

10

STEPS for

The Integrated Model of the Interdisciplinary Research Process

1 Define the Problem.

How can cybersecurity principles and practices be effectively integrated into an organization's culture to improve compliance, reduce risk, and foster proactive security behaviors among employees?

2 Why Interdisciplinary? Why use IRP?

- Technology: understanding tools and cybersecurity principles.
- Management: strategies for implementing technology and policies, and monitoring
- Behavior Sciences: understanding how employees react to new policies or technology

3 Relevant Disciplines

- Cybersecurity: technical, risk assessment, best practices
- Psychology: Behavioral changes, and motivation
- Sociology: group behavior, organization dynamics

4 Literature Search

- Academic Databases: IEEE Xplore, Google Scholar, Pub Med, JSTOR
- Looking for case studies, theoretical frameworks, and data on successful efforts using key terms such as,
 - "cybersecurity awareness"
 - "behavioral cybersecurity"
 - "training in cybersecurity"

5 Adequacy in the Disciplines. (respectively)

- Familiarization with key concepts and theories.
 - NIST, ISO 27001
 - Technology Acceptance Model, Theory of planned behavior
 - Organizational theories: Schien's Model, Denison Model

6 Analyze & Evaluate

- Cybersecurity offers tools & policies, but lacks user engagement
- Psychology highlights intrinsic motivation and habits: patterns.
- Sociology emphasizes peer influence and leadership shaping culture

7 Identify Conflicts

1. Cybersecurity may be rigid, while behavioral sciences suggest personalization & flexibility.
2. Organizational cultures often prioritize productivity over security, creating opposing organizational goals.
3. Many Training programs fail to inspire long-term behavioral change.

8 Common Ground

- Combining technical frameworks and behavioral theories to design user-friendly security policies.
- Aligning business goals with security priorities by framing cybersecurity as a productivity enabler than a hindrance.
- Improve training with sociological insights rather than relying solely on data analytics.

9 Constructing Comprehensive Understanding

Develop a multi-layered model for integrating cybersecurity into organizational culture

1. Establish clear leadership committed to cybersecurity.
2. Design flexible, user-centered security policies.
3. Training programs that incorporate behavioral science
4. Leverage peer influence and recognition to reinforce security practices
5. Adapt and align cybersecurity goals with organizational objectives

10 Reflect, Test, Communicate Understanding

- Reflect: Evaluate if interdisciplinary approach address all dimensions of the problem
- Test: Pilot model in small organizational unit, discover and collect data on effectiveness
- Communicate: Publish results, create presentations for conferences, and develop guides