The Convergence of Reputation Risk with Cyber and Geopolitical Risk

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Snowden Leak...
Caused U.S. Defense/Intel Agencies Significant Reputation Harm
Caused Congressional Oversight Committees to Reduce Authorities
Caused Appropriation Committees to Reconsider Funding
Caused Allies to Reconsider IP and Intelligence Sharing
Affected IC Workforce Recruitment andRetention
Assisted Adversaries’ Recruitment and Financing

Which Materially Impacted Our Financial and Mission Capability
Agenda

Dilemma in the Boardroom
Reputation Risk Impact
Measuring Reputation Risk
Managing Reputation Risk
Dilemma in the Boardroom

▷ We must protect assets and shareholder value

**Share Value = EPS x P:E Multiple**

▷ Result is dominated by P:E Multiple factors including Capital, **Reputation**, IP, etc.

▷ Yet we have no direct link between Cyber Risk and these risks, which affect current and future value
COSO pov of Enterprise Risk Management

- **Prudent Investments**: Commensurate with exposure
- **Capital Reserves**: Sufficient for high-impact consequences and stress tests
- **Responsible Disclosures**: To maintain Stakeholder, Partner & Public confidence
  - Demonstrate duty of care
NIST Framework informs ERM and Reputation Risk

Integrating Cybersecurity and Enterprise Risk Management\(^{(1)}\)

- Pending publication acknowledges Reputation Risk as an Enterprise Risk Management element.
- Establishes an *Enterprise Risk Register* approach to connect Cyber Security analysis with ERM deliberations.
- Rolls up cyber risks to Quantify Financial, Mission (*i.e.* Solvency & Valuation) and Reputation Risk Exposure.

\(^{(1)}\) NIST IR 8286 published for industry comment
1st Quantify Enterprise Risk through a Wide-angle Lens

Adversary/Threat Analysis

Attack Scenarios

Behavior Analysis

Ops/Dept/Project Impact Analyses
- Net Revenue
- Assets

Sentiment Analysis

Aggregated – Enterprise Risk
- Financial
- Reputation
- Mission
Adversary/Threat Analysis

Behavior Analysis

Attack Scenarios

Departmental Impact Analyses
- Net Revenue
- Assets
- Ops/Mission

Prioritize Cyber Risk Expenditures
- EPS/Net Revenue
- Capital
- Free Cash Flow

Aggregated Enterprise Risk
- Financial
- Reputation
- Mission

Sentiment Analysis
Adversary/Threat Analysis

Attack Scenarios

Mathematical Behavior Analysis

Departmental Impact Analyses
- Net Revenue
- Assets
- Ops/Mission

Sentiment Analysis

Aggregated Enterprise Risk
- Financial
- Reputation
- Mission

✓ Solvency
✓ Valuation
✓ Capability
Attack Scenarios

Departmental Impact Analyses
- Net Revenue
- Assets
- Ops/Mission

Sentiment Analysis

Aggregated Enterprise Risk
- Financial
- Reputation
- Mission

Adversary/Threat Analysis

Mathematical Behavior Analysis

- Investors
- Clients/Constituents
- Public
- Regulators/Congress
- Allies/Partners
- Workforce
Consider the Full Impact of Reputation Risk

Public
- Customer Sales
- Constituent Votes
- Shareholders
  MktCap/Volatility

Workforce
- Recruitment
- Retention

Allies & Partners
- Shared Intelligence
- Shared Intellectual Property
- Cooperative Ops

Regulators
- Appropriations
- Authorities

Adversaries
- Recruitment
- Funding
Measuring Reputation Risk

Sentiment analysis (or opinion mining) is a natural language processing (NLP) technique used to determine whether data is positive, negative or neutral or ambivalent.

Often performed on textual data to help organizations monitor stakeholder sentiment, understand their needs, or anticipate their reactions.
Focus of the sentiment analysis, typically:

Countries, Corporations, Markets, or Individuals
Domains of relevance, for example:

Social, Political, and Economic sectors

May also be used with domains specific to financial risk analyses such as

Confidentiality, Integrity, and Availability
Affects analyzed include:

**Scope** – singularity of the focus

**Magnitude** – lower to higher

**Polarity** –
- positive
- ambivalent / mixed / neutral
- negative
## Sample Output

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<th>Country</th>
<th>Week Ending</th>
<th>SOCIAL Score</th>
<th>ECONOMIC Score</th>
<th>POLITICAL Score</th>
<th>Overall Score</th>
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Measured Stakeholder Sentiments

NLP measures subject-object-verb triads.

Reflects polarity & intensity of actors’ (people or organizations) sentiments pursuant to (cyber) events.

When correlated with previous attacks, it creates a histogram of shareholder, client, regulator/government official and public sentiment.
Landscape of All Significant Stakeholders

Bubble Size, Position and Connection = Intensity, Attitude and Relationships… resulting in net consensus
Compare Response/Influence Strategies

Focus attention on pivotal actors

Explore mitigation options
1. Disclosure
2. Investment
3. Diplomacy
4. Other

Illustrate potential consensus change when individual attitude shifts occur

Explore “what-if” scenarios

Status quo

Adjusted Position
American company pursued privatizing electric power in the Republic of Georgia

- Analysis of multiple stakeholders’ support/opposition opinions (Georgia Gov’t, Industry, Consumers; Russia; World Bank; US; etc.)
- Highlights negative impact of lost corporate support and increasing Russian hostility
- Supported decision to sell to Russian utility UES
Managing Reputation Risk

- Maintain Reputation Situation Awareness
- Post Required Disclosures
- Produce Proactive Disclosures
- Other
Establish Reputation Situation Awareness

**Aggregate** and track diverse stakeholders’ individual and collective sentiments to understand and manage consequences

**Connect the silos:**

- Marketing contacts with consumers and partners
- Investor Relations contacts with Analysts & Investor Groups
- CFO contacts with Banks and Money Managers
- General Counsel contacts with Regulators
Required Disclosures

Periodic
- SEC 10Q/10K
- Footnotes, Mgmt Discussion
- CCARS Stress Tests

Out-of-Cycle
- SEC 8K
- GDPR
Voluntary Disclosures Maintain Trust

- Public - Press, Newsletters
- Investors - IR Partner Communications, Earnings Calls
- Workforce - Internal Cyber Training, Special Communication
- Strategic Partners – Executive Calls
- Regulators - Contact Before Other Stakeholders
- Law Enforcement - Periodic Local, State, FBI Contact
Conclusion

Know Stakeholders’ Opinions
  o Measure each and all groups
  o Update changing sentiments

Provide Prudent Disclosures
  o As Required
  o Periodically, Proactively
  o Strategically