

# NICE

NATIONAL INITIATIVE FOR **CYBERSECURITY** EDUCATION



## **Cybersecurity Education and Workforce Perspectives from the National Initiative for Cybersecurity Education**

Rodney Petersen, Director of NICE

[nist.gov/nice](https://nist.gov/nice)

# NICE MISSION

To energize and promote a robust network and an ecosystem of cybersecurity education, training, and workforce development.



# NICE GOALS



## ACCELERATE LEARNING AND SKILLS DEVELOPMENT

Inspire a sense of urgency in both the public and private sectors to address the shortage of skilled cybersecurity workers



## NURTURE A DIVERSE LEARNING COMMUNITY

Strengthen education and training across the ecosystem to emphasize learning, measure outcomes, and diversify the cybersecurity workforce



## GUIDE CAREER DEVELOPMENT AND WORKFORCE PLANNING

Support employers to address market demands and enhance recruitment, hiring, development, and retention of cybersecurity talent

# NICE Strategic Goal 3: Guide Career Development and Workforce Planning

Support employers to address market demands and enhance recruitment, hiring, development, and retention of cybersecurity talent

***NICE Framework –  
[nist.gov/nice/framework](https://nist.gov/nice/framework)***

1.

Identify and analyze data sources that support projecting present and future demand and supply of qualified cybersecurity workers

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2.

Publish and raise awareness of the NICE Cybersecurity Workforce Framework and encourage adoption

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3.

Facilitate state and regional consortia to identify cybersecurity pathways addressing local workforce needs

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4.

Promote tools that assist human resource professionals and hiring managers with recruitment, hiring, development, and retention of cybersecurity professionals

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5.

Collaborate internationally to share best practices in cybersecurity career development and workforce planning

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Improves communication about how to identify, recruit, develop, and retain cybersecurity talent.

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Categorizes, organizes, and describes cybersecurity work.

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Can be used by:

- Public and Private Sector Employers
  - Education Providers
  - Technology Developers
  - Current and Future Cybersecurity Workers
  - Training and Certification Providers
  - Policymakers
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**NICE** FRAMEWORK

**NIST Special Publication 800-181**

# NICE FRAMEWORK - NIST Special Publication 800-181

## Cybersecurity Workforce Categories (7)

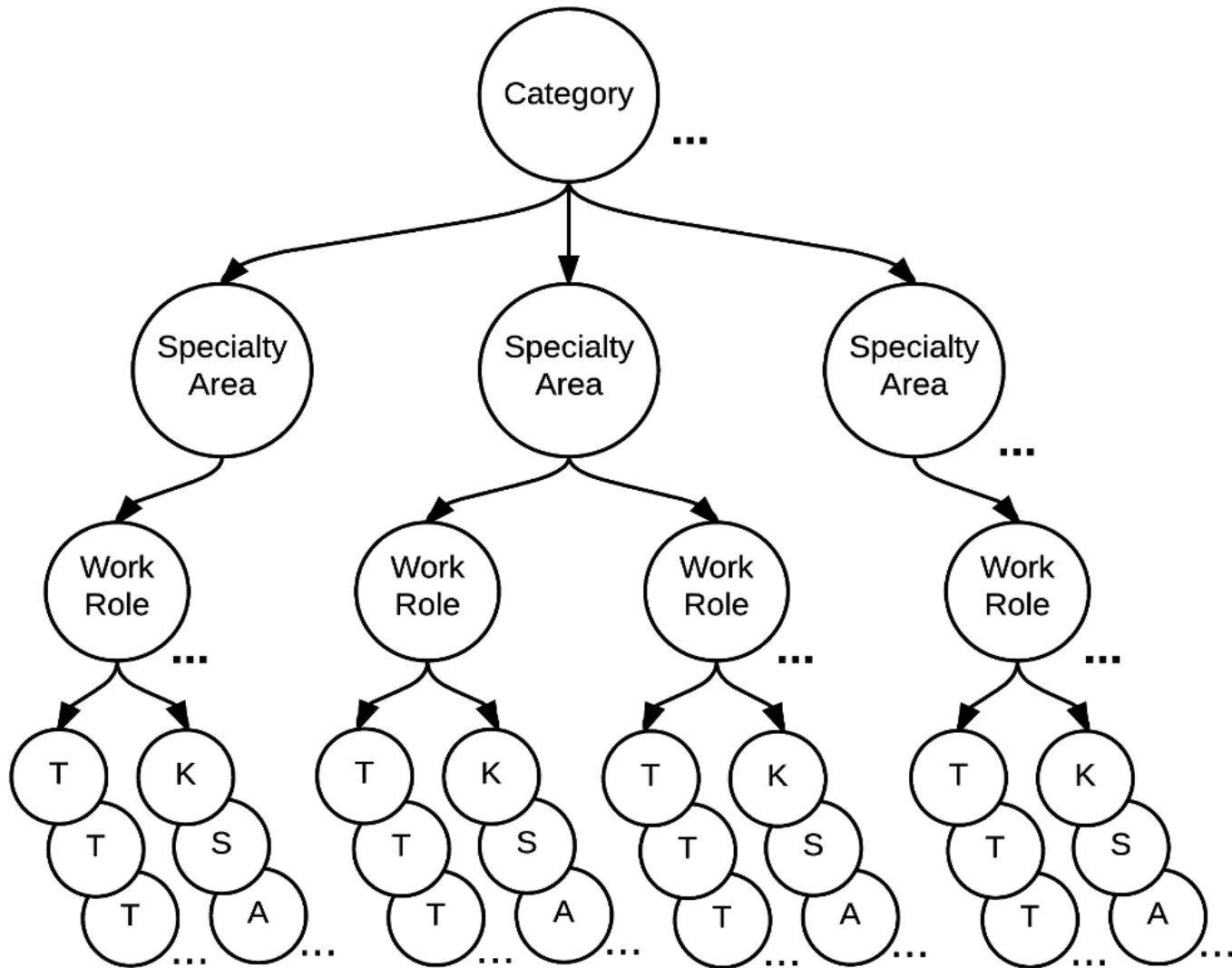
## Specialty Areas (33) - Distinct areas of cybersecurity work

