

Evaluating the Attention-Based View in Risk Management and Proposing the New “Top-Down” Continuous and Proactive Security Assessment Model (CAPSAM)



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Chapter 1

Introduction

1.1 Background on Cybersecurity Risks

Cybersecurity is a critical field aimed at protecting digital environments from unauthorized access and data theft (Mijwil et al., 2023). The increasing prevalence of cyber threats has led to rapid growth in cybersecurity measures, such as firewalls, encryption, and threat detection systems. Organizations must prioritize employee training on these tactics to enhance security (Mijwil et al., 2023). Cyber risk is influenced by vulnerabilities, threats, and potential attack impacts (Prasad et al., 2020). Major threat sources include the Internet, IoT, and web applications, with phishing attacks becoming more sophisticated and passwords alone being insufficient for security. The primary threat actors are cyber criminals, nation states, and hacktivists (Prasad et al., 2020). Raising awareness about cybersecurity risks is crucial for effectively managing digital environments and protecting against electronic threats (Mijwil et al., 2023).

1.2 The Role of Information Security Risk Assessments (ISRAs)

Introduce ISRAs as a key tool for identifying and managing vulnerabilities. Note that ISRAs are essential for protecting IT assets. Explain that risk assessments help with prioritising security efforts.

1.3 Top Management Team (TMT) Involvement

Explain that the TMT has a critical role in cybersecurity governance. Mention that their involvement is vital for effective risk management. Indicate that TMT engagement can ensure a holistic approach to security.

1.4 Purpose of the Report

State that this report evaluates the case study's use of the Attention-Based View (ABV) theory. Introduce your proposed Continuous and Proactive Security Assessment Model

(CAPSAM) as a solution. Clearly state the aim of the report, which is to critically appraise the ABV, and present a proactive approach through CAPSAM.

Chapter 2

Case Study Paper – Appraisal of Theoretical Model and Hypothesis

2.1 Summary of the Case Study

The central question of the case study is: **how do cybersecurity breach costs and Top Management Team (TMT) attention to cybersecurity influence a firm's decision to carry out an Information Security Risk Assessment (ISRA)?** (Shaikh and Siponen, 2023). The research found that higher breach costs result in greater TMT attention to cybersecurity. Additionally, TMT attention to cybersecurity partially mediates the relationship between breach costs and the decision to conduct an ISRA. This indicates that while an ISRA might sometimes be initiated by the cybersecurity function independently, the TMT plays a significant role in the decision, especially after high-cost breaches.

2.2 Explanation of the Attention-Based View (ABV) Theory

The case study uses the attention-based view (ABV) to explain how TMT attention is directed toward cybersecurity issues. The ABV theory suggests that **firm behaviour is shaped by how decision-makers allocate their attention**. This theory is built on the idea that human rationality is limited, and decision-makers must focus on specific issues to make effective choices. The ABV is composed of three key principles: focus of attention, structural distribution of attention, and situated attention.

2.2.1 *Focus of Attention*

The principle of the focus of attention explains that due to limited attention capacity, individuals prioritize issues based on their perceived importance and relevance within a given context. **Senior managers must be selective about which issues they focus on** because they cannot effectively attend to everything. Negative events such as high-cost

cybersecurity breaches become salient, thus requiring TMT attention. This focus then dictates the actions decision-makers take.

2.2.2 Structural Distribution of Attention

The principle of structural distribution of attention posits that **an individual's position within an organisation's hierarchy influences what they pay attention to**. TMTs have a fiduciary duty to stakeholders to oversee and assess firm performance and must protect the firm's reputation. As the ultimate decision-makers, they are responsible for oversight. The TMT's hierarchical position means they are expected to pay closer attention to security issues, especially in the face of higher breach costs.

2.2.3 Situated Attention

The principle of situated attention argues that **an individual's attention is a result of the immediate situation**. Urgent issues, such as high-cost cybersecurity breaches that cause material damage to the firm, draw the focus of the TMT. While minor breaches might be handled by IT personnel, breaches with substantial financial or reputational consequences require managerial attention and follow-up.

2.3 Statement of Hypotheses

The case study tested the following four hypotheses related to the impact of cybersecurity breach costs and TMT attention on the decision to carry out an ISRA:

1. Higher cybersecurity breach costs have a positive effect on the decision to carry out an ISRA.
2. Higher cybersecurity breach costs have a positive effect on TMT attention to cybersecurity.
3. TMT attention to cybersecurity has a positive effect on the decision to carry out an ISRA.
4. TMT attention to cybersecurity mediates the positive effect of cybersecurity breach costs on the decision to carry out an ISRA.

2.4 Critical Appraisal of the ABV

2.4.1 *Merits/Strengths*

The Attention-Based View (ABV) provides a strong framework for understanding why **Top Management Team (TMT) attention to cybersecurity is heightened following a costly breach** (Shaikh and Siponen, 2023). The ABV effectively explains this through its core principles: focus of attention, structural distribution of attention, and situated attention. The focus of attention principle highlights how negative events like significant breaches become salient, compelling the TMT to prioritize cybersecurity. The structural distribution of attention principle emphasizes that the TMT's hierarchical position and fiduciary duty make them responsible for addressing major security failures. Situated attention further reinforces this by illustrating how immediate, severe breaches demand urgent managerial action.

The ABV also explains why some firms might not act on security until a crisis emerges. According to the model, TMTs have a limited attention capacity and will only focus on issues that are deemed the most critical. **This limited attention capacity means that cybersecurity may not receive sufficient attention until a significant breach forces the TMT to recognize it as a priority.** This is further supported by the idea that organizations may only react to failures rather than carry out preventive security measures due to difficulty in justifying security investments. The ABV also illustrates how breaches can act as a learning opportunity, as they provide inputs to enhance the quality of future security risk assessments.

2.4.2 *Demerits/Weaknesses*

Despite its strengths, the ABV has some notable weaknesses. A significant limitation is that **it primarily focuses on a reactive response to breaches**, overlooking proactive security planning. The model is designed to explain how TMT attention is drawn to cybersecurity after a breach has occurred, but it does not adequately address how to prevent breaches in the first place. The ABV's emphasis on learning from failures underscores its reactive stance, which means that firms are continually playing catch up, rather than staying ahead of emerging threats.

Additionally, the model **assumes that TMT attention is driven primarily by negative events, ignoring other influences.** While high-cost breaches undoubtedly

capture the TMT's attention, other factors such as regulatory changes, industry standards, and proactive risk assessments can also drive TMT engagement with cybersecurity. The ABV's narrow focus on breach-driven attention may lead to an incomplete understanding of the broader factors influencing security governance.

Furthermore, the **ABV does not provide a framework for proactive security measures**. The model explains why TMTs react to breaches, but it offers little guidance on how to implement a security posture that anticipates threats. The model's focus on how the TMT reacts after a breach also overlooks the need for continuous monitoring, security by design, and other proactive strategies.

2.5 Transition to New Model

The limitations of the ABV highlight the need for a new, proactive model. While the ABV explains how firms respond to crises, a more comprehensive approach is required to prevent them. The next section will present a new model for information security risk assessment that shifts from a reactive to a proactive approach and addresses the limitations of the ABV. This new model is intended to help organisations implement security at every stage, rather than after they have already suffered a costly breach.

Chapter 3

New “Top Down” Model Selection for Information Security Risk Assessment

3.1 Introduction of the Continuous and Proactive Security Assessment Model (CAPSAM)

Introduce CAPSAM as a “top-down” approach to information security risk assessment. State that this model addresses the limitations of reactive approaches and the ABV. Emphasise that it is designed to integrate security into every stage of system development.

3.2 Theoretical Foundations of CAPSAM

3.2.1 *DevSecOps Principles*

Explain that DevSecOps integrates security into all phases of the software development lifecycle. Emphasise the ‘shift left’ principle which promotes security from the beginning of development. Show how CAPSAM aligns with these principles by integrating security from the earliest stage. (IBM, 2021)

3.2.2 *Risk Management Theories*

Contrast CAPSAM with Financial Theory, Agency Theory, Stakeholder Theory, and New Institutional Economics. Point out that, while relevant, these theories do not provide a framework for continuous and proactive security. Highlight that the theories from the MPRA paper have low empirical verification. Use the New Institutional Economics to justify the consideration of governance processes and socio-economic institutions. (Klimczak, 2007)

3.3 Components of CAPSAM

3.3.1 Initial Risk Assessment

Explain the need for a comprehensive initial assessment at multiple levels (system, component, feature). Highlight the importance of worst-case scenario planning.

3.3.2 Proactive Measures

Describe the necessity of integrating security by design. Emphasise the need for top management involvement. Explain the importance of regular employee training.

3.3.3 Continuous Risk Assessment

Explain the need for ongoing assessments throughout the system's lifecycle. Highlight the importance of feature-level assessments. Describe the need to monitor the evolving threat landscape.

3.3.4 Incident Response Planning

Explain the need for predefined incident response plans. Highlight the importance of taking immediate and decisive action.

3.3.5 Regular Audits and Reviews

Explain the need for regular internal audits. Highlight the value of external reviews.

3.3.6 Feedback Loop

Describe the need to use findings from assessments and incidents to improve the system. Highlight how this iterative process ensures that the system adapts to new threats.

3.4 Importance of TMT Buy-In for CAPSAM

Argue that TMT involvement is crucial for aligning security with business objectives. Explain that TMT engagement fosters a proactive security culture.

3.5 Benefits of CAPSAM Over Reactive Approaches

Highlight that it promotes a proactive rather than reactive security stance. Emphasise that CAPSAM encourages continuous vigilance. State that it offers a holistic approach to security. Demonstrate that CAPSAM is adaptable to new threats.

3.6 Real-Life Examples

Include case studies or real-life examples to back up your points. Reference literature that supports proactive security. Discuss how known data breaches could have been prevented by proactive models like CAPSAM.

3.7 CAPSAM as a Strategic Approach

Show that the model treats security risk as a business issue, not just an IT concern. Explain how TMT involvement in CAPSAM aligns security with strategic objectives.

3.8 Implementation Stages of CAPSAM

Describe the four stages: initiation, design and development, operational, and feedback and improvement.

Chapter 4

Conclusion

4.1 Summary of the Case Study Evaluation

Summarise your evaluation of the case study and the use of the ABV theory. Restate the limitations of the ABV model regarding its reactive nature.

4.2 Key Features of CAPSAM

Reiterate the core components of CAPSAM. Re-emphasise why it is an improvement over reactive approaches.

4.3 Role of the TMT

Restate the critical role of the TMT in the success of CAPSAM. Explain how CAPSAM promotes a strategic approach to information security by requiring TMT involvement.

4.4 Benefits of CAPSAM

Highlight how CAPSAM enhances an organisation's overall cybersecurity posture. Reiterate the value of the proactive and continuous nature of the model.

References

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