VCAT
Cybersecurity Updates & Outlook

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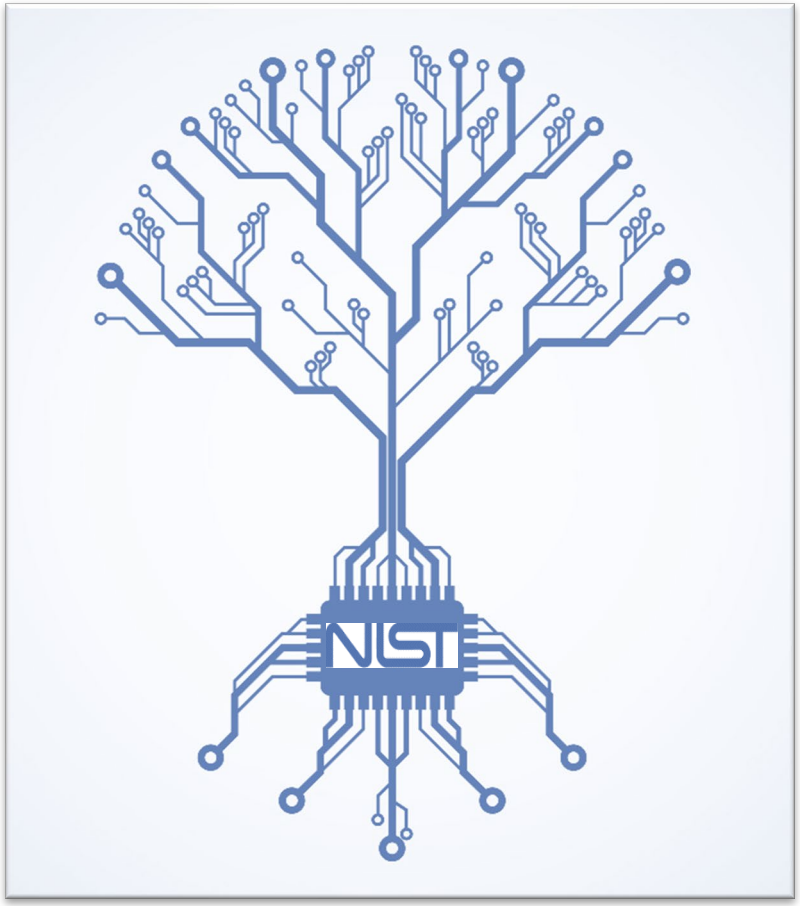
NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY
U.S. DEPARTMENT OF COMMERCE

Cybersecurity @ NIST



Credit: Shutterstock

We **cultivate trust** by advancing cybersecurity & privacy **standards, guidelines**, **technology**, and **measurement science**.

Why Cybersecurity @ NIST?

Proven track record, experience, and expertise.