**Work Roles (52)** - The most detailed groupings of IT, cybersecurity, or cyber-related work, which include specific *Knowledge, Skills, and Abilities*

*(KSA's)* required to perform a set of *Tasks*.

					OPERATE AND MAINTAIN	OVERSEE AND GOVERN	SECURELY PROVISION
							Risk Management
				ANALYZE	Customer Service and Technical Support	Cybersecurity Management	Software Development
			PROTECT AND DEFEND	All Source Analysis	Data Administration	Executive Cyber Leadership	Systems Architecture
		COLLECT AND OPERATE	Cyber Defense Analysis	Exploitation Analysis	Knowledge Management	Legal Advice and Advocacy	Systems Development
	INVESTIGATE	Collection Operations	Cyber Defense Infrastructure Support	Language Analysis	Network Services	Program/Project Management and Aquisition	Systems Requirements Planning
	Cyber Investigation	Cyber Operational Planning	Incident Response	Targets	Systems Administration	Strategic Planning and Policy	Technology R&D
	Digital Forensics	Cyber Operations	Vulnerability Assessment and Management	Threat Analysis	Systems Analysis	Training, Education, and Awareness	Test and Evaluation

# NICE FRAMEWORK - NIST Special Publication 800-181



# NICE FRAMEWORK - Categories

Categories	Descriptions
<b>Securely Provision (SP)</b>	Conceptualizes, designs, and builds secure information technology (IT) systems, with responsibility for aspects of systems and/or networks development.
<b>Operate and Maintain (OM)</b>	Provides the support, administration, and maintenance necessary to ensure effective and efficient information technology (IT) system performance and security.
<b>Oversee and Govern (OV)</b>	Provides leadership, management, direction, or development and advocacy so the organization may effectively conduct cybersecurity work.
<b>Protect and Defend (PR)</b>	Identifies, analyzes, and mitigates threats to internal information technology (IT) systems and/or networks.
<b>Analyze (AN)</b>	Performs highly-specialized review and evaluation of incoming cybersecurity information to determine its usefulness for intelligence.
<b>Collect and Operate (CO)</b>	Provides specialized denial and deception operations and collection of cybersecurity information that may be used to develop intelligence.
<b>Investigate (IN)</b>	Investigates cybersecurity events or crimes related to information technology (IT) systems, networks, and digital evidence.



# Oversee and Govern (6 Specialty Areas, 14 Work Roles)

Category	Specialty Area	Work Role
Oversee and Govern	Legal Advice and Advocacy	Cyber Legal Advisor
		Privacy Officer/Compliance Manager
	Training, Education, and Awareness	Cyber Instructional Curriculum Developer
		Cyber Instructor
	Cybersecurity Management	Information Systems Security Manager
		Communication Security Manager
	Strategic Planning and Policy	Cyber Workforce Developer and Manager
		Cyber Policy and Strategy Planner
	Executive Cyber Leadership	Executive Cyber Leadership
	Program/Project Management and Acquisition	Program Manager
		IT Project Manager
		Product Support Manager
		IT Investment/Portfolio Manager
		IT Program Auditor

# Building Blocks for a Capable and Ready Cybersecurity Workforce



# NICE FRAMEWORK RESOURCE CENTER



## 101 Resources

- Search the NICE Framework
- One Pager
- Video Tutorial



## Employer Resources

- DoD Cyber Workforce
- Position Description Tool
- Capability Indicators



## Education/Training Provider Resources

- Course/Curriculum Mappings
- Certification Mappings
- Training Catalog



## Learner Resources

- Pathways
- Career Profiles
- Hands-on Activities

# GET INVOLVED



## **NICE Conference and Expo**

November 16-18, 2020 | Atlanta, Georgia

[NICEconference.org](https://niconference.org)

The annual convening of community members and thought leaders from education, government, industry, and non-profits to explore ways of developing a skilled cybersecurity workforce ready to meet the challenges of the future.



## **NICE K12 Cybersecurity Education Conference**

December 7-8, 2020 | St. Louis, Missouri

[K12cybersecurityconference.org](https://k12cybersecurityconference.org)

Bringing together those interested in K12 cybersecurity education, this annual event highlights cybersecurity career awareness, integration of cybersecurity into educational portfolios, innovative educational approaches, and more.

# CONTACT US



[NIST.gov/NICE/Framework](https://www.nist.gov/NICE/Framework)



[NICEFramework@nist.gov](mailto:NICEFramework@nist.gov)



[Linkedin.com/company/NIST-NICE](https://www.linkedin.com/company/NIST-NICE)



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