
# Cybersecurity Capacity Building and Cooperation

*Fraud Awareness Week 2020 - Bosnia and Herzegovina*

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# Notices



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# The Software Engineering Institute and the CERT Division

**The Software Engineering Institute (SEI)** at Carnegie Mellon University is a Federally Funded Research and Development Center (FFRDC)—a nonprofit, public–private partnership that conducts research for the United States government.

- **CERT** is the SEI's Cybersecurity Division, working to research security vulnerabilities in software products, contribute to long-term changes in networked systems, and develop cutting-edge information and training to improve the practice of cybersecurity.
- We provide partner agencies with expertise in a wide range of Cybersecurity fields including Cyber Intelligence, Cyber Workforce Development, Risk Management, Insider Threat, Security Operations, and more.

# What We Do

CERT helps security operations and cybersecurity centers develop, operationalize, and improve their incident management capabilities to prevent and mitigate cybersecurity threats (“capacity building”).

- We support the U.S. Vision for Cyberspace and Approach to Cyberspace Policy through the following activities:
  - implementing and improving sustainable incident response capabilities with teams around the world
  - enhancing state-of-the-art techniques and practices in the cyber threat information-sharing field and applying this knowledge in a regional setting to promote trust-based incident response communities
  - developing the global cybersecurity workforce through tailored capacity building and mentoring

# Cybersecurity & Incident Response

*Cybersecurity threats pose significant risks to all organizations throughout the world and when computer security incidents occur, organizations must respond quickly and effectively.*

You cannot completely prevent computer security incidents. Therefore, organizations must:

- Mitigate the risks.
- Be prepared to act when they do occur.

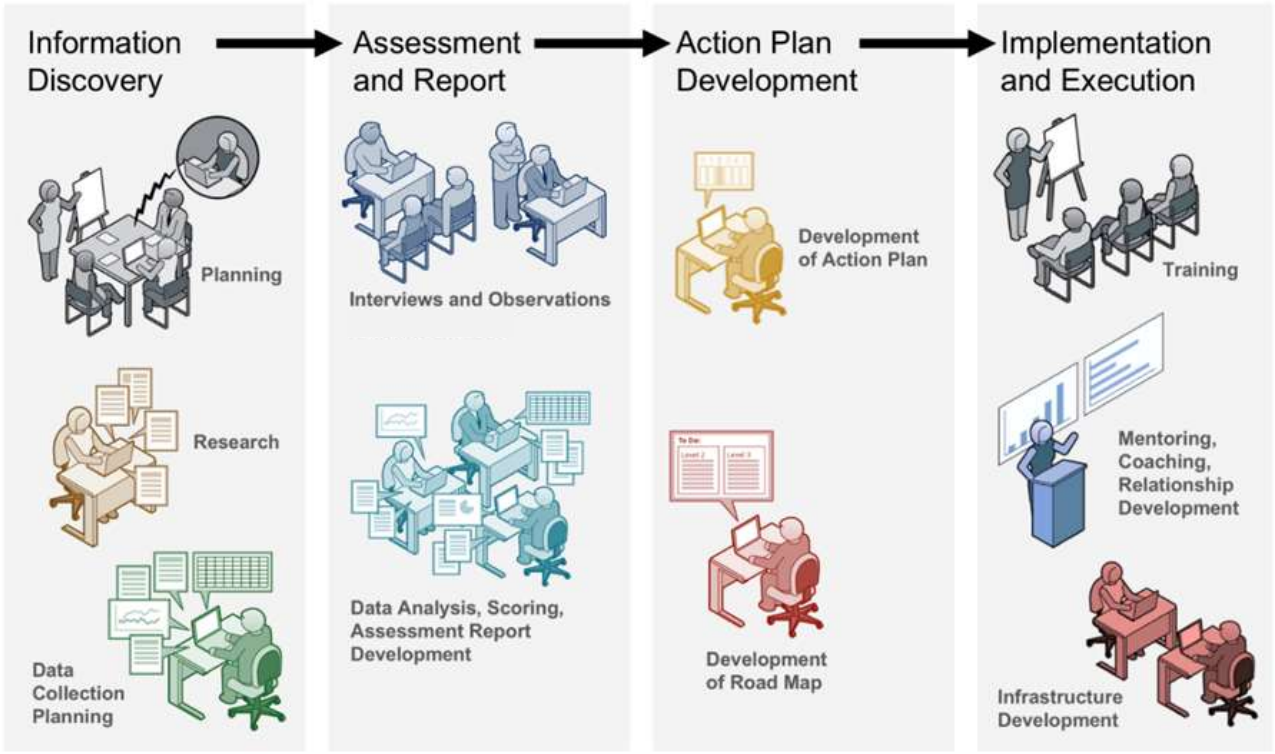
It is critical that an organization responds to cyber events quickly and effectively by recognizing, analyzing, and responding to incidents, thereby limiting damage and reducing recovery costs.

# Cybersecurity Centers & Incident Response Teams

- Cybersecurity centers are essential to these incident response efforts.
- These centers may take the form of cybersecurity centers, computer security incident response teams (CSIRTs), security operations centers (SOCs), product security incident response teams (PSIRTs), or other similar incident management teams.
- The SEI helps prepare cybersecurity centers and teams to effectively assess and manage cybersecurity incidents.

