Workforce Framework for Cybersecurity (NICE Framework)

NIST Special Publication 800-181

WHY?

The NICE Workforce Framework for Cybersecurity (NICE Framework) provides users with a common lexicon that can be used to improve processes and practices around identifying, recruiting, developing, and retaining cybersecurity talent. It can be further applied across organizations and sectors in the development of resources and tools that define or provide guidance on workforce development, planning, training, and education.

PURPOSE

The NICE Framework is a fundamental resource to help in the development and support of a workforce capable of meeting an organization's cybersecurity needs. It provides organizations with a common, consistent language to categorize and describe cybersecurity work via Task, Knowledge, and Skill (TKS) statements that describe the work to be done and what is needed to complete that work. It further provides ways to use these building blocks in defined Competencies and Work Roles. By doing so, it enables consistent organizational and sector communication for cybersecurity education, training, and workforce development.

DEVELOPMENT

The concept for the NICE Framework began even prior to the establishment of NICE in 2010, growing from a recognized need to better define and assess the cybersecurity workforce in both the public and private sectors. To address this challenge, more than 20 governmental departments and agencies along with representatives from the private sector and academia came together to determine how to provide a common understanding of cybersecurity work. This resulted in the creation of two early versions of the NICE Framework prior to its release as NIST Special Publication 800-181 in 2017 and the subsequent 2020 revision. The evolution of the NICE Framework now provides a resource that is agile, flexible, interoperable, and modular and continues to draw from engagement between the government, private sector, and academia.

LEARN MORE

nist.gov/nice/framework

AUDIENCE

The NICE Framework engages with a variety of audiences:

Employers: To help define the cybersecurity workforce, including those whose primary focus is on cybersecurity as well as those who need specific cybersecurity-related knowledge and skills in order to manage risks to the enterprise; to identify critical gaps in cybersecurity staffing; and create position descriptions consistent with national language.

Learners: Current and future workers can use the NICE Framework to explore the variety of cybersecurity-related work and positions available, including what Competencies are valued by employers valued by employers for in-demand cybersecurity jobs and positions. Staffing specialists and guidance counselors can also use the NICE Framework as a resource to support these employees or job seekers.

Education, Training, and Credential Providers: The NICE Framework provides direct information about what a workforce needs to know, helping in the creation of learning content and in the development of certificates, badging, and other verification techniques to consistently describe learner capabilities.

DEFINITIONS

Task, Knowledge, and Skill (TKS) Statements: The core building blocks of the NICE Framework.

Task: An activity directed toward the achievement of organizational objectives. Tasks include associated Knowledge and Skill statements that represent learners' potential to perform those Tasks.

Knowledge: A retrievable set of concepts within memory.

Skill: The capacity to perform an observable action.

Competencies: A mechanism for organizations to assess learners. Competencies consist of a name, description, and group of associated TKS statements.

Work Roles: A way of describing a grouping of work for which someone is responsible or accountable. They are associated with groupings of Tasks that constitute the work to be done.

SECURELY PROVISION | OPERATE & MAINTAIN | OVERSEE & GOVERN | PROTECT & DEFEND | ANALYZE | COLLECT & OPERATE | INVESTIGATE

NICE
NATIONAL INITIATIVE FOR CYBERSECURITY EDUCATION

nist.gov/nice

NIST
National Institute of
itandards and Technology
U.S. Department of Commerce