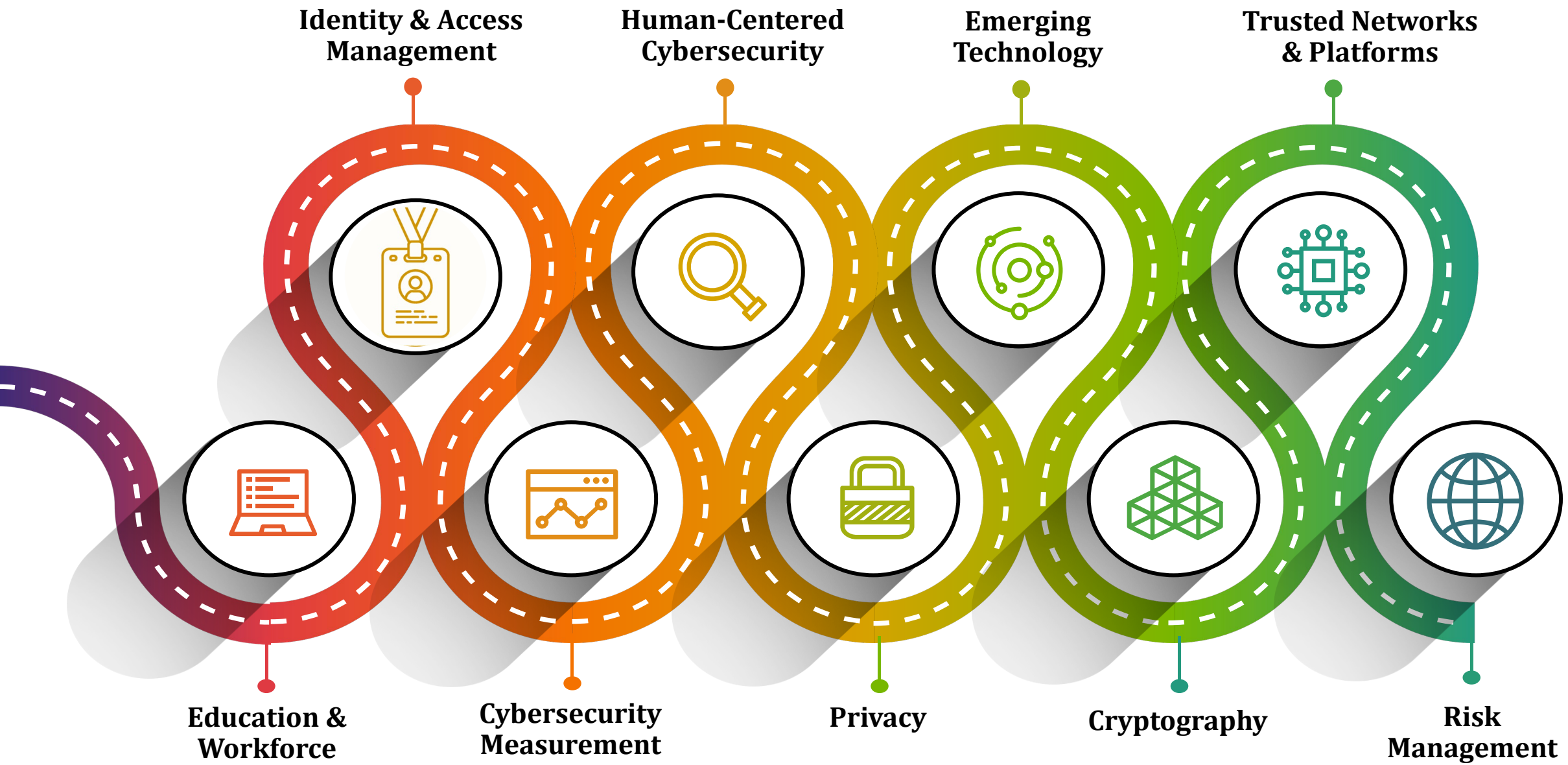
Collaborative approach…

- NIST works closely with organizations across the U.S. and globally through proactive engagements from start to finish.
- Partnerships are key.

Driven by:

- Congressional mandates.
- Presidential Executive Orders and federal policies.
- Input and needs expressed by U.S. industry, global community, other federal agencies.

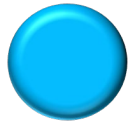
Focus Areas


Identity & Access Management
Human-Centered Cybersecurity
Emerging Technology
Trusted Networks & Platforms
Education & Workforce
Cybersecurity Measurement
Privacy
Cryptography
Risk Management

Success Story: Cryptography

- Encryption sets a measurable foundation to build cybersecurity controls and capabilities.
- Deployed in commercial and enterprise IT (used by the USG, industry and consumers worldwide).
- Protecting data, information and eCommerce at a global scale and securing billions of dollars (and trillions of transactions) every day.

First set of **PQC FIPS and guidance published**. February 25-26 workshop on correct implementations. More algorithms under review.



Proposed deprecation timelines for quantum vulnerable algorithms posted with 2035 dates.

Proposed updates to block cypher modes for larger block sizes, safer implementations and consistency in applications.

Research into Privacy Enhancing Encryption, new methods of analysis and specifications for agile encryption.

Success Story: CSF

The Cybersecurity Framework (CSF) is NIST's landmark guidance document for reducing cybersecurity risk. CSF 2.0, released in 2024, adds new governance and supply chain considerations.

CSF image credit: Natasha Hanacek, NIST

- The CSF is widely used **internationally**. Previous versions of the CSF have been translated into 13 languages.
- CSF 2.0 is a **suite of resources** to help **all organizations** manage and reduce risks – not just critical infrastructure.
- NIST made key updates, **developed new resources and tools**, and adjusted guidance based on today's cybersecurity environment.
- NIST's suite of resources offers **practical and actionable suggestions** to help organizations immediately improve their cybersecurity posture.

Success Story: Digital Identity

NIST's Identity Program focuses on foundational and applied research and standards.

- Conduct foundational research.
- Develop standards and guidance.
- Enable transition to practice through applied research.
- Enhance metrology of identity solutions.

The Digital Identity Guidelines (NIST SP 800-63) are **broadly adopted** and used, including by and beyond the USG.

International coordination and contributions to standards activities **promote interoperability**.

Expanded the scope of activities to meet increasing technological demands for **stronger identity solutions**.

NIST efforts are driving **global interest** in and awareness of emerging technologies such as mDLs, digital credentials, Syncable Authenticators.

Success Story: NCCoE as a Catalyst

Risk Management

- Cybersecurity Framework & Privacy Framework Profiles
- Data Classification
- Data Confidentiality
- Election & Voting System Security
- Cybersecurity & Privacy for Genomic Data Processing
- Telehealth Smart Home Integration

Applied Cryptography

- Migration to Post-Quantum Cryptography
- Automation of the NIST Cryptographic Module Validation Program
- TLS 1.3 Visibility

Trusted Platforms & Networks

- 5G Cybersecurity
- Trusted IoT Onboarding
- Trusted Enterprise Infrastructure
- Implementing a Zero Trust Architecture
- Software Supply Chain
- DevOps Security Practices

Operational Technology

- Securing Water/Wastewater Utilities
- Manufacturing Cybersecurity
- Manufacturing Supply Chain Traceability Using Blockchain Related Technologies

Digital Identity

- Mobile Driver's License
- Multifactor Authentication for Public Safety
- Digital Identity Lab

Emerging Technologies

- Dioptra AI Testbed
- Privacy-Enhancing Technologies (PETs) Testbed

Coming Up…

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- **Cybersecurity & AI Workshop** (*Spring 2025*)
- **Software Supply Chain & DevOps Security Practices Project** (*2025*)
- **Digital Identities: Mobile Driver's License (mDL) Project** (*2025*)
- **Zero Trust Architecture** (*Spring 2025*)
- **InterNational Committee for Information Technology Standards (INCITS) Technical Committee on Cybersecurity & Privacy** *(2025)*
- **Cryptography: Next Set of PQC Standards** (*late 2025*)
- **Privacy Framework Update** (*2025*)

Challenges & Opportunities

External Demands

Resource Constraints

Workforce

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