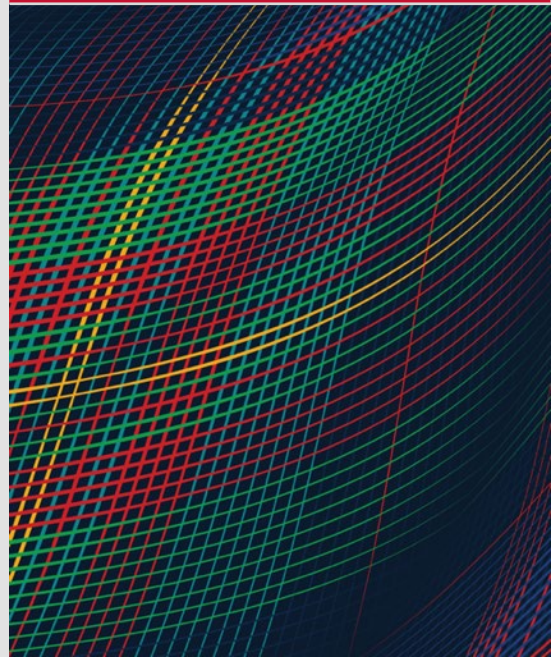
Carnegie Mellon University
Software Engineering Institute

The Critical Pathway to Insider Risk



MARCH 6, 2024

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Principal Researcher

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Agenda

- **What is The Critical Pathway to Insider Risk?**
- **Origins**
- **Research**
- **Use in practice**

Presentation Name

What is “The Critical Pathway to Insider Risk”

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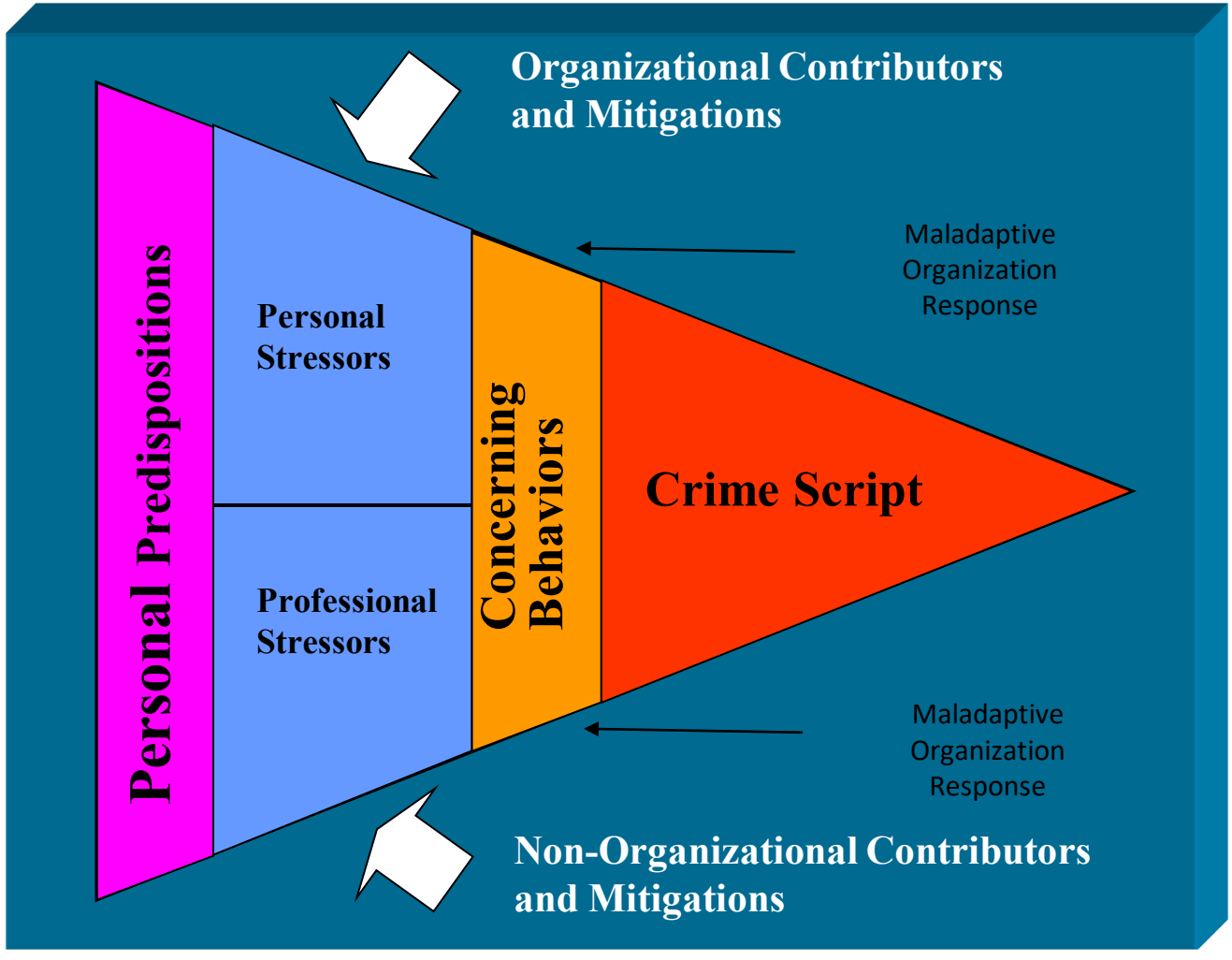

