



Security Operations Overview

Monitoring and Response Directorate
CERT Division

Software Engineering Institute
Carnegie Mellon University
Pittsburgh, PA 15213

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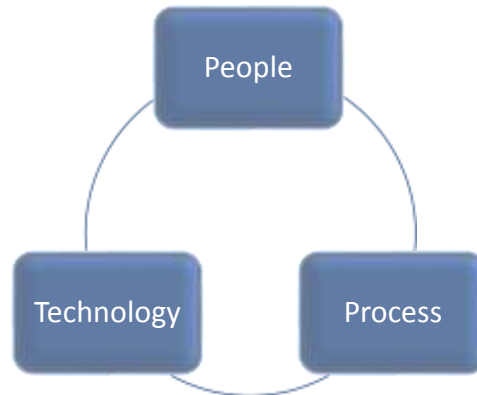
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Capacity Development: A Multi-Faceted Approach

Defining the Incident Management Function

An *incident management function* is a set of capabilities (the people, processes, technology, etc. that provide an ability or capacity to perform some task) considered essential to protecting, detecting, and responding to incidents, as well as sustaining the incident management function.

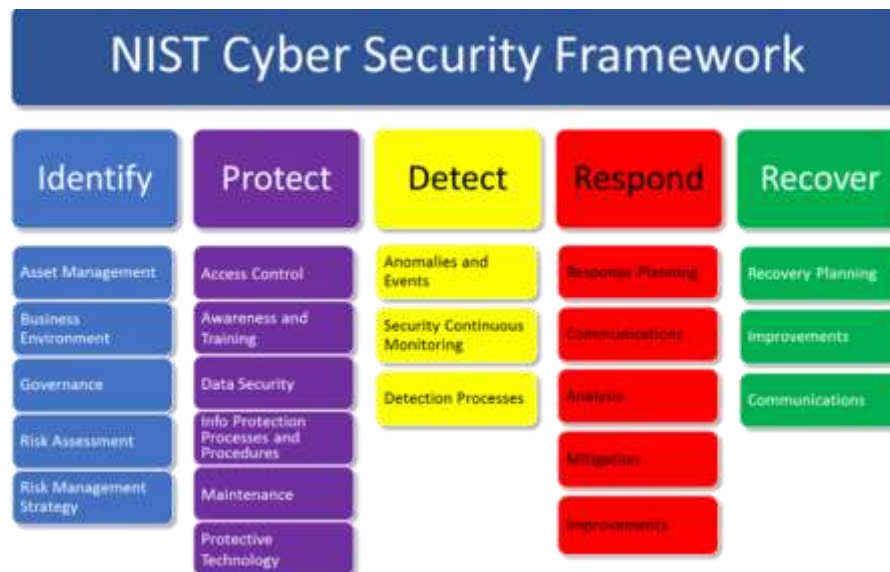


Incident management capabilities can be institutionalized in various entities: CSIRT, SOC, combination, or other organizational structure.

Organizations Require a Cybersecurity Strategy

Such a strategy should support and enable the organizational mission and corresponding business processes.

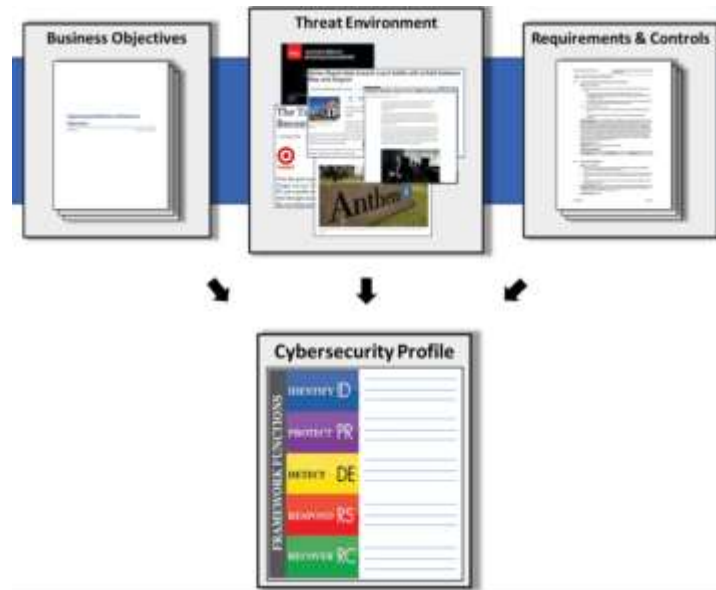
One example of the components involved in such a strategy can be seen in the NIST Cybersecurity Framework.



