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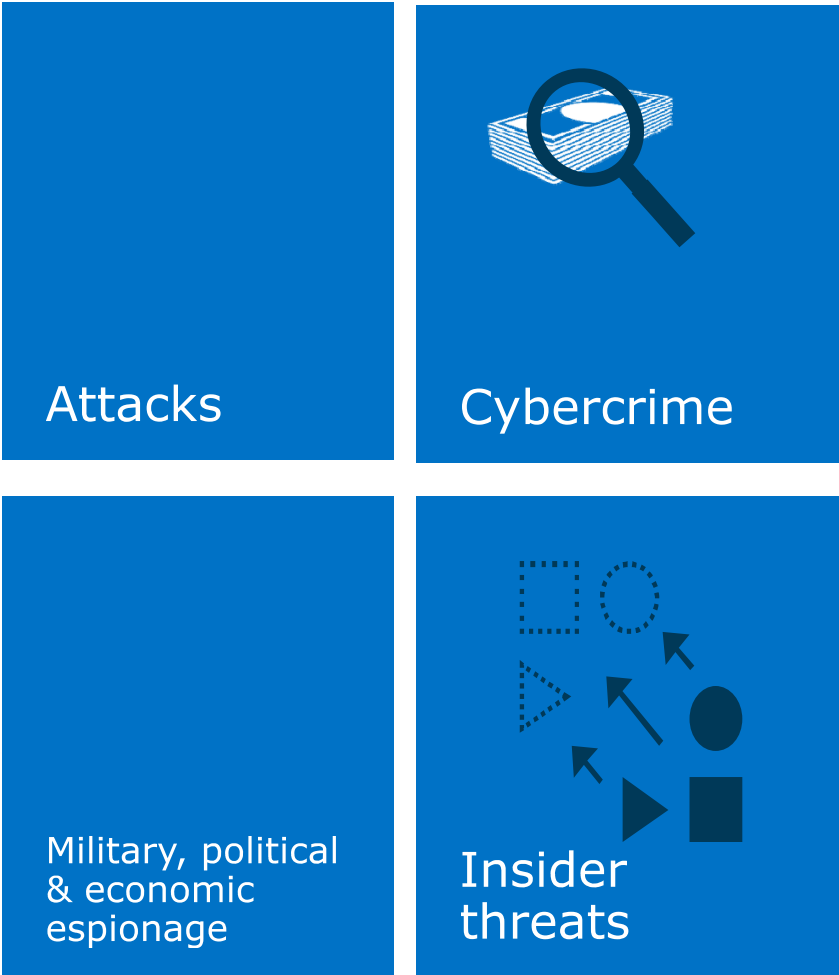


## Cybersecurity: Board Preparedness







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# Threat and Risk Models



# The Actors

|            | HACKTIVISM                                                                             | CRIME                                                                                                                | INSIDER                                                                                          | ESPIONAGE                                                                                                                          | TERRORISM                                                                                                           | WARFARE                                                                                                                  |
|------------|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| THREATS    |       |                                     |                |                                                 |                                  |                                       |
| MOTIVATION | Hackers use computer network exploitation to advance their political or social causes. | Individuals and sophisticated criminal enterprises steal personal information and extort victims for financial gain. | Trusted insiders steal proprietary information for personal, financial, and ideological reasons. | Nation-state actors conduct computer intrusions to steal sensitive state secrets and propriety information from private companies. | Terrorist groups sabotage the computer systems that operate our critical infrastructure, such as the electric grid. | Nation-state actors sabotage military and critical infrastructure systems to gain an advantage in the event of conflict. |

# The Anatomy of a Hack



# Who Is Responsible for the Threats?

- Global organized crime
- Hackers
- “Hacktivists” (hackers with a cause, e.g., Anonymous)
- Careless employees
- Malicious insiders (e.g., Snowden, disgruntled and departing employees)
- State-sponsored actors (China, Russia, Iran, etc.)

# What Laws Are Involved?

- GLBA, FTC Act, HIPAA, FCRA, etc.
- Executive Orders
- An expanding array of federal agencies: FTC, SEC, CFTC, CCC, FFIEC, FCC, etc.
- State information security laws and regulation requiring “reasonable” security
- Data breach notification laws
- Negligence standards
- International data protection, data breach notification, and data security laws

# NIST Cybersecurity Framework

- Five core functions for dealing with cybersecurity risk:
  - identify, protect, detect, respond, recover
- Voluntary framework
- “Attestation” of compliance being developed by private sector
- NIST released request in December 2015 for information on implementation of NIST and whether there is a need for a Cybersecurity Framework 2.0.

# NIST Framework Is Major Call to Action

- Aimed at helping organizations:
- (1) **identify** cybersecurity risks and vulnerabilities
- (2) **protect** critical infrastructure assets
- (3) **detect** the occurrence of a cyber event
- (4) **respond** to a detected event
- (5) **recover** from a cyber event
- Draws on, correlates and does not supersede existing standards: ISO, COBIT, prior NIST publications, etc.
- Defines “implementation tiers” (via self assessment)



# SEC Commissioner Aguilar on NIST

- Boards should consider NIST Cybersecurity Framework for industry standards and best practices for managing cybersecurity risks
- While Framework is voluntary, many expect it will be baseline for best practices for assessing legal or regulatory exposure or for insurance purposes:
  - “At a minimum, boards should work with management to assess their corporate policies to ensure how they match-up to the Framework’s guidelines.”

# Cyber Risks and the Boardroom: The SEC's Expanding Role

- 2009: Amended rules to require disclosure about board's role in risk oversight
- 2011: Guidance on disclosure of cyber-risk
- June, 2014: Commissioner Aguilar speech on need for board engagement
- February, 2015: OCIE *Examination Report*
- March, 2015: Roundtable with Chairman White
- April, 2015: DIM *Cybersecurity Guidance*
- September, 2015: OCIE *Risk Alert*
- September, 2015: Enforcement action against R.T. Jones

# “Risk Oversight Is a Key Competence of the Board”

- Investors need disclosure about board’s involvement in risk management process and relationship between board and senior management in managing material risks
- Directors on notice to address risks associated with cyber-attacks:
  - Not only significant business disruptions, substantial response costs, negative publicity, lasting reputational harm, threat of litigation, but also
  - Derivative lawsuits against companies, officers and directors alleging liability for failing to take adequate steps to protect company from cyber-threats
  - proxy advisory firm urged ouster of most Target Corporation directors because of alleged “failure...to ensure appropriate management of [the] risks” regarding December 2013 cyber-attack

# Board Preparedness

- Prepare company for inevitable cyber-attack and resulting fallout
- Primary distinction of cyber-attack is speed needed for response to detect and analyze event and prevent further damage
- Board needs to dedicate time and resources to confirm management response is consistent with best practices in same industry
- Plan should contemplate need for internal and external disclosures (including customers and investors)
- No substitute for preparation, deliberation, and engagement on cybersecurity

# What Boards of Directors Can and Should Be Doing to Oversee Cyber-Risk

- SEC does not mandate any particular structure
- Many boards lack necessary technical expertise
- Audit committee may not have expertise, support, or skills to add oversight of cyber-risk management
  - Consider mandatory cyber-risk education for directors; add members with relevant technology background
- Consider separate enterprise risk committee
  - Dodd-Frank Act already requires large financial institutions to establish independent risk committees
  - Some non-financial institutions have chosen to create such risk committees

# Board and C-Suite Oversight

- Regular reporting on threats, planning and execution
- Ask: How do we stack up against NIST Framework? Against peer companies? Against (relevant) government expectations?
- Assign clear responsibility for cybersecurity function, including senior internal staff and outside consultants
- Cybersecurity is not just an IT issue; it requires a broad team
- Demand accountability
- Insist on testing the system (internal and penetration)
- Provide sufficient resources

# Legal Considerations

- Keep up with fast-moving policy, public and litigation developments
- Identify legal obligations; preserve privilege
- SEC disclosures and public filings
- Data breach notification requirements
- Data security laws in US and EU for personal information (MA, other states, etc.)
- SEC and FTC expectations for information security, tracking and Internet of Things
- Sector-specific regulatory requirements
- Contractual obligations

# Outside Resources

- Identify outside resources, including
  - Forensic analysts to identify and remediate cyber-attacks
  - Cyber consultants to enhance cyber-control systems
  - PR and communications specialists
  - Legal specialists
  - Information Sharing and Analysis Centers (ISACs); industry associations
  - Government agencies for coordination and advisory purposes



# Paper Trail and Planning

- Comprehensive internal cybersecurity program
- Written information security plan
- Document organizational response to NIST
- Incident response and notification planning
- Business continuity planning to deal with serious cyber-disruption
- Address supply chain security
- Secure relationships with vendors and third parties
- Engage forensic experts, PR consultants, lawyers – in advance

# Key Cybersecurity Questions to Ask

- ❑ Do we know what IP assets, records, data, systems are essential to protect?
- ❑ What past incidents have we experienced? Why? Are our incident response procedures effective and well understood throughout the organization?
- ❑ Do we have an up-to-date cybersecurity risk assessment in hand? Written information security plan?
- ❑ Who is responsible for cybersecurity? Who is monitoring NIST developments and best industry practices? Sufficient resources?
- ❑ Is Board of Directors adequately focused on cybersecurity; has it established satisfactory internal controls and governance structures?
- ❑ What do we need to include in our SEC filings on cybersecurity?
- ❑ Do we know what existing and prospective laws apply to cybersecurity?
- ❑ Are we participating in appropriate information sharing?
- ❑ Do we know what our contracts say about cybersecurity; do our existing customer / vendor contracts protect us on cybersecurity?
- ❑ Are we “critical infrastructure” operators? Do we have relevant government contracts? Do we have cleared persons?

## Questions?

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