*Given the increasing complexity and interdependence of the global information infrastructure, sustainable and successful national CSIRTs are an essential element to the overall cybersecurity of both a nation or economy and the global community.*

# Our Process



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# Threats & Challenges

# Threat Environment

There is a growing **dependence** on the internet, along with a growing **interdependence** on technologies and interconnectedness.

- Legal/regulatory issues
  - Compliance with data protection, privacy, and accountability (e.g., incident response) laws and liabilities
- All the while, hackers continue to advance, increasing the need for organizational precautionary measures.

*Impact*

- Data breaches
- Financial losses
- Loss of reputation/business
- Threats to human life/safety
- Compromise of national security

*Threat Actors*

- Professional cybercriminals
- Nation-state actors
- Hacktivists
- Insider threats

*Threat Vectors*

- Social engineering
- Exploitable vulnerabilities
- Insider threats
- Malware

# ENISA's 15 Top Threats in 2020


Source: https://www.enisa.europa.eu/topics/threat-risk-management/threats-and-trends/enisa-threat-landscape-2020-top-15-threats

# Insider Threat

There is not one “type” of insider threat.

- Threat is to an organization’s critical assets:
  - People
  - Information
  - Technology
  - Facilities
- Based on the motive(s) of the insider
- Impact is to Confidentiality, Availability, Integrity

There is not one solution for addressing the insider threat.

- Technology alone may not be the most effective way to prevent and/or detect an incident perpetrated by a trusted insider.

National Insider Threat Center (NITC):
https://www.sei.cmu.edu/our-work/insider-threat/index.cfm

# Prevention and Protection

It is important to know the ways to prevent these methods and also how to counteract them.

- Do not open suspicious/untrusted emails, links, or attachments.
- Use two-factor authentication for passwords and make passwords different for each account.
- Backup files to an external hard drive.
- Keep your software updated.

**Capacity Building supports methods of prevention and protection.**

- Managed detection and response, monitoring and alerting
- Cyber threat intelligence
- Compliance reporting
- Addressing the steps of the cyber kill chain
- Frequent vulnerability scans
- Advisory services and audits
- Training and awareness activities

# Common Challenges

*Lack of*

- Cybersecurity legislation, policy, or strategy
- Foundational organizational requirements – such as authority, mandate, mission, etc.
- Clear roles and responsibilities
- Sufficient funding and resources
- Leadership support
- Trust among constituents
- Information sharing
- Trained staff

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# Recommendations

# Recommendations in the Region

- Strengthen cybersecurity legislation and policy.
- Define the roles and responsibilities of cybersecurity stakeholders, including a national CSIRT or coordinating body.
- Develop services and receive tailored training to those services.
- Formalize Information Sharing processes.
- Develop sector capabilities and public-private partnerships
- Develop awareness building programs/campaigns (general public and government system users).

# Capacity Building Efforts

Thus far and looking ahead to the future, efforts will be centered around the following key activities:

- Bilateral support and mentorship
- Implementation assistance
- Regional events and training
- Introduction to international communities and best practices

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# Lessons Learned & Best Practices

# From the Field

Based upon our experiences and information gathered in the field over the years, the most prominent indicators of an incident response team's success have been:

- establishing long-term relationships with constituents
- their ability to reach many constituents and provide value to them
- their ability to provide actionable information and enable their constituents to be able to react successfully to information security threats
- continued attention and buy-in from national leaders and constituents who continue to report new incidents to them
- their capability to react successfully and in a timely manner to threats and incidents
- their development of ***recognition, credibility, and respect*** from the global and regional community

# General Best Practices – 1

- Establish a national cybersecurity strategy, policy and a designated National CSIRT.
- Ensure government buy-in and support and the authority or influence needed to engage constituents.
- Garner ***trust*** and prove ***value*** to the constituency (starting with a subset of the constituency and building out over time).
- Adjust services as constituency needs and abilities evolve, and provide services with the most value.
- Routinely gather and analyze constituency feedback.
- Share information, expertise, and specialized capabilities among other teams and sectors within the country.
- Develop regional and global relationships.

# General Best Practices – 2

- Accurately document policies and procedures that are understood and followed by staff.
- Hire individuals who have a combination of technical and soft skills, analysts at various skill levels.
- Have someone other than the operational manager designated to perform outreach roles.
- Establish plans, funding, and processes for professional development.
- Have the flexibility to select open source tools when they are cost effective options, but evaluate tool needs in conjunction with assessing skills to hire the right staff.

# Best Practices – International Communities

- Forum of Incident Response and Security Teams (FIRST)
- European Union Agency for Cybersecurity (ENISA)
- Global Forum on Cyber Expertise (GFCE)
- Information Sharing and Analysis Centers (ISACs, for example, FS-ISAC)
- Donor and other capacity building organizations, such as
  - Organization for Security and Co-operation in Europe (OSCE)
  - United Nations Development Programme (UNDP)
  - Geneva Centre for Security Sector Governance (DCAF)
  - Regional Cooperation Council (RCC)

# Best Practices - FIRST CSIRT Services Framework

The Forum of Incident Response and Security Teams (FIRST) established a framework for a core set of services that can be leveraged for the selection of services or improvement upon particular functions:


https://www.first.org/standards/frameworks/csirts/csirt_services_framework_v2.1

# Questions?

## Contact Us

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  - https://www.sei.cmu.edu/our-work/cybersecurity-center-development/index.cfm

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