Source: Introduction to the NIST CyberSecurity Framework for a Landscape of Cyber Menaces. Security Affairs, April 2017. Available at: <http://securityaffairs.co/wordpress/58163/laws-and-regulations/nist-cybersecurity-framework-2.html>

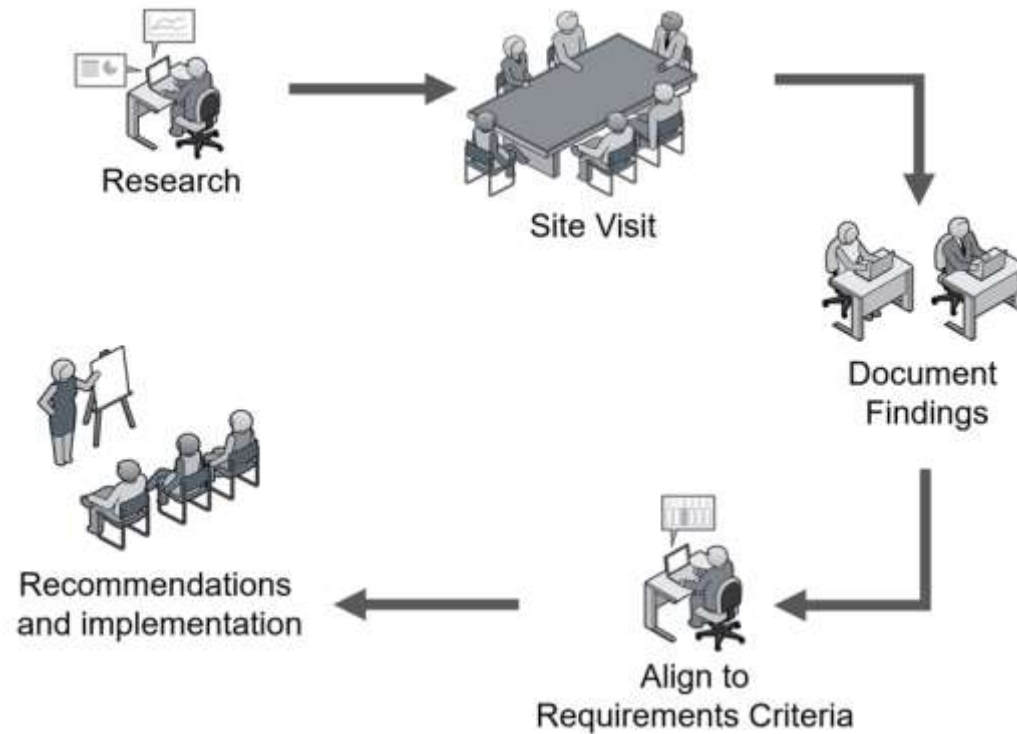
Framework Profile

- Alignment of the core with the requirements of an organization
- Current vs. Target
- Can be used to develop:
 - Gap analysis
 - Self-assessments
 - Roadmaps

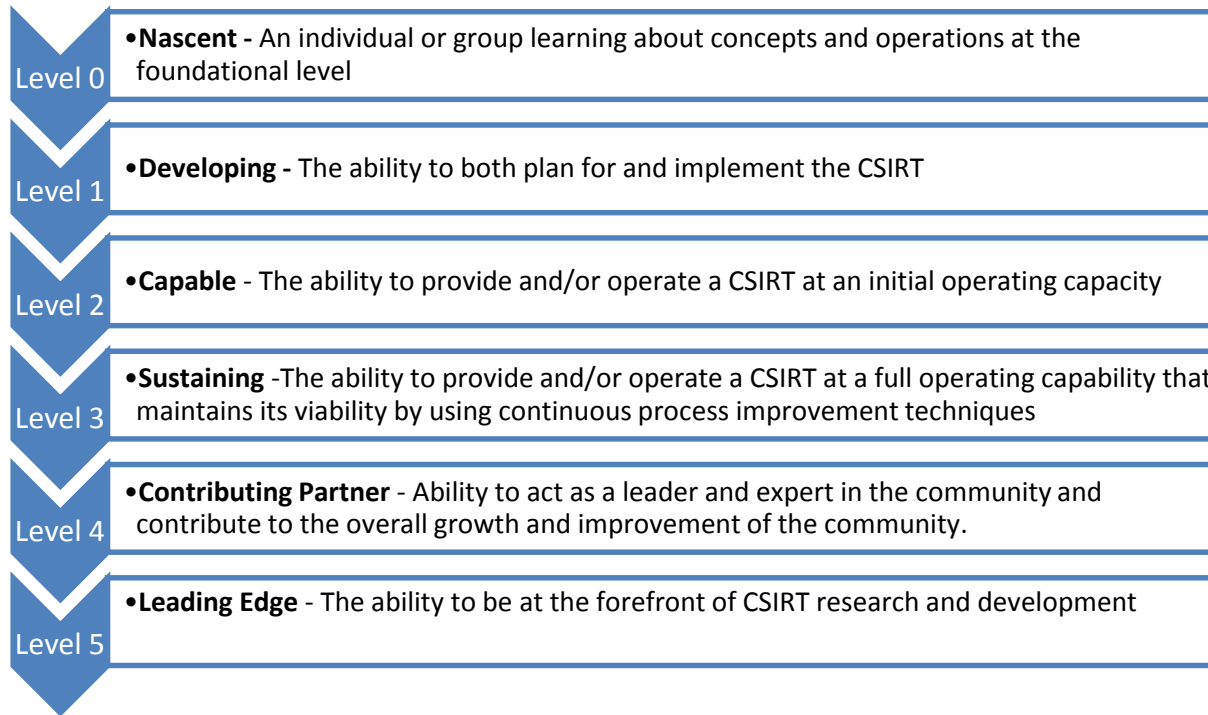


<https://www.nist.gov/cyberframework/online-learning/components-framework>

CERT Method of Implementation



Categorization – The CSIRT Capacity Development Continuum





Security Operations International Cybersecurity Initiatives

Security Operations Portfolio

Training and Mentoring

- Public Courses
- On site courses
- Mentoring modules
- On site mentoring
- Train the Trainer
- License training materials
- Computer Security Incident Handling (CSIH) Certification
- Facilitated workshops
- Professional Development
- Competency Development