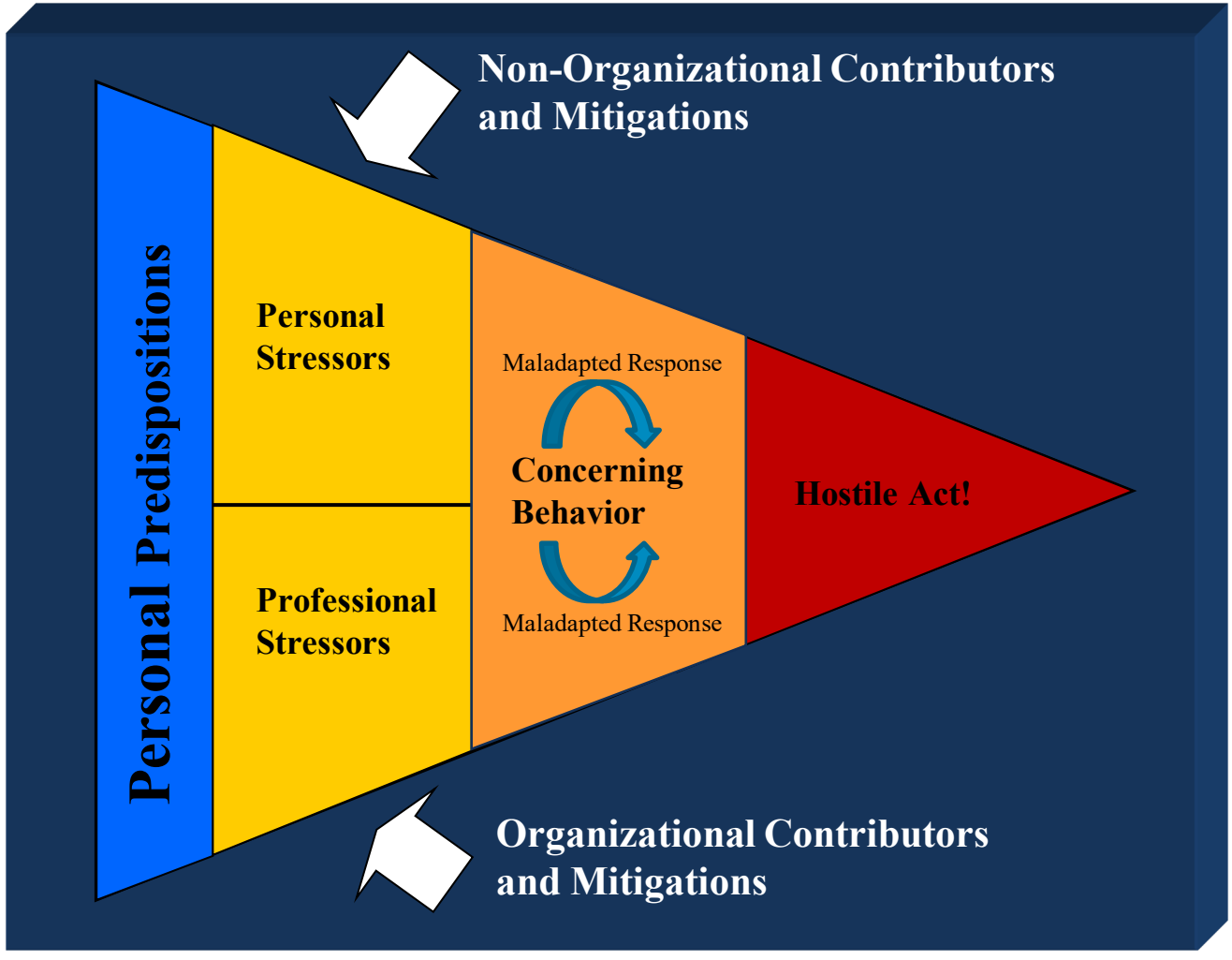

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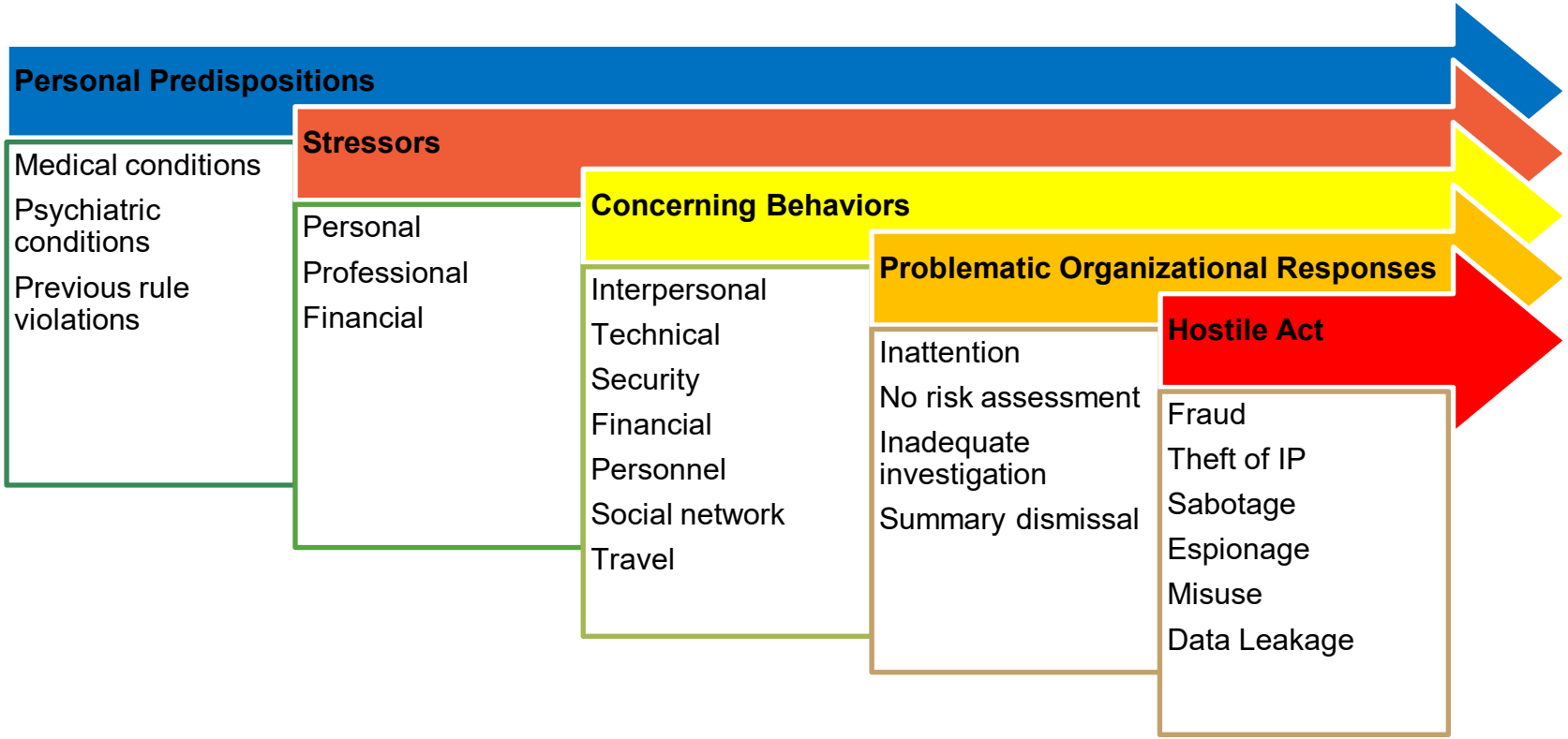

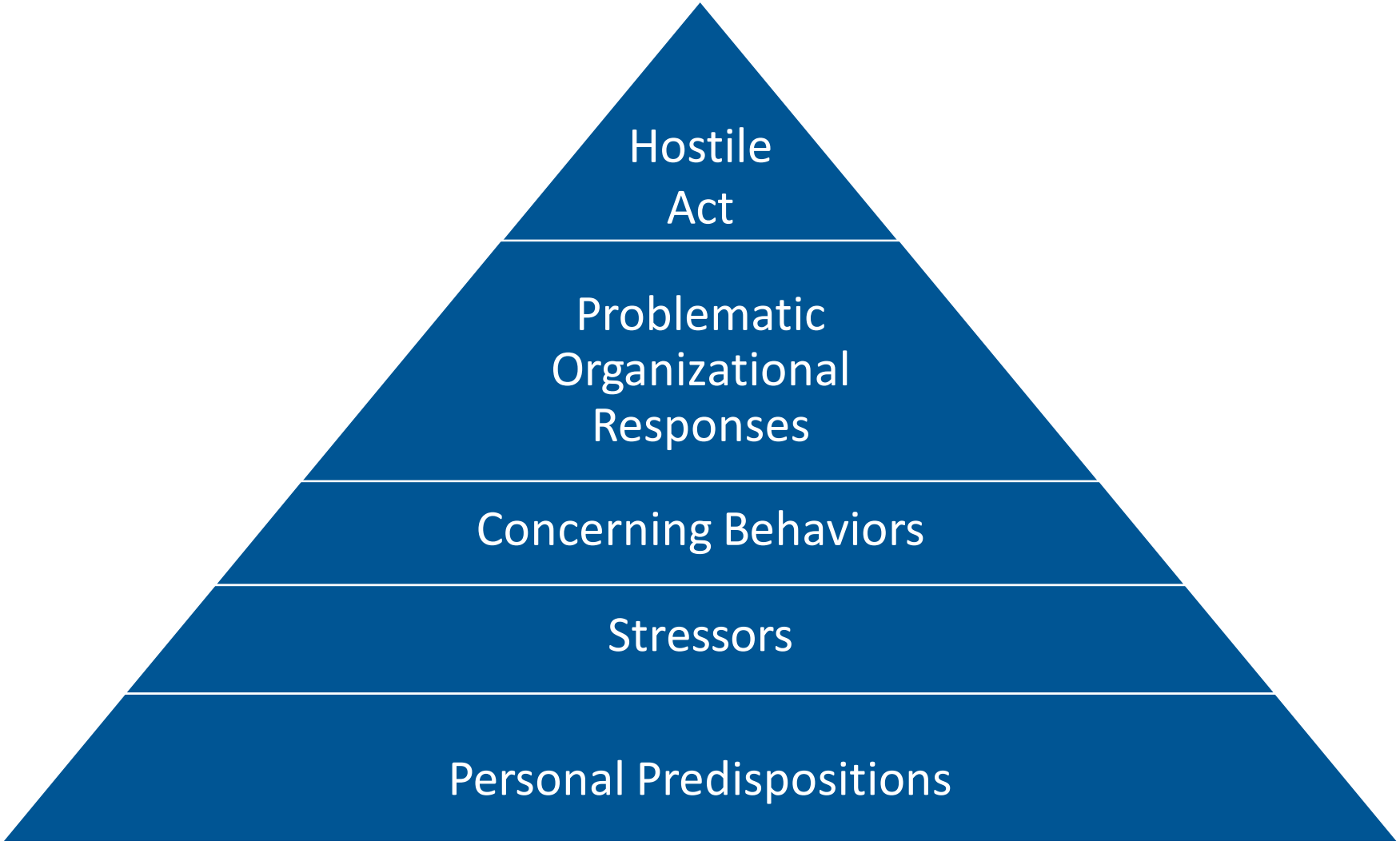

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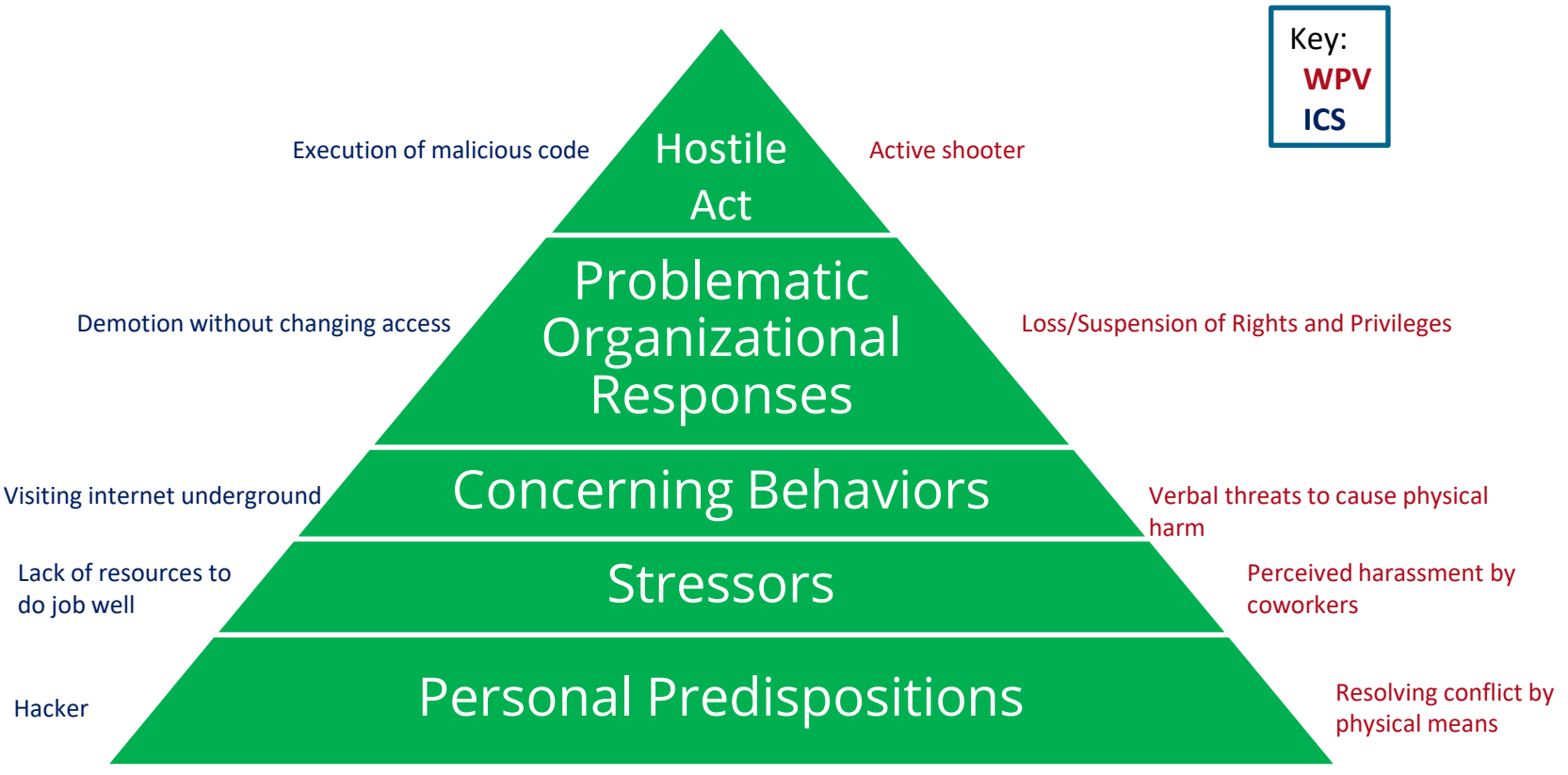
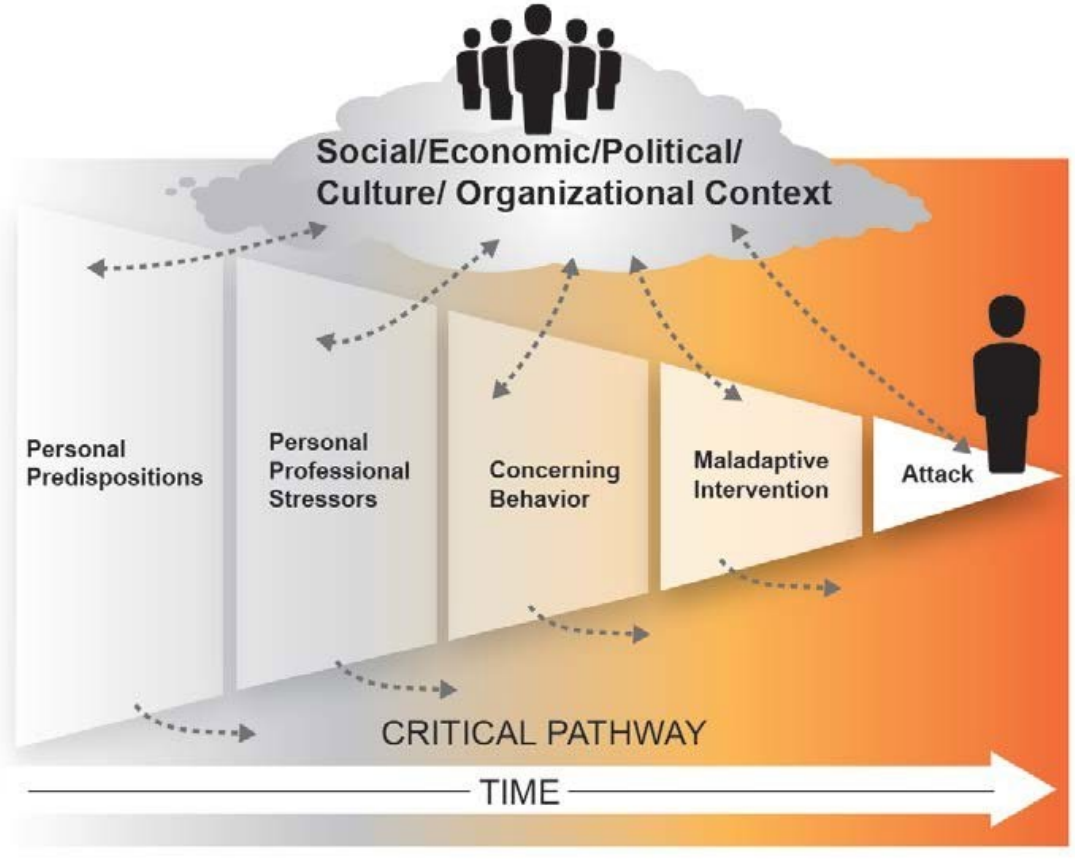


CERT, 2006

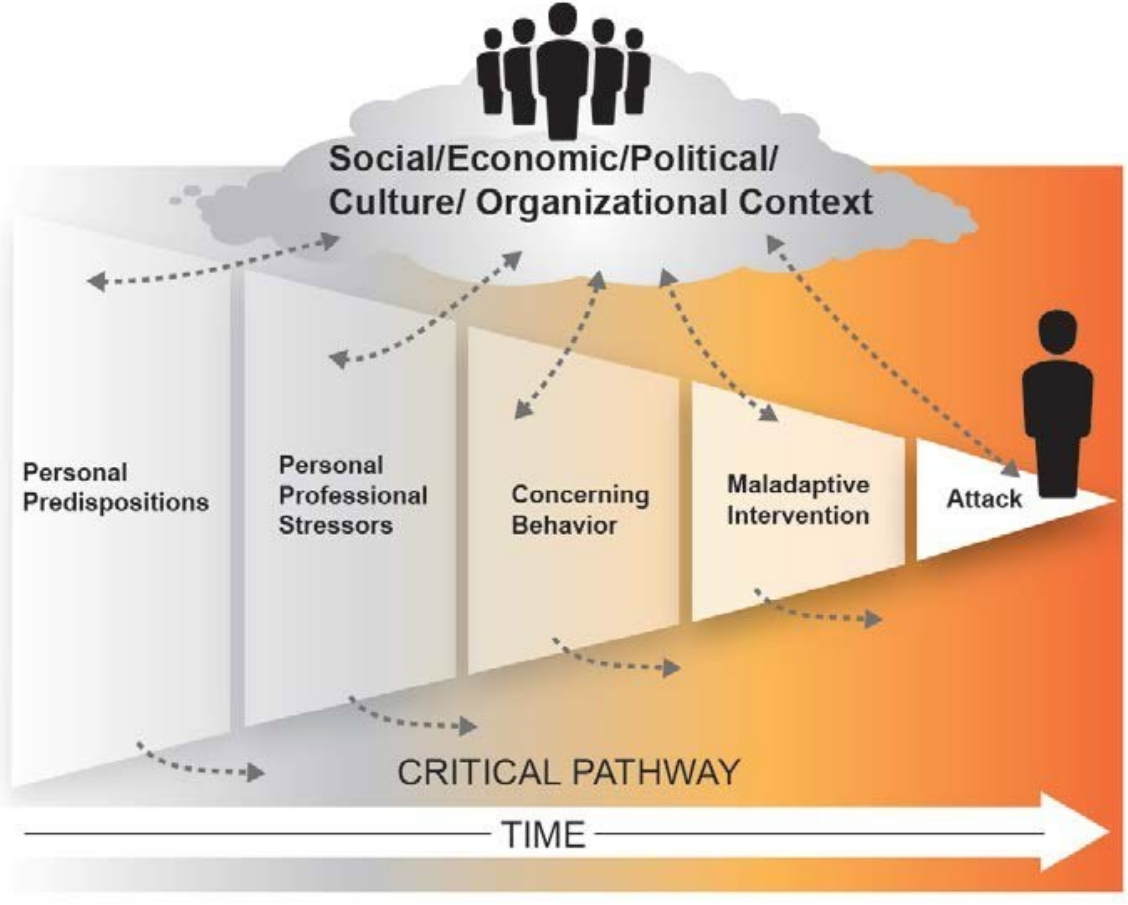
“Critical Pathway to Insider Risk”



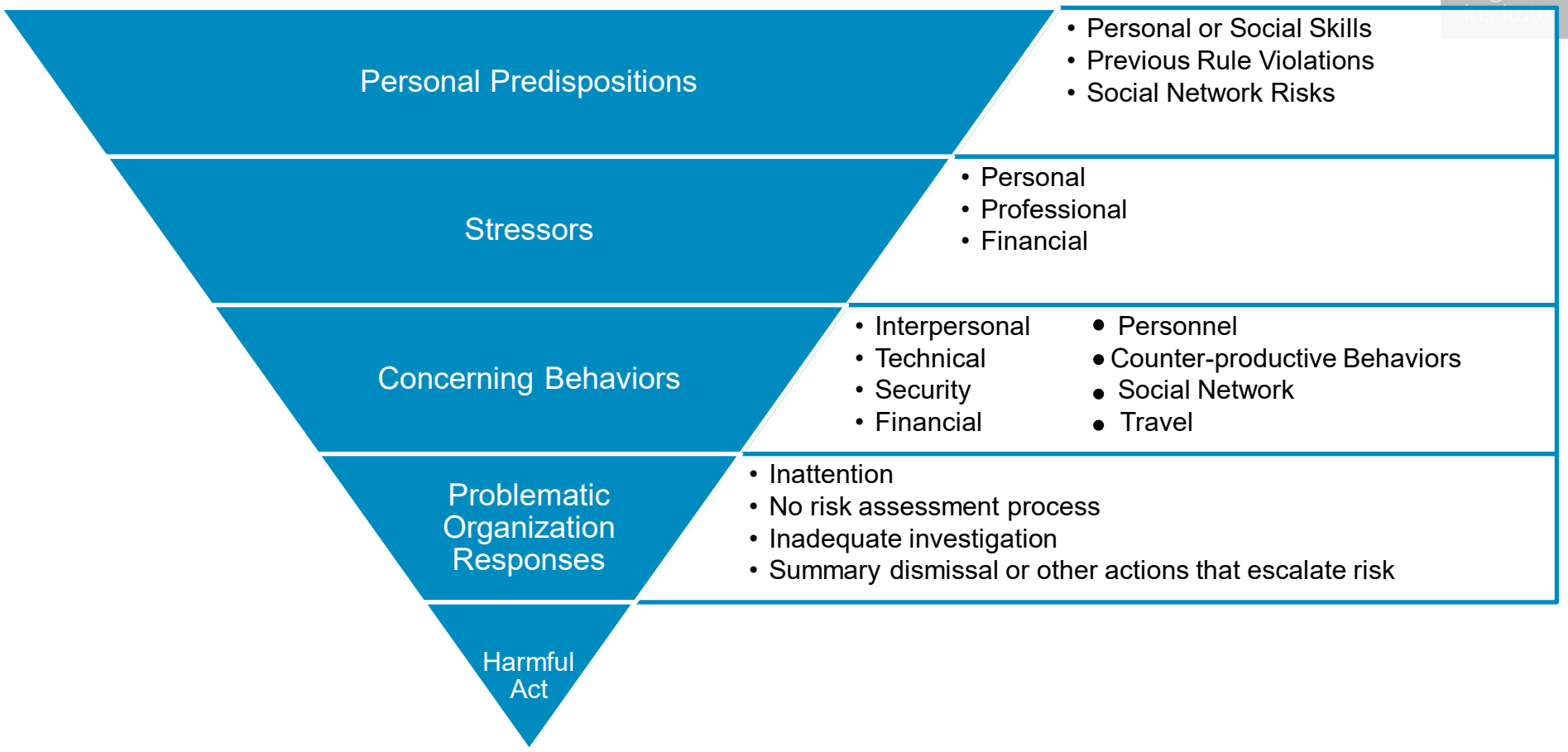
“Critical Pathway to Insider Risk”

Image courtesy of “The Insider Risk Group,” https://www.insiderriskgroup.com/

“Critical Pathway to Insider Risk”



CERT's 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)

The Critical Pathway to Insider Risk

Origins

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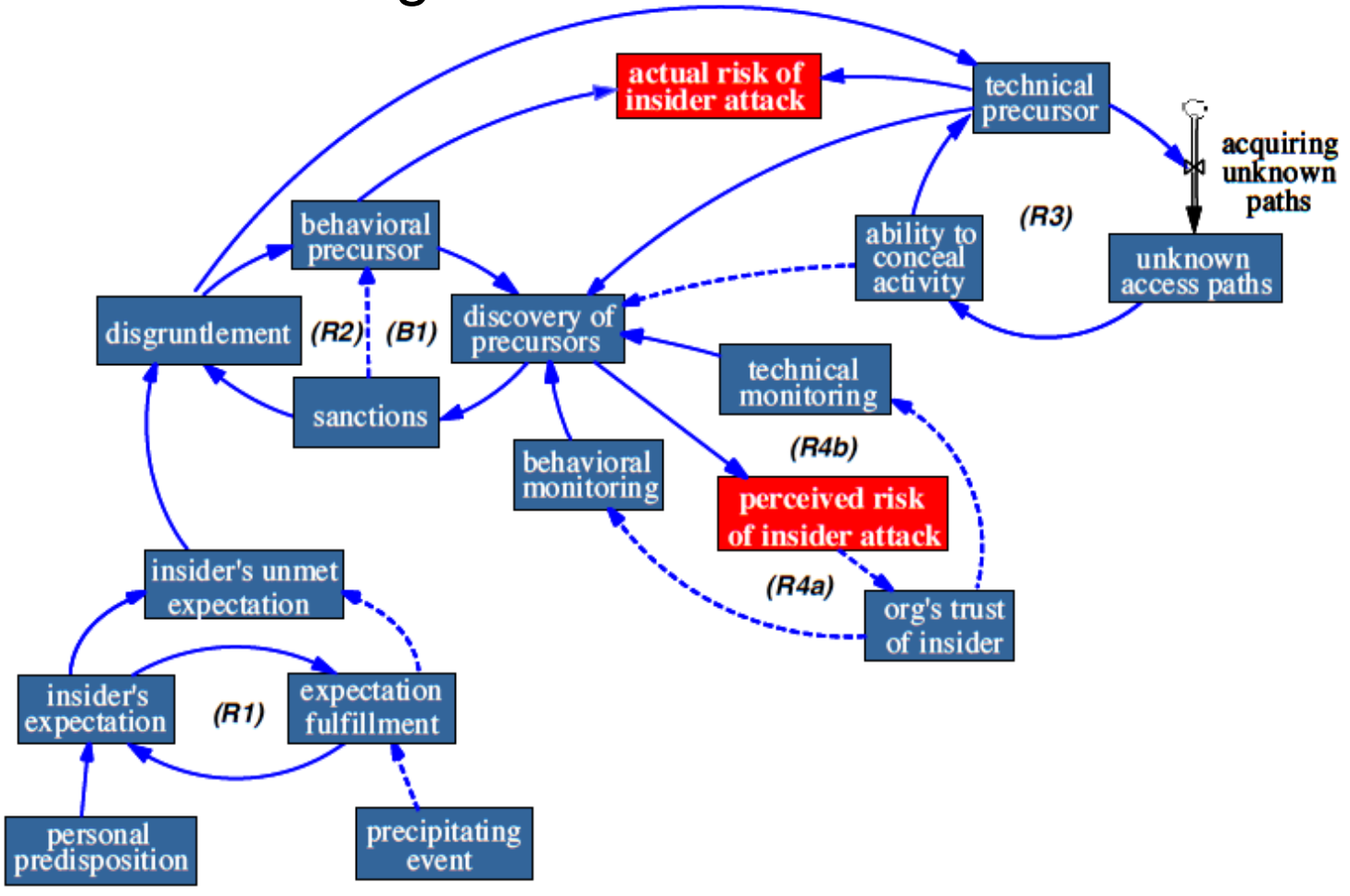
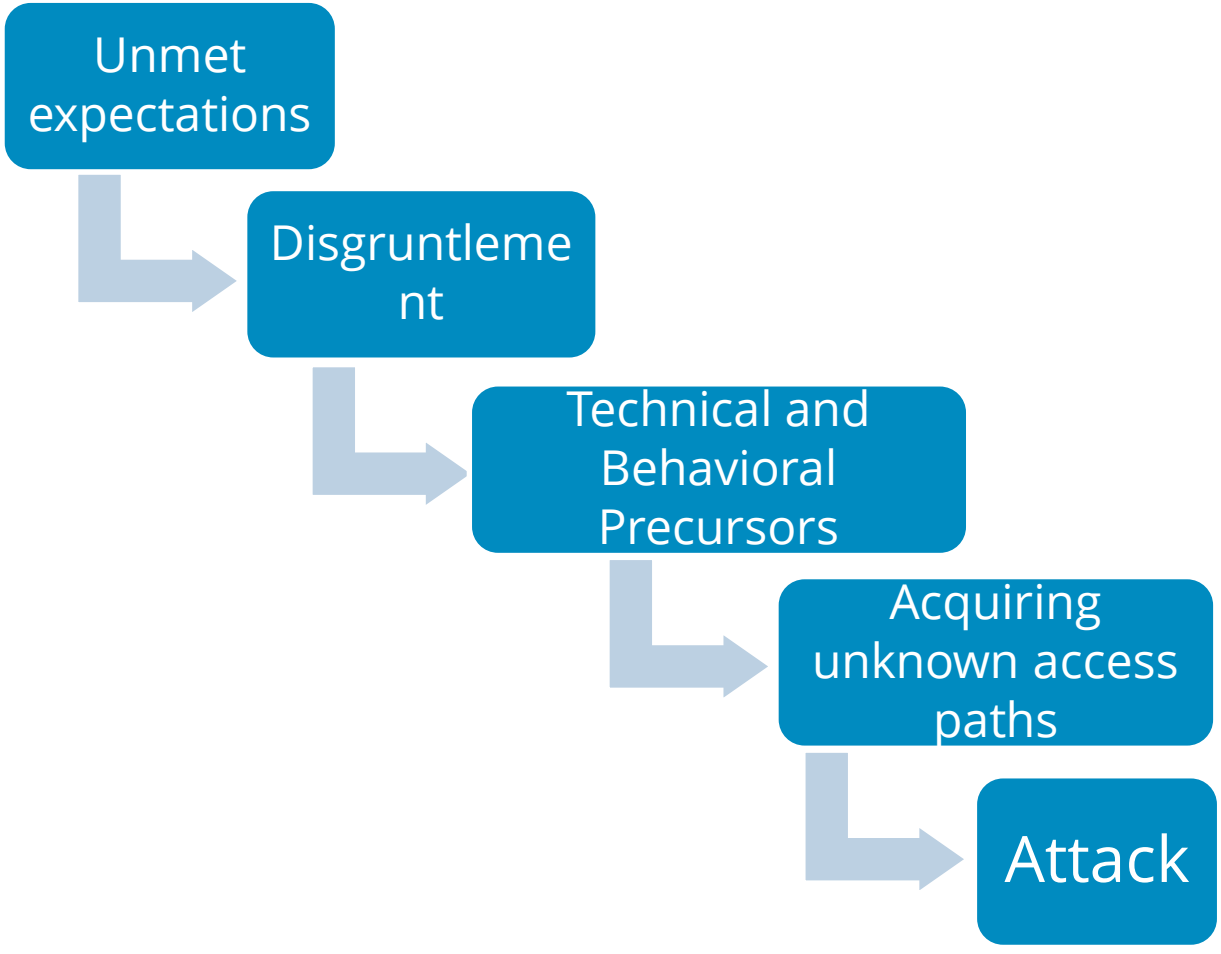
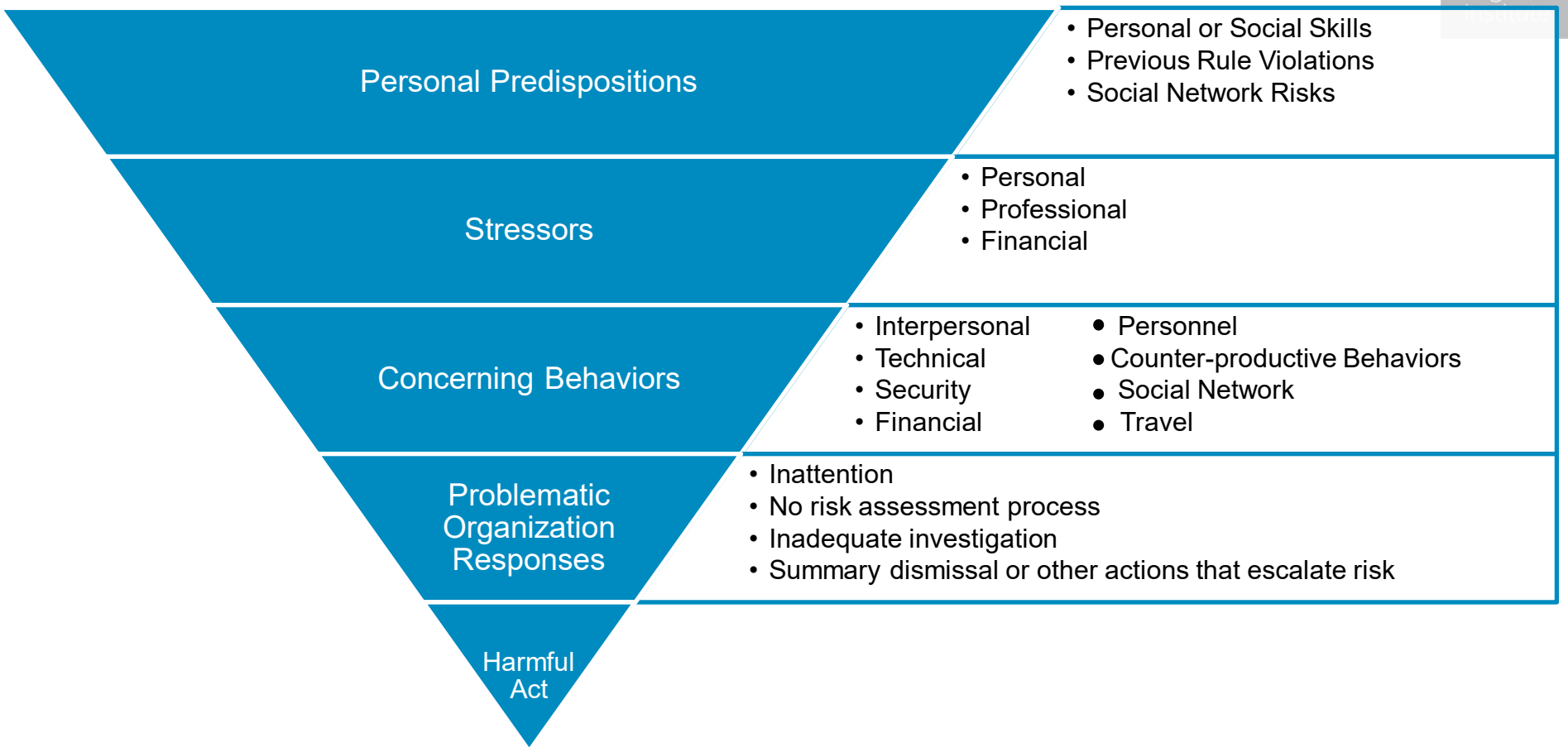
Model: Insider Sabotage



Insider Sabotage Model Simplified



CERT's 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)

Comparing Insider IT Sabotage and Espionage: A Model-Based Analysis

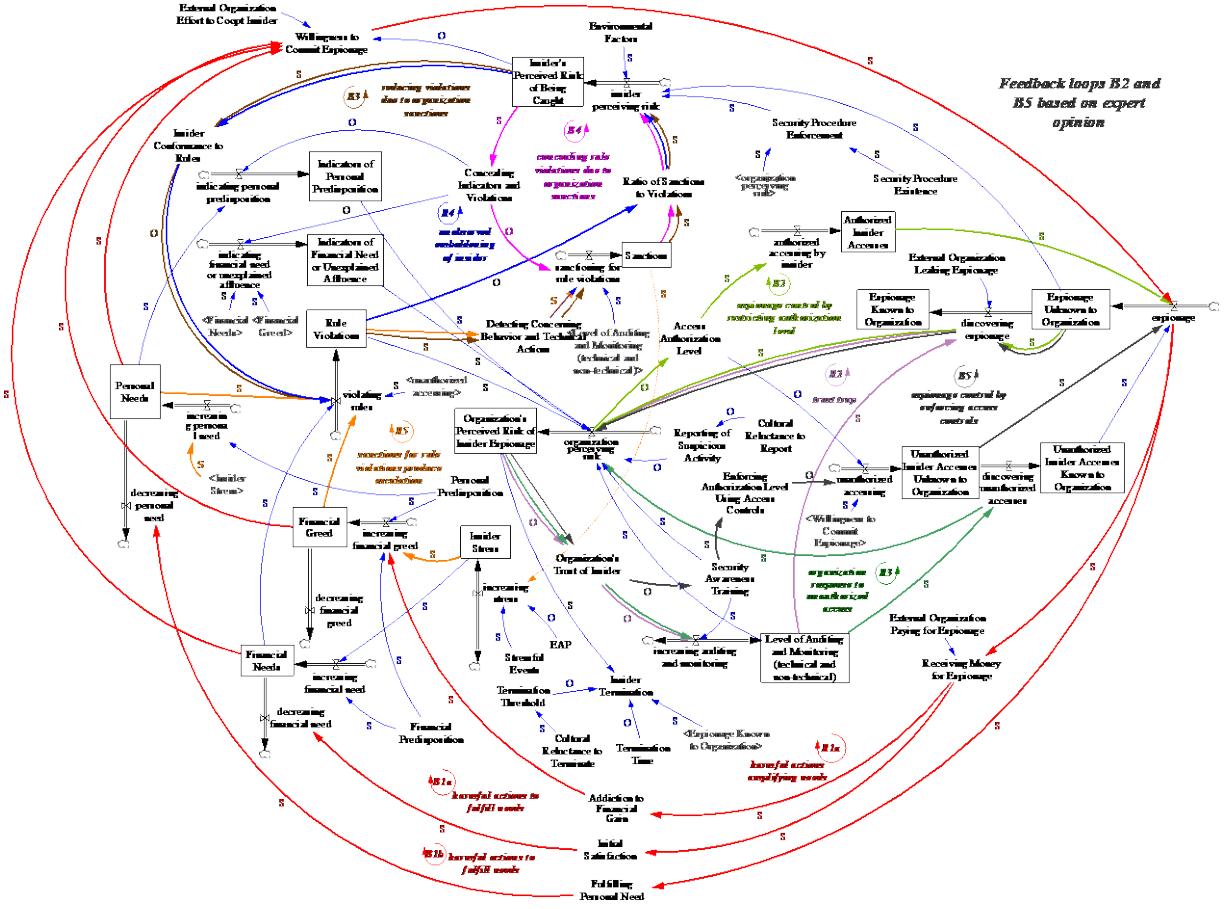
Stephen R. Band, Ph.D. (Counterintelligence Field Activity - Behavioral Science Directorate)
Dawn M. Cappelli (CERT)
Lynn F. Fischer, Ph.D. (DoD Personnel Security Research Center)
Andrew P. Moore (CERT)
Eric D. Shaw, Ph.D. (Consulting & Clinical Psychology, Ltd.)
Randall F. Trzeciak (CERT)

December 2006

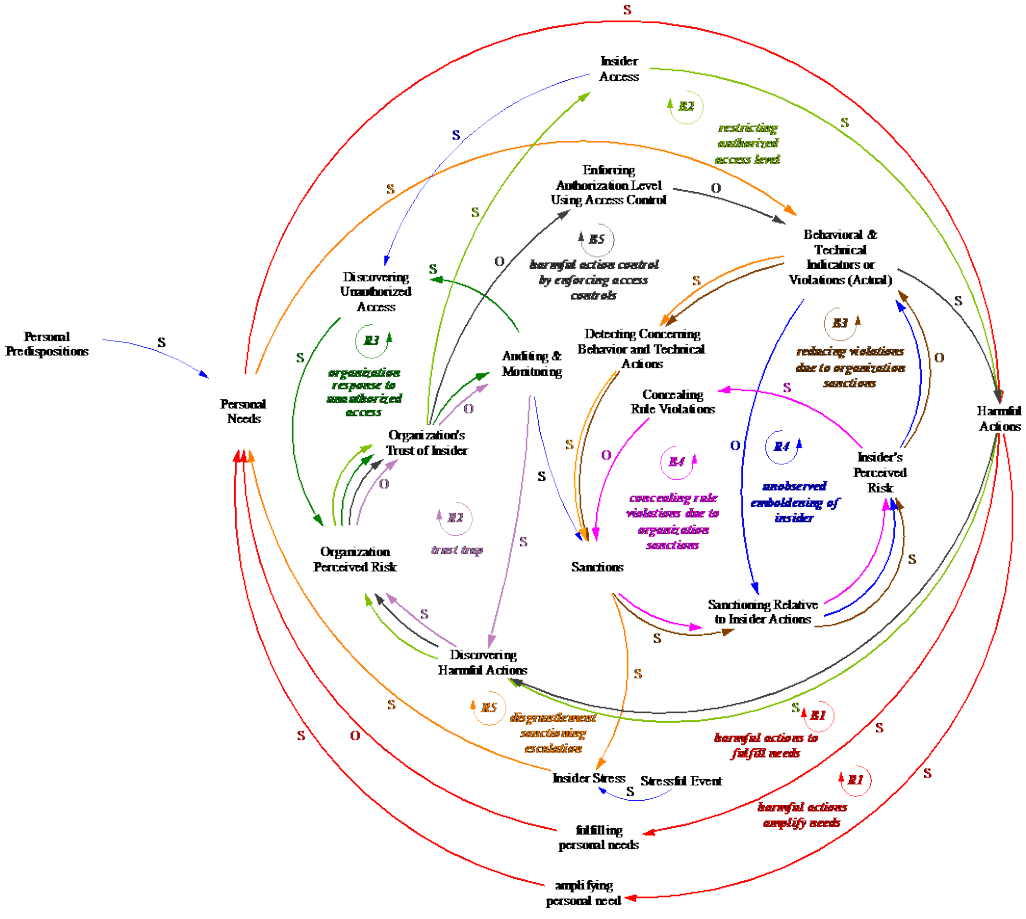
TECHNICAL REPORT
CMU/SEI-2006-TR-026
ESC-TR-2006-091

CERT® Program

2006 PERSEREC-CERT Espionage Model

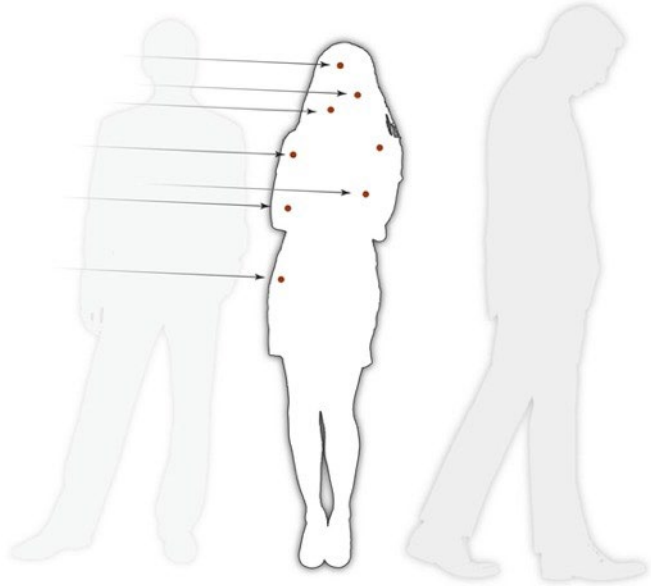


Abstracted Common (Espionage) Model



Behavioral Precursors Observed in Cases

Drug use
Conflicts (coworkers, supervisor)
Aggressive or violent behavior
Web surfing, chat rooms at work
Mood swings
Bizarre behavior
Used organization's computers for personal business
Poor performance
EEO complaint
Absence/tardiness
Sexual harassment
Poor hygiene



Technical Precursors Undetected in Cases

- Downloading and use of “hacker tools” such as rootkits, password sniffers, or password crackers
- Failure to create backups as required
- Failure to document systems or software as required
- Unauthorized access of customers’ systems
- Unauthorized use of coworkers’ machines left logged in
- Sharing passwords with others & demanding passwords from subordinates
- System access following termination
- Refusal to swipe badge to record physical access
- Access of web sites prohibited by acceptable use policy
- Refusal to return laptop upon termination
- Use of backdoor accounts
- Use of organization’s system for game playing, violating acceptable use policy
- Set up every new computer for easy access remotely

The Critical Pathway to Insider Risk

Supporting Research

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Research Through the Years

- Shaw & Fischer, 2005
- Band et al., 2006
- Shaw, 2006
- Shaw, Fischer, & Rose, 2009
- Shaw & Strock, 2001
- Shaw & Sellars, 2015
- Claycomb, W. R., Huth, C. L., Flynn, L., McIntire, D. M., Lewellen, T. B., & Center, C. I. T. (2012). Chronological examination of insider threat sabotage: Preliminary observations. Journal of Wireless Mobile Networks, Ubiquitous Computing, and Dependable Applications, 3, 4–20.

The Critical Pathway to Insider Risk

Use in Practice

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In Practice

Questions

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