

US National Institute of Standards and Technology (NIST)

- Information Technology Laboratory

Computer Security Division

NIST Mission

- MEASURE. INNOVATE. LEAD, Working with industry and science to advance innovation and improve quality of life.
- ...advancing measurement science, standards, and technology through research and development in information technology, mathematics, and statistics.
 - NIST Core Values
 - *Integrity*
 - *Inclusivity*
 - *Excellence*
 - *Perseverance*

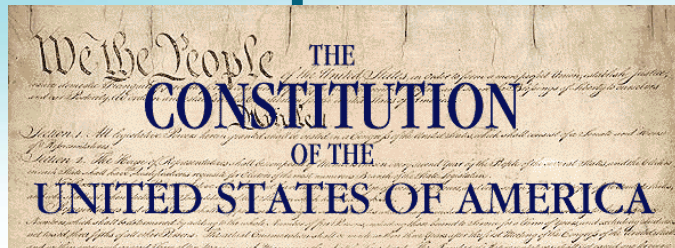
ITL Purpose

Cultivate Trust in IT and Metrology

Division Purpose

Cultivating ITs Roots of Trust

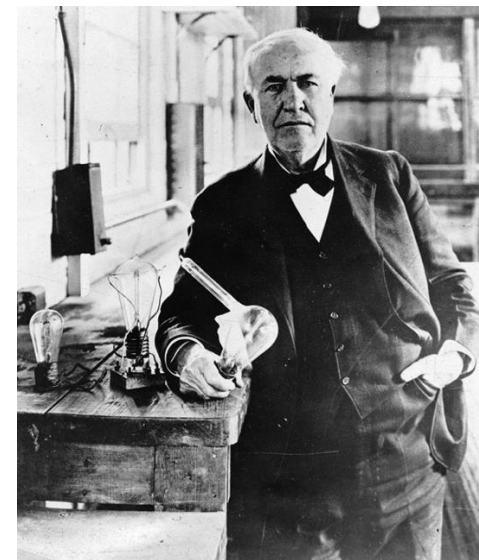
The Importance of Standards



Article I, Section 8: The Congress shall have the power to...*fix the standard of weights and measures*

- National Bureau of Standards established by Congress in 1901
- Eight different “authoritative” values for the gallon
- Electrical industry needed standards
- American instruments sent abroad for calibration
- Consumer products and construction materials uneven in quality and unreliable

Estimated that 80% of global merchandise trade is influenced by testing and other measurement-related requirements of regulations and standards



National Archives

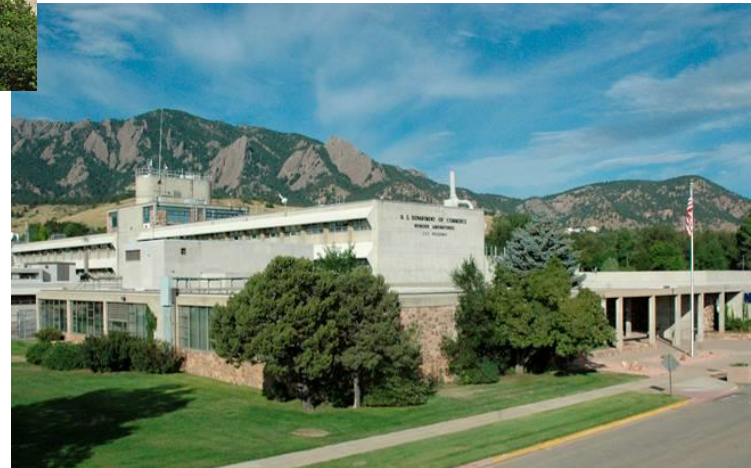
NIST has two main campuses

Gaithersburg, MD



Courtesy HDR Architecture, Inc./Steve Hall © Hedrich Blessing

Boulder, CO



© Geoffrey Wheeler

How We Work

Transparent

Traceable

Open

Inclusive



NIST is the US “Keeper” of the SIs



NIST Products and Services

Measurement Research

- ~ 2,200 publications per year

Standard Reference Data

- ~ 100 different types
- ~ 6,000 units sold per year
- ~ 226 million data downloads per year



Standard Reference Materials

- ~ 1,300 products available
- ~ 30,000 units sold per year

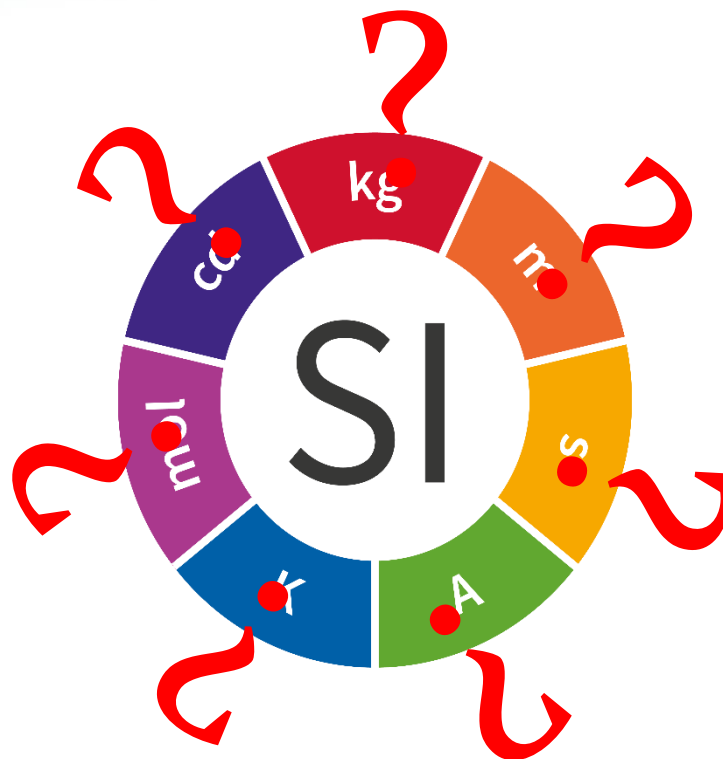
Calibration Tests

- ~ 18,000 tests per year

Laboratory Accreditation

- ~ 800 accreditations of testing and calibration labs

Is there an SI, or a derivate for cybersecurity?



Cybersecurity Technical Portfolio

- Cryptography
- Risk Management
- Identity and Access Management
- Testing and Validation
- Software Security, Vulnerability Metrics and Configurations
- Emerging Technologies



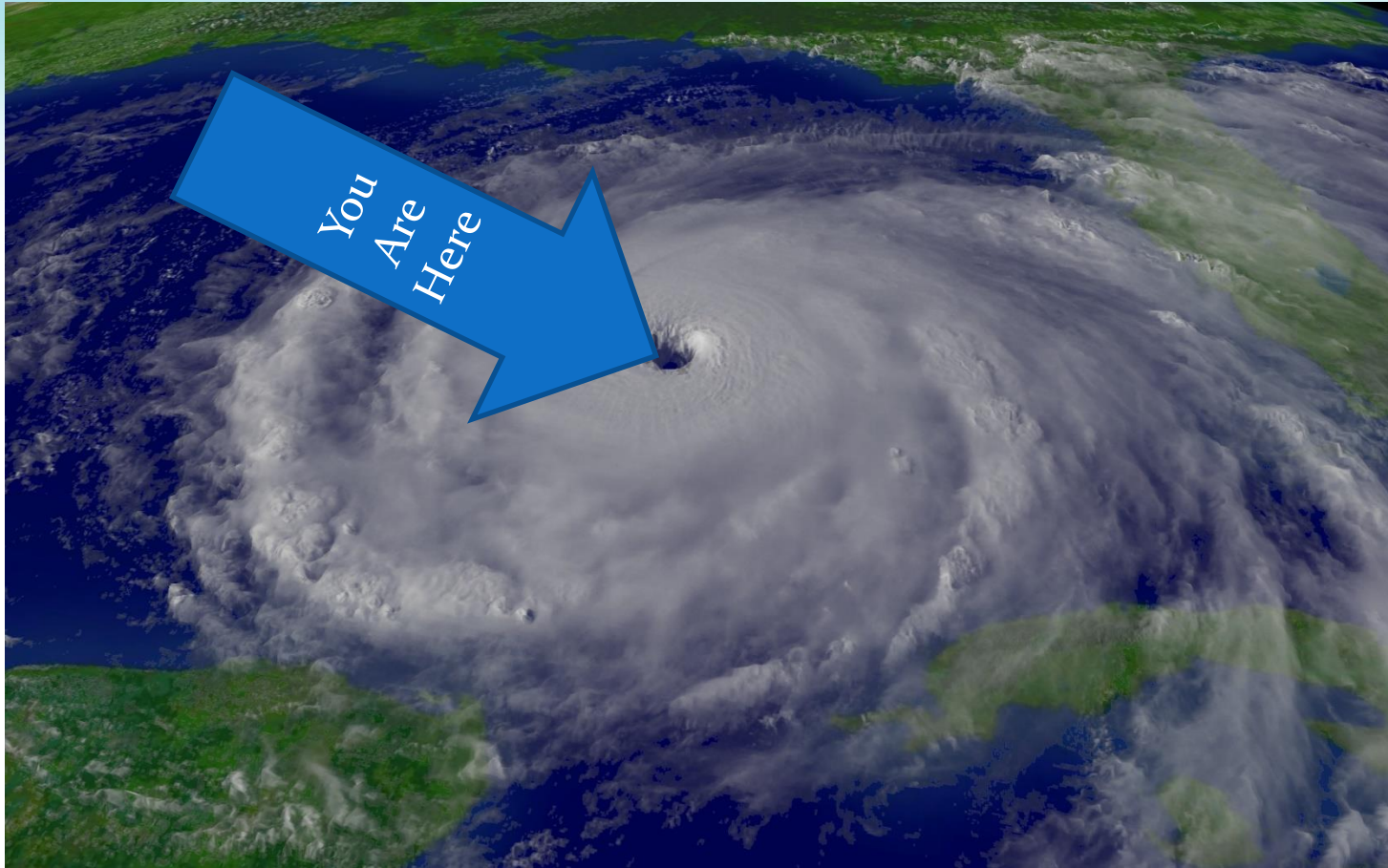
Persistence – Excellence - Impact

Tools, References and Products

- Papers, Standards, Guidance
- Tools and Testing
 - Software, Cryptography, Identity
- Data References
 - Vulnerabilities, IT Products, Configurations
- Expanded use of GIT Hub, AWS for Distribution
 - Beacon, Test Vectors, SCAP, APPVett, Document Reviews



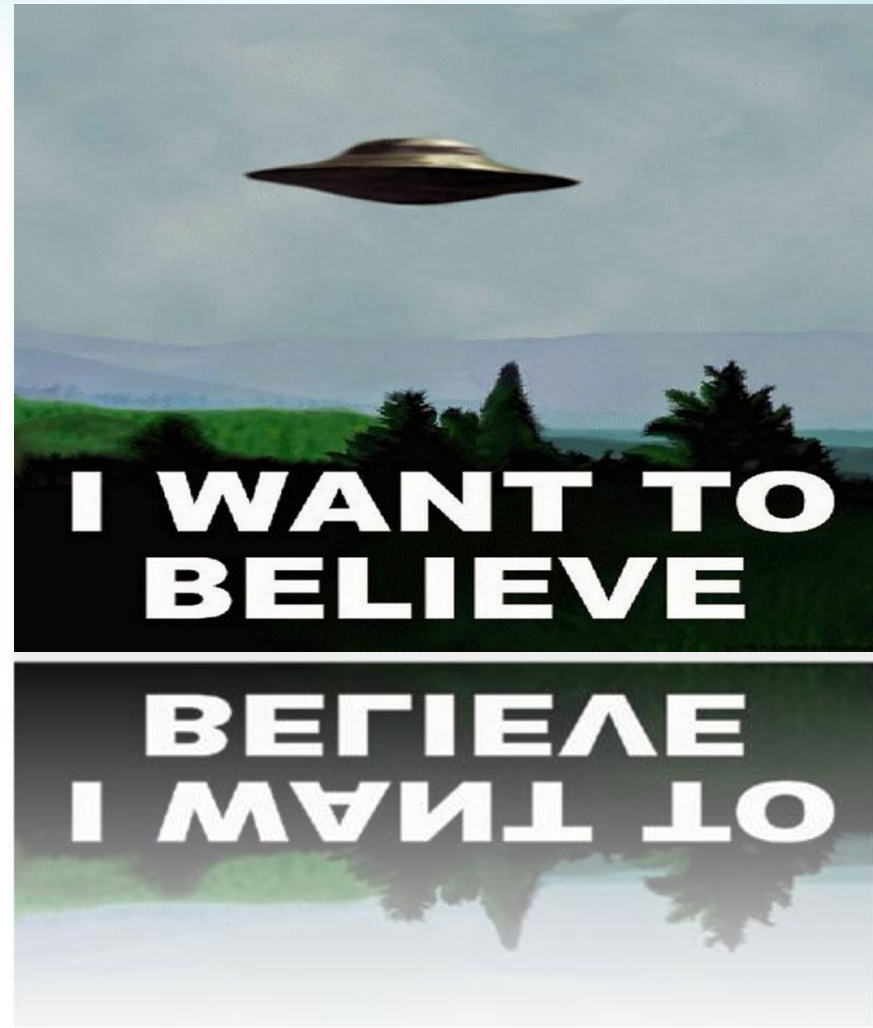
Our Current State???



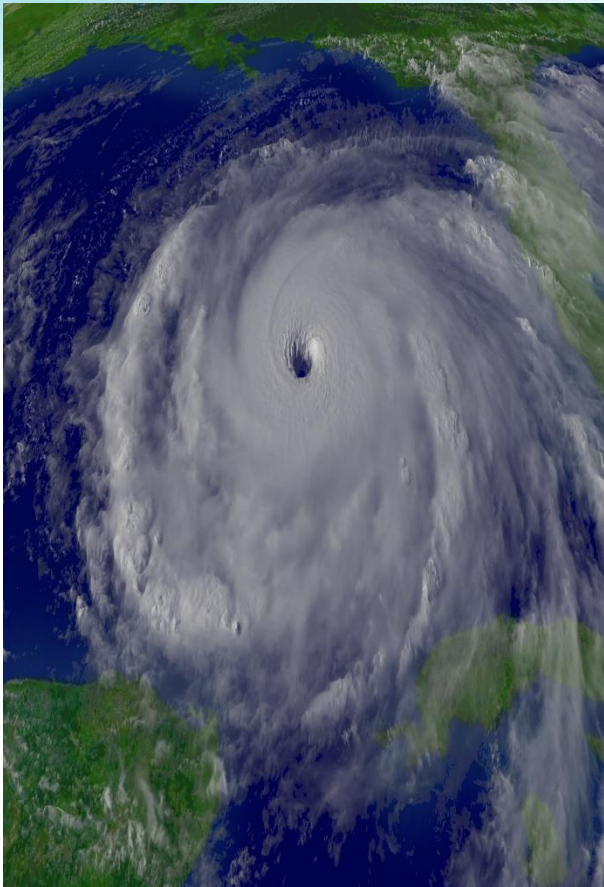
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What Is Out There?

- IOT
- AR/VR
- Voice
- ML/AI
- Data
- HPC
- Everything as a Service
- QRC
- 5G
- Quantum
 - Standards?
 - Legacy IT?



So Where Are We?



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How To Stay Relevant in a Dynamic Area?

- R & D
 - Applied
 - Working with the private sector
 - Working with international partners
 - Working in standards setting organizations
 - Working in R & D

Questions? Comments?
Thoughts?