Building Capacity

- Building:
 - Capability Metrics for Service Improvement
 - Training and Mentoring Programs
 - Security Operation Centers (collaborative with Solutions Team)
 - Computer Security Incident Response Teams (CSIRTs)
- CSIRT Toolkit
- CSIRT Development Continuum

Assessment & Evaluation Metrics

- Incident Management Capability Assessment (IMCA)
- Incident Management Mission Risk Diagnostics for Incident Management Capabilities (MRD-IMC)
- National CSIRT Capability Assessment
- SOC Evaluation (Solutions)
- Metrics: SOC, CSIRT, Metrics SIG, Literature search publication

Developing State of the Art

- Data Analytics/ Machine Learning
- Incident Handling Expertise Decision Support Automation
- Incident Management Taxonomy/Ontology

Process Improvement

- Publications/Guides
- CSIRT Toolkit

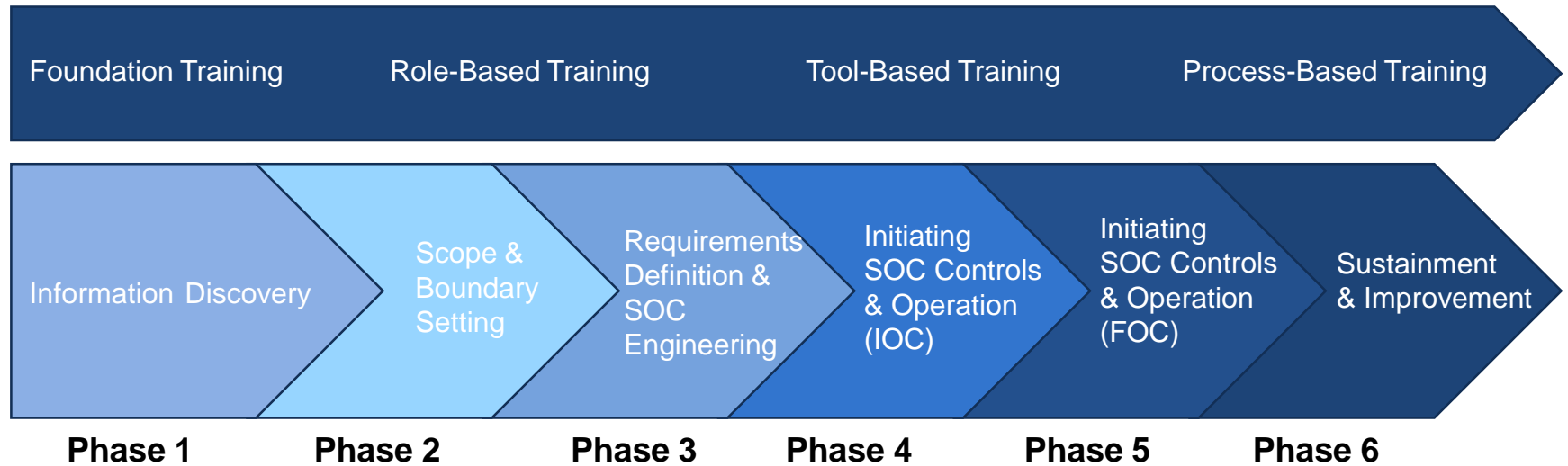
Building Reference Models

- SOC Framework
- Incident Management Process model

National Level Strategy & Policy Development

- International Forums
- CERT Trademark Process
- Recommendations, As Requested

SOC Design Methodology



Security Operations Reference Model



Currently defining

- Terms
- Components
- Interfaces
- Workflows

Deliverables

- Two courses
 - Security Operation Center (SOC) Concepts and Practices
 - Effective Security Operations
- Whitepapers
- Reference Model
- Assessments
- Tailored Training & Mentoring
 - Design
 - Strategic roadmaps
 - Operations and processes artifacts
 - Tool evaluation
 - Best practices

SOC Framework and Development

- The SEI provides expertise in SOC best practices, to include assistance with:
 - Defining SOC roles and responsibilities
 - Developing SOC strategies, processes, CONOPs
 - Tailoring SOC design to address organizational strategy, goals, and challenges
 - Building situational awareness and structured analysis
- Training, courses, and roadmap development can be tailored to:
 - Individuals performing SOC roles and activities
 - Individuals coordinating or interfacing with the SOC
 - Organizations who are building, benchmarking, or looking to improve their SOC processes
 - Individuals who are high level executives wanting to better understand SOC operations and improvements

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