

# How to Sniff Out Insider Threats

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# Insider Threat Research at the SEI

Conducting research, modeling, analysis, and outreach to develop socio-technical solutions to combat insider threats since 2001

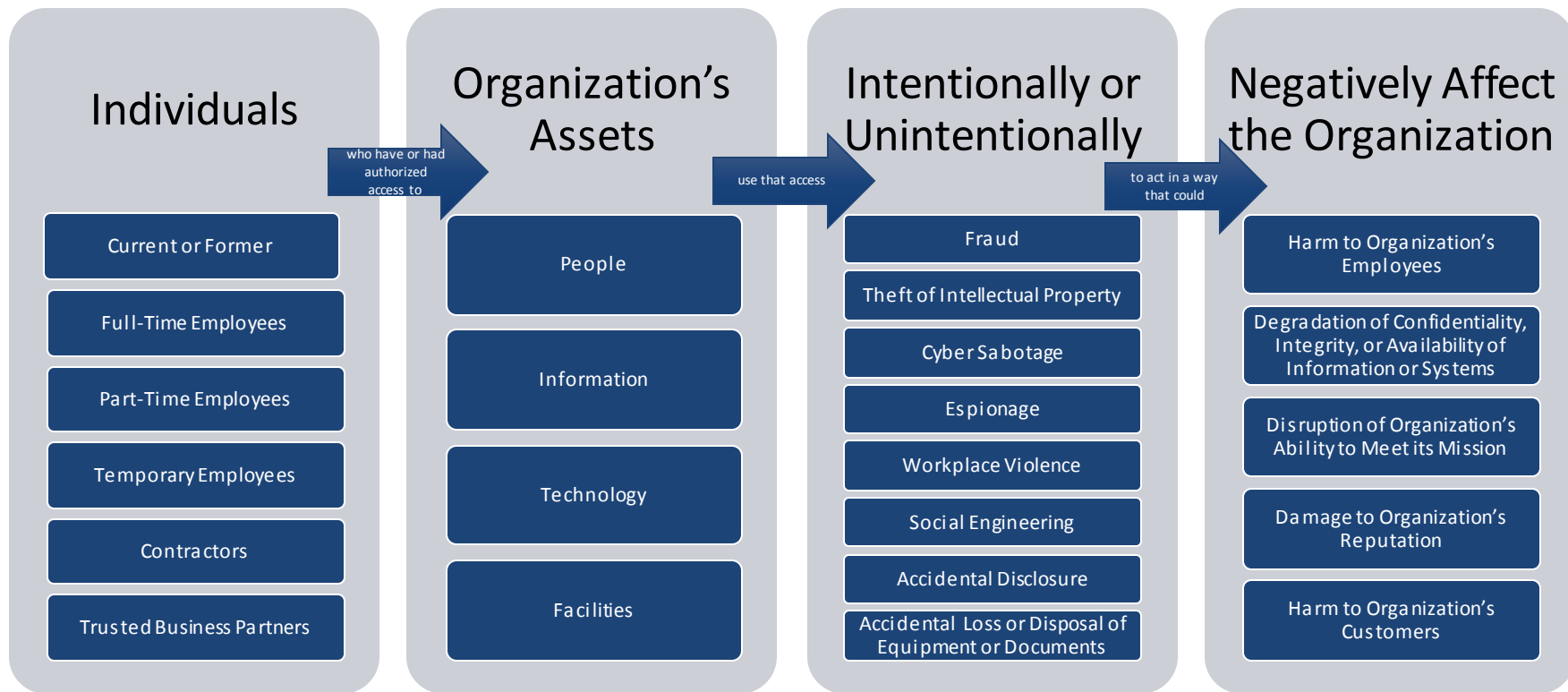


```
Splunk Query Name: Last 30 Days - Possible Theft of IP
Terms: 'host=HECTOR [search host="zeus.corp.merit.lab" Message="A user account was disabled. *" | eval Account_Name=mindex(Account_Name, -1) | fields Account_Name | strcat Account_Name "@corp.merit.lab" sender_address | fields - Account_Name] total_bytes > 50000 AND recipient_address!="*corp.merit.lab" startdaysago=30 | fields client_ip, sender_address, recipient_address, message_subject, total_bytes']
```

# The Insider Threat Defined

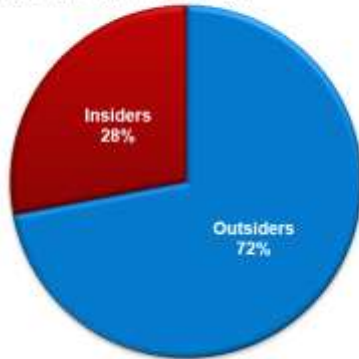
The potential for an individual who has or had authorized access to an organization's assets to use their access, either maliciously or unintentionally, to act in a way that could negatively affect the organization.

# Scope of the Insider Threat

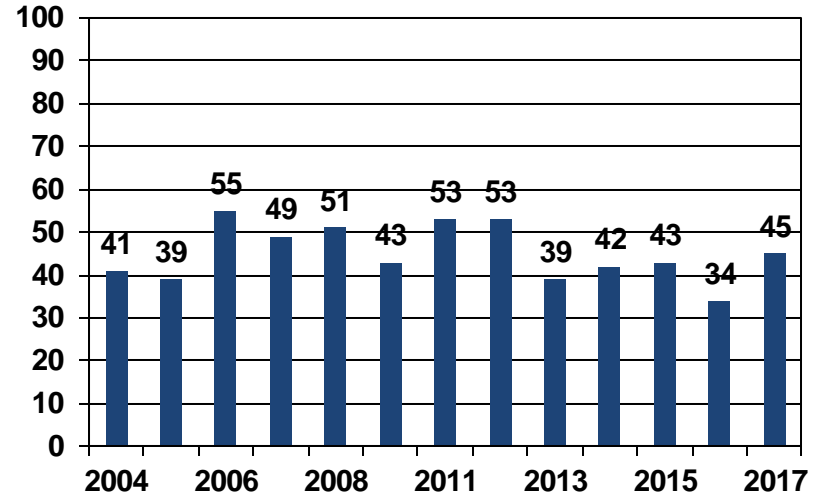


# Scale of the Insider Threat

What percent of the electronic crime events are known or suspected to have been caused by :



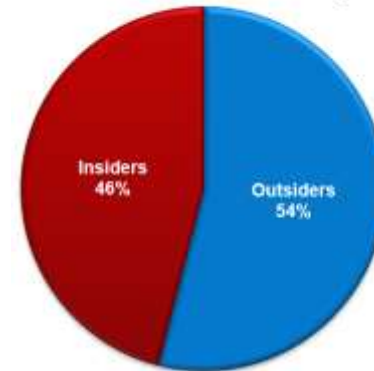
What percentage of organizations experienced an insider incident?



What percentage of certain types of security incidents were perpetrated by insiders?

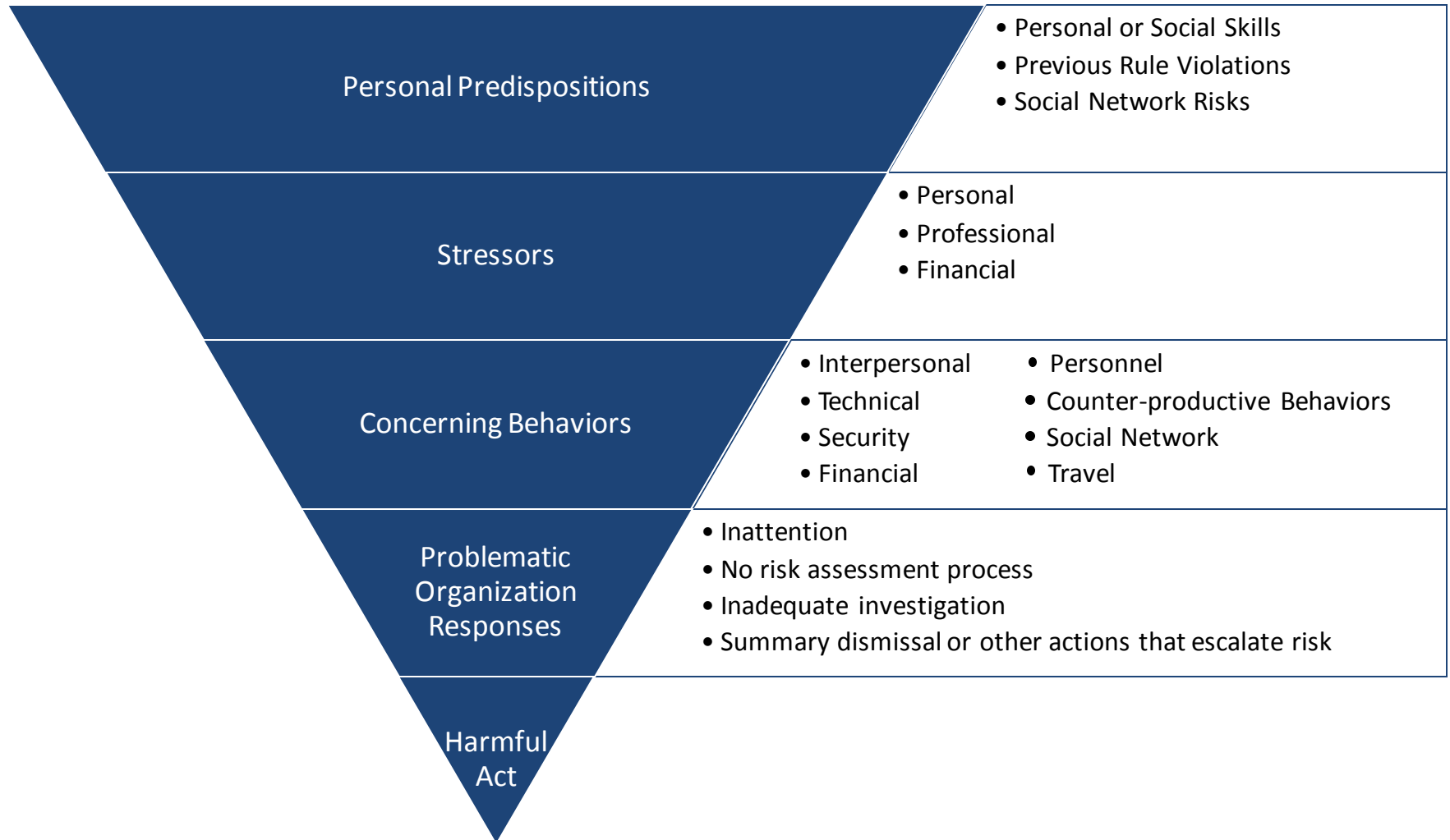
Confidential records (trade secrets or intellectual property) were compromised	79%
Customer records were compromised	79%
Private or sensitive information was intentionally exposed	70%
Theft of personally identifiable information (PII) (customer or partner data)	66%
Systems were sabotaged (deliberate disruption, deletion or destruction of information, systems or networks)	65%
Private or sensitive information was unintentionally exposed	56%

The most costly or damaging crimes were committed by:



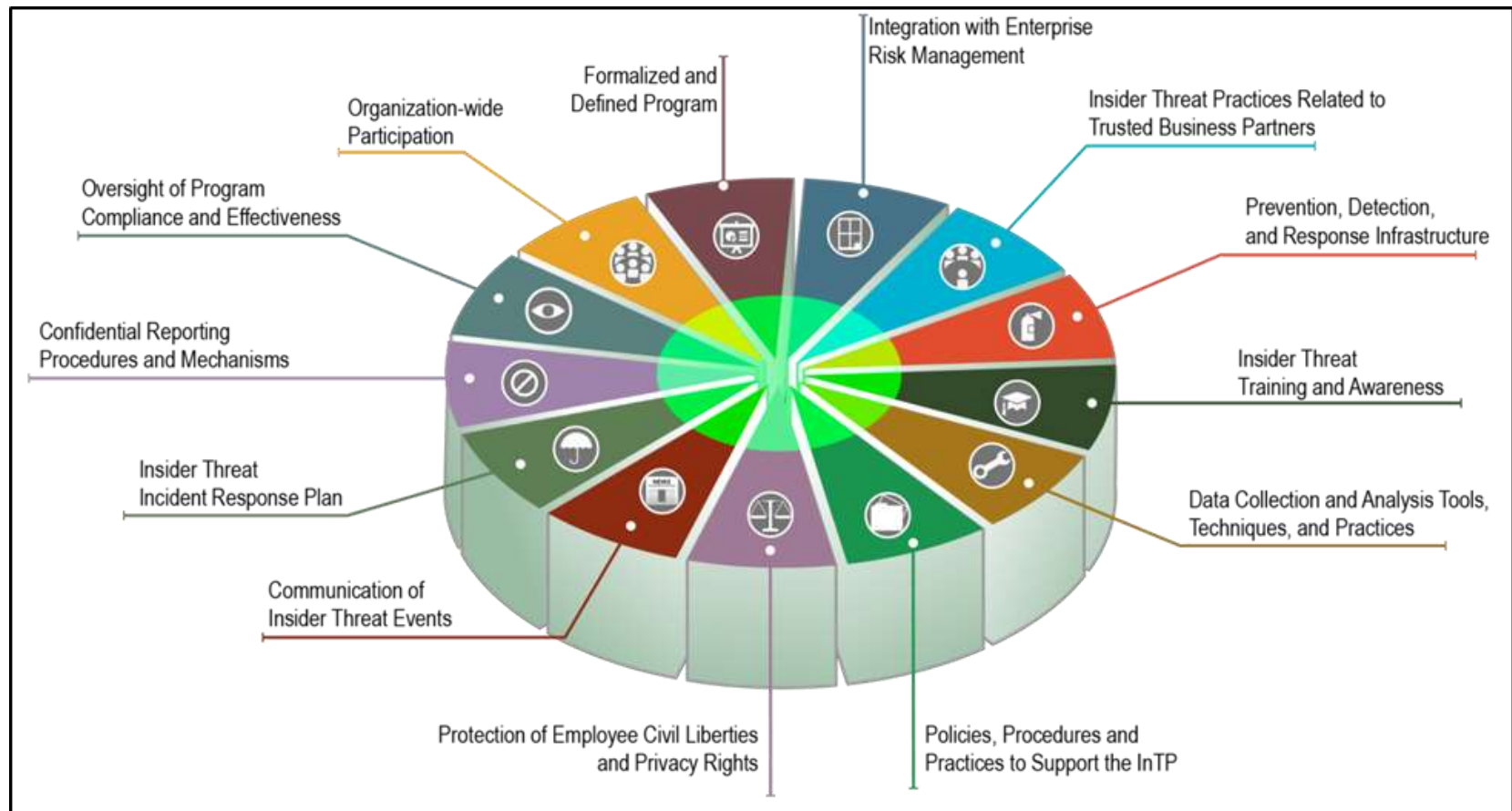
Sources: 2004-2018 U.S. State of Cybercrime Survey, in partnership with KnowBe4, CSO, U.S. Secret Service, and CERT Division of Software Engineering Institute at Carnegie Mellon University

# The Critical Path to Insider Risk



Adapted from Shaw, Eric, and Laura Sellers. "Application of the Critical-Path Method to Evaluate Insider Risks." *Studies in Intelligence* 59.2 (Extracts, June 2015)

# Key Components of an Insider Threat Program



# Challenges to InTP Building

<i>How extensive is the challenge of achieving each of the following for insider risk programs?</i>						
Challenge	Respondent Count	Low	Medium Low	Medium	Medium High	High
Coordinating and communicating across business / operational units	50				✓	
Establishing the insider threat program scope and organizational structure	50			✓		
Ensuring compliance with all applicable legal requirements	50			✓		
Developing policy and formalizing the program	50			✓		
Incorporating insider threat controls for trusted business partners	49				✓	
Obtaining adequate funding for program operation	50					✓
Developing and administering insider threat awareness training	50			✓		
Hiring and retaining qualified insider threat program personnel	48				✓	
Sharing information across the organization's departments / units, including Human Resources (HR)	50				✓	

[https://www.cylab.cmu.edu/\\_files/documents/irm-survey-results-20210331.7.pdf](https://www.cylab.cmu.edu/_files/documents/irm-survey-results-20210331.7.pdf)

# Best Practices from the CERT Common Sense Guide to Mitigating Insider Threats

1 - Know and protect your critical assets.	12 - Deploy solutions for monitoring employee actions and correlating information from multiple data sources.
2 - Develop a formalized insider threat program.	13 - Monitor and control remote access from all endpoints, including mobile devices.
3 - Clearly document and consistently enforce policies and controls.	14 - Establish a baseline of normal behavior for both networks and employees
4 - Beginning with the hiring process, monitor and respond to suspicious or disruptive behavior.	15 - Enforce separation of duties and least privilege.
5 - Anticipate and manage negative issues in the work environment.	16 - Define explicit security agreements for any cloud services, especially access restrictions and monitoring capabilities.
6 - Consider threats from insiders and business partners in enterprise-wide risk assessments.	17 - Institutionalize system change controls.
7 - Be especially vigilant regarding social media.	18 - Implement secure backup and recovery processes.
8 - Structure management and tasks to minimize unintentional insider stress and mistakes.	19 - Close the doors to unauthorized data exfiltration.
9 - Incorporate malicious and unintentional insider threat awareness into periodic security training for all employees.	20 - Develop a comprehensive employee termination procedure.
10 - Implement strict password and account management policies and practices.	21 - Adopt positive incentives to align the workforce with the organization.
11 - Institute stringent access controls and monitoring policies on privileged users.	<a href="http://resources.sei.cmu.edu/library/asset-view.cfm?assetID=540644">http://resources.sei.cmu.edu/library/asset-view.cfm?assetID=540644</a>

# Questions / Open Discussion



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<https://www.sei.cmu.edu/our-work/insider-threat/index.cfm>