Encouraging Peer Reporting of Information Security Wrongdoings: A Normative Ethics Perspective

Early stage paper

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ABSTRACT

This paper addresses the need for additional control mechanisms for reducing the risk of insider threats in organizations. Specifically, it explores the potential benefits of peer reporting of information security policy (ISP) violations, a topic that has not received much attention in the information security literature. Using normative ethics dimensions, namely virtue, deontological, and consequentialism ethics, this study investigates the factors that influence employees' decisions to engage in peer reporting. It presents a research model in which the deontological perspective, emphasizing the employees' role responsibilities, and the consequentialist perspective, emphasizing the potential outcomes of reporting, can be integrated with the virtue ethics perspective of personal responsibility to provide a comprehensive understanding of the motivations for peer reporting of ISP wrongdoings. It proposes that personal responsibility to report, organizational support regarding peer reporting, and perceived effectiveness of reporting are key factors influencing peer reporting behavior. The study aims to collect data from 300 employees across different industries and organizations to test its hypotheses. The findings of

this study offer insights into the complex interplay of personal and organizational factors that influence peer reporting behavior.

Keywords

Peer reporting, information security compliance, personal responsibility, normative Ethics.

INTRODUCTION

Information security breaches have had devastating impacts on companies' financial performance and reputation. It has been reported that they cost companies an average of 3.92 million dollars (IBM 2022)[1]. Further, it is reported that about one third of companies cited employees careless or unintentional actions regarding information security policies (ISP) as their most critical information security vulnerability (EY 2019)[2]. Given this, to reduce the risk of insider threat, organizations often try to enforce employees to comply with ISP via formal control mechanisms such as evaluation, reward, and punishment (Boss et al. 2009; Hsu et al. 2015). However, it is extremely difficult (if not impossible) to trace and control employees' every possible information security related behavior (Hsu et al. 2015). It is evident that no matter how well the control mechanisms are, they cannot fully capture the inappropriate information security behaviors (Keil et al. 2018), in particular the behaviors that are purposely concealed (Trevino and Victor 1992). Given this, substitutes for and supplements to organizational formal control may be needed (Trevino and Victor 1992).

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[1] https://www.ibm.com/security/data-breach
[2] https://www.ey.com/Publication/vwLUAssets/ey-global-information-security-survey-2018-19/$FILE/ey-global-information-security-survey-2018-19.pdf

Scholarly literature on organizations has long encouraged employees to monitor their peers' behavior and report any incidents of ISP wrongdoing, also known as peer reporting or internal whistleblowing, as an additional control resource for organizations (King 2001; King and Hermodson 2000; Trevino and Victor 1992; Victor et al. 1993). Peer reporting is a specific form of whistleblowing that occurs when a group or organization members report the misconduct of one of their peers to an authority outside of their immediate group (Trevino and Victor 1992, p. 39). In the context of information security, peer reporting involves reporting individuals whose behaviors related to ISP are perceived to be in violation of the organization's ISP policies to relevant authorities within the organization.

Peer reporting can be a valuable tool for organizations to mitigate the risk of insider threats efficiently and proactively, without the need for heavy investment in control mechanisms. This approach can help prevent minor violations of information security policies from developing into larger issues. Despite the practical implications of peer reporting, it has not received much attention in the information security literature, with only a few studies addressing the topic (please refer to the literature review).

To leverage the benefits of peer reporting, it is crucial to understand the factors that contribute to it. Research suggests that employees may be hesitant to report their peers' wrongdoings due to fear of retaliation or the belief that their efforts will be fruitless (Mesmer-Magnus and Viswesvaran 2005). Therefore, the primary objective of this study is to investigate the factors that influence employees' decision to engage in peer reporting considering its barriers.

ISP wrongdoing is considered unethical because it violates business ethics, which encompasses a set of rules, standards, principles, or codes that guide ethical behavior in organizations (Kaptein 2008; Lewis 1985). Thus, we contend that peer reporting is an ethical behavior. This paper

examines the motivational factors that drive employees to report their peers' ISP wrongdoings using three distinct normative ethics dimensions: virtue, deontological, and consequentialism ethics (Kagan 1992; Wood 2019). These dimensions reflect various aspects of moral reasoning, including the character of the agent, duty of the action, and outcome (Kagan 1992).

From a virtue ethics perspective, peer reporting is driven by the ideals of uprightness and virtuousness. In this sense, employees may be motivated to engage in peer reporting because of their desire to act with honor, honesty, and courage (Wright et al. 2020). They may see peer reporting as their personal responsibility to help their group, as they believe that even one instance of ISP wrongdoing can potentially harm the welfare of the entire group.

Therefore, in this study, we take into account employees' sense of personal responsibility to report their peers' ISP wrongdoing as a reflection of the virtue ethics perspective. By examining this perspective, we can understand how employees' values and moral character influence their decision to engage in peer reporting.

The deontological perspective suggests that employees may report their peers' wrongdoings if they view peer reporting as their role and responsibility, based on a sense of duty or obligation to uphold ethical principles and promote the greater good for the organization or society as a whole. This is referred to as the role-prescribed view of peer reporting (Near and Miceli 1996).

To account for this perspective, we consider the organizational policy and support for reporting peers' ISP wrongdoing, as this can influence employees' sense of duty and obligation to engage in peer reporting. Consequently, we measure the level of organizational support and policy related to peer reporting to better understand how these factors impact employees' willingness to report their peers.

Finally, the consequentialism perspective suggests that employees may be motivated to engage in peer reporting based on the desire to produce positive outcomes or prevent negative ones. In this view, if employees perceive that peer reporting can lead to positive results, they may conclude that it is rational to report their colleagues' ISP wrongdoing. This perspective emphasizes the importance of the perceived effectiveness of peer reporting and seriousness of wrongdoing in promoting positive outcomes or preventing potential harms for the group (Trevino and Victor 1992; Victor et al. 1993).

Therefore, we consider employees' perception of the seriousness of the ISP wrongdoing as an indicator of reