Information Security Management 101: The Fundamentals

Mapping Key Strengths and Areas of Ownership to Resources

Agenda

- Scenarios
- An ISO Approach
- Key Strengths and Areas of Ownership
- Resources

Scenarios

Where Are You?

- You're not working in infosec yet, but you desperately want to move into that field.
- You're a newly minted CISSP with your eyes on a position in infosec management / leadership.
- You've recently accepted an infosec management / leadership position in a company that doesn't have an established (formalized) security program.
- You've been in security management / leadership for years, and you want to take a step back and look at the entire program to determine whether or not you're covering all the bases.
- You've recently made a move into consulting, and you want to ensure that your service offerings are appropriate for large enterprises and small / medium businesses.

An ISO Approach

Key Points About ISO 27k

- International Standard
  - Actually, sixteen (16) standards
  - 27000 – 27008, 27010 – 27011, 27031, 27033-1, 27044-1, 27035
  - 27799: ISO27k for the healthcare industry

- **27001**: Information technology -- Security techniques -- *Information security management systems -- Requirements*

- **27002**: Information technology -- Security techniques -- *Code of practice for information security management*
  - *Twelve (12) categories of security management*

- Formal Certification vs. Informal Adoption
  - Your mileage may vary

ISO Security Management Categories

- Risk Management
- Policy Management
- Security Organization Management
- Asset Management
- HR Security Management
- Physical Security Management
- Security Operations Management
- Access Management
- Information Security Systems Management
- Security Incident Management
- Business Continuity Management
- Compliance Management

Today's Approach

- Ask questions
- Identify controls
- Build your checklist
  - Starting point
  - In the end, it's about trust and discipline

Plan-Do-Check-Act (PDCA)

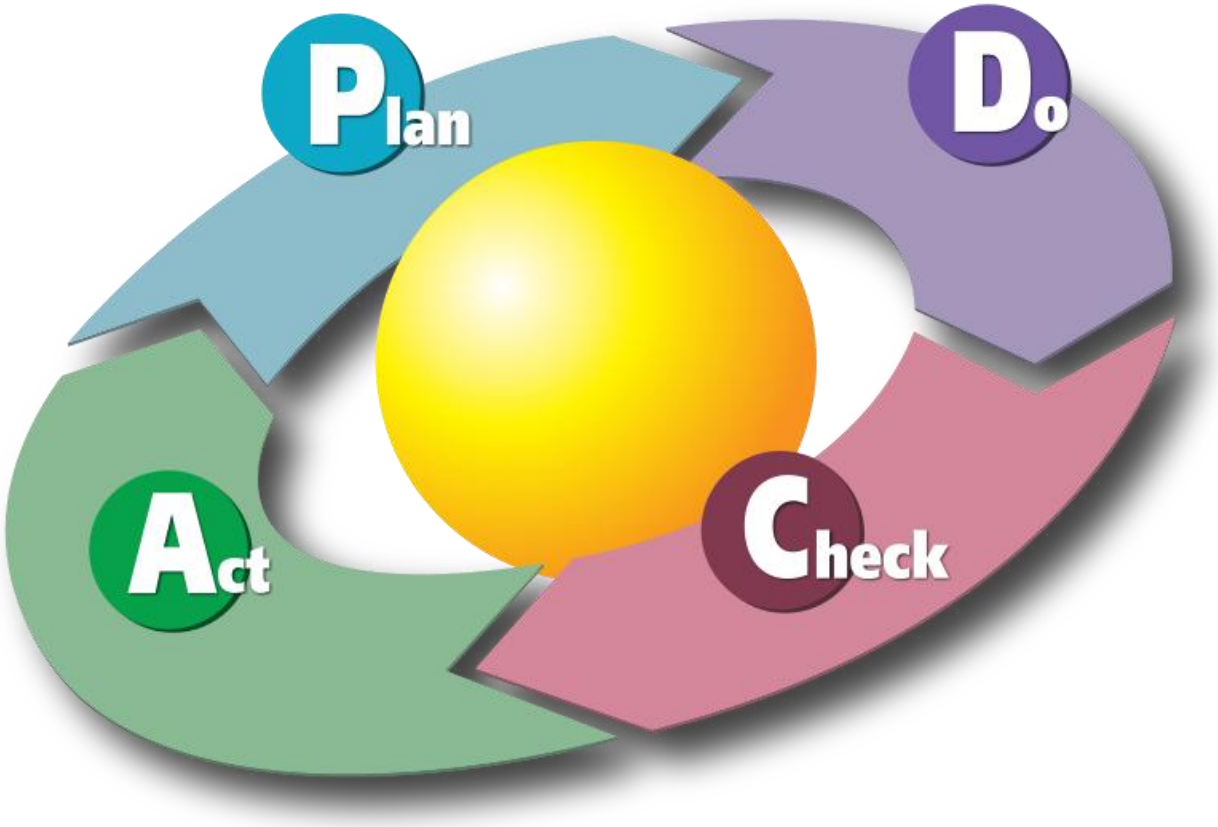


Diagram by Diagram by Karn G. Bulsuk (http://www.bulsuk.com)

Risk Management

- Questions
  - What could go wrong?
  - How do our controls stack up?
  - Are we spending a dollar to protect a dime?
  - What's our risk appetite?

- Controls
  - Perform a risk assessment
    - Risk = Likelihood x Impact
    - NIST (800-37)
    - FAIR (Factor Analysis of Information Risk)

Policy Management

- Questions
  - What rules do we expect our employees to follow?
  - How do we do what we do?

- Controls
  - Policies, Standards, Procedures
    - Policy = Rules, high level
    - Standard = Technical requirements, detailed
    - Procedure = Step-by-step instructions
  - Starting point = three(3) critical policies
    - Information Security Policy
    - Data Classification Policy
    - Acceptable Use Policy
  - If you expect employees to know what's expected of them, you have to write it down!

Security Organization Management

- Questions
  - Who's going to do all this?

- Controls
  - Executive Sponsorship
  - Information Security Steering Committee
  - Information Security Team
    - Internal vs. External (NDA!)
    - Matrixed

Asset Management

- Questions
  - What information assets do we have?
  - How do systems enter the organization?
  - What do we do with retired systems?

- Controls
  - Asset tracking system
    - Discovery
    - Inventory
  - Technology Purchase Request form

HR Security Management

- Questions
  - Do we have job descriptions for the security team?
  - Do our employees really know what's expected of them?
  - Should we be doing background checks or credit checks on any employees?

- Controls
  - Job Descriptions
    - Manager, Senior Analyst, Analyst
  - Non-Disclosure Agreement (NDA)
  - Security Awareness Training
  - Onboarding and Separations Procedures

Physical Security Management

- Questions
  - What's our perimeter?
  - Could someone walk into any of our locations and take something that doesn't belong to them?

- Controls
  - Locks
    - Sensitive areas
  - Badges
    - Employee, Contractor, or Visitor?
  - Physical Security Assessment

Security Operations Management

- Questions
  - Who's responsible for the day-to-day security stuff?
  - What exactly is the day-to-day security stuff?

- Controls
  - Security Operations Procedures
    - Change Control
  - Antimalware
  - Encryption
  - Logging and Monitoring
    - Enabled, centralized, and detailed

Access Management

- Questions
  - Does everyone have access to what they need in order to do their jobs?
  - Can unmanaged devices attach to our network?

- Controls
  - Principle of least privilege
  - Centralized user directory
  - Access reviews
  - Password management
  - Lock screens
  - Multi-factor authentication
  - Port security

Information Security Systems Management

- Questions
  - How do we secure new systems before we add them to our network?
  - Do we have production data in non-production systems?

- Controls
  - System hardening process
  - Software Development Lifecycle (SDLC)
  - Change control procedures
    - Change Approval Board (CAB)
  - Vulnerability management procedures
    - Development, QA, Production
    - Scan EVERYTHING (hosts, databases, apps)
    - Penetration testing (validate your controls)

Security Incident Management

- Questions
  - What could go wrong?
  - What's already gone wrong?
  - What do we do when something goes wrong?

- Controls
  - Security Incident Response
    - One Policy
    - Many Procedures
  - Security Information Event Management (SIEM) system
  - Training
    - End User Security Awareness
    - Incident Response
    - Forensics
  - Tabletop Exercises

Business Continuity Management

- Questions
  - How will we recover from a disaster?
  - How will we keep the business going during the recovery process?

- Controls
  - Disaster Recovery Plan
  - Business Continuity Plan
  - Backups
  - Tabletop Exercises

Compliance Management

- Questions
  - What do I need to comply with?
    - HIPAA, PCI, NERC/FERC, SOX, COPPA, etc.
    - External and Internal
- Controls
  - Documented Compliance Procedures
    - Who is responsible for what?
    - When is it due?
  - Unified Compliance Framework
  - Audits
    - External and Internal
    - Scheduled, non-intrusive, and independent

Key Strengths and Areas of Ownership

Skillset Groupings

Business (People)	Process	Technical (*ology)
Security Organization	Risk	Physical
	HR Security	Asset
	Business Continuity	Security Operations
	Security Incident	Information Security Systems
	Policy	
	Compliance	

This chart identifies key strengths, which align with areas of ownership.

Business Skillset

- “People person”
- Information security governance
- Compliance and regulatory knowledge
- Understand integration points among business, security, and compliance
- Managing people
- (ISC)2 CISSP and/or ISACA CISM
  - Hardcore = SANS Masters Degree in Information Security

Process Skillset

- Accountant
- Blend of business and technology
- Policies, standards, procedures
- Understanding of business process flows
- ISACA CISA

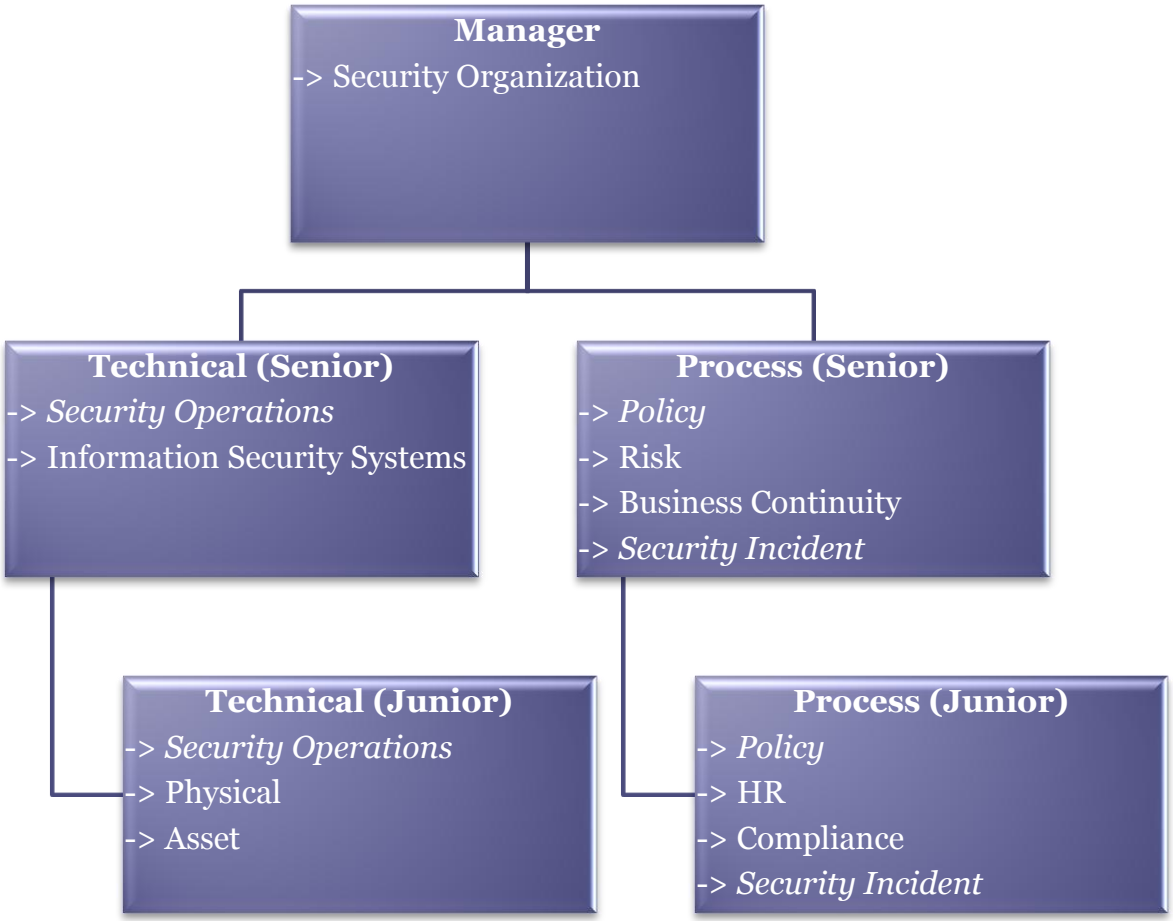
Technical Skillset

- Geek / Nerd
- System administration
- Active in technical/security user groups
- Deep knowledge of specific technologies
- (ISC)2 CISSP + Specific tech certs

Core Team

- Manager
  - Business-oriented, with understanding of tech and process
  - The buck stops here
  - Strategic
- Senior
  - Highly Technical and Process-Oriented, with business knowledge
  - Primary and Secondary
  - Strategic + Tactical
- Junior
  - Technical and Process-Oriented
  - Primary and Secondary
  - Tactical + Operational

Sample Org Chart



Resources

Resources

- Wikipedia
  - http://en.wikipedia.org/wiki/ISO/IEC_27001
  - http://en.wikipedia.org/wiki/ISO/IEC_27002
- International Organization for Standardization
  - ISO/IEC 27001:2005
    - http://www.iso.org/iso/catalogue_detail?csnumber=42103
  - ISO/IEC 27002:2005
    - http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=50297
- The ISO 27000 Directory
  - http://www.27000.org/iso-27001.htm
- ISO 27001 Security <- GREAT starting point
  - http://www.iso27001security.com/

More Resources

- Other Frameworks
  - COBIT (IT Governance)
    - http://www.isaca.org/Knowledge-Center/COBIT/Pages/Overview.aspx
  - ITIL (IT Service Management)
    - http://www.itil-officialsite.com/
  - Unified Compliance
    - https://www.unifiedcompliance.com/

- Risk Management
  - NIST
    - http://csrc.nist.gov/publications/nistpubs/800-30/sp800-30.pdf
    - http://csrc.nist.gov/publications/drafts/800-30-rev1/SP800-30-Rev1-ipd.pdf
    - http://csrc.nist.gov/publications/nistpubs/800-37-rev1/sp800-37-rev1-final.pdf
    - http://csrc.nist.gov/publications/nistpubs/800-53-Rev3/sp800-53-rev3-final_updated-errata_05-01-2010.pdf
  - FAIR
    - http://www.cxoware.com/
    - http://fairwiki.riskmanagementinsight.com/

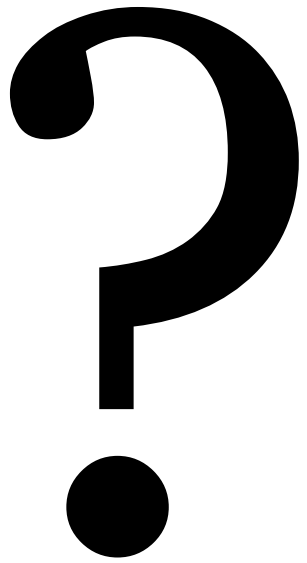
Even More Resources

- SANS 20 Critical Security Controls
  - http://www.sans.org/critical-security-controls/
- GIAC Certified ISO-27000 Specialist
  - http://www.giac.org/certification/certified-iso-27000-specialist-g2700
- Australian Department of Defence Top 35 Mitigation Strategies
  - http://www.dsd.gov.au/infosec/top35mitigationstrategies.htm
- Information Security… Simplified
  - http://www.infosecsimplified.com/
- IT Security Career
  - http://www.itsecuritycareer.com/

Professional Organizations

- ISSA (Information Systems Security Organization)
  - http://www.issa.org/
- ISACA (Information Systems Audit and Control Association)
  - https://www.isaca.org/
- SANS
  - http://www.sans.org/
- InfraGard
  - http://www.infragard.net/
- OWASP (Open Web Application Security Project)
  - https://www.owasp.org/

Questions / Contact Info



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