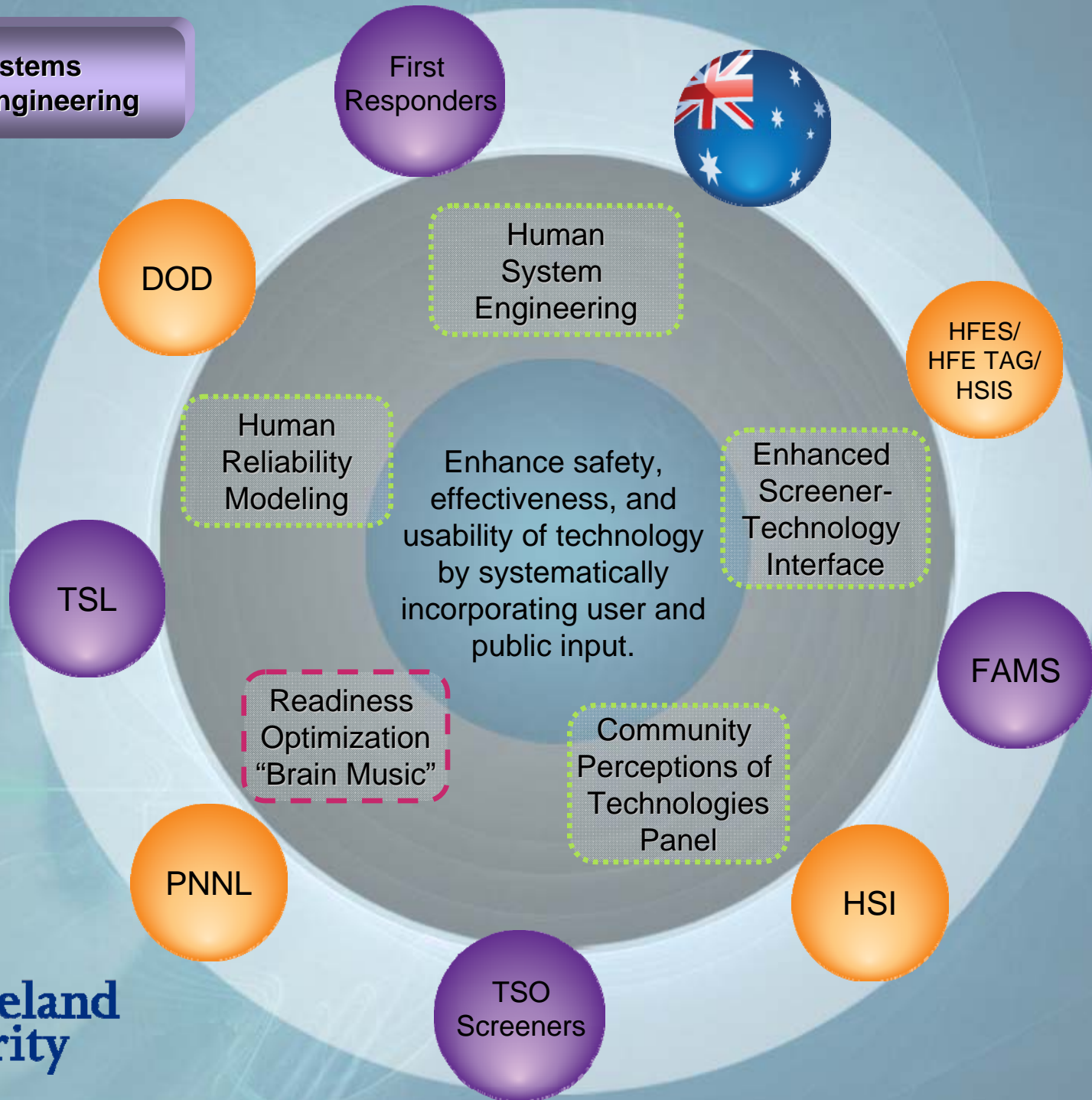


Security





**Human Systems  
Research & Engineering**



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# The Human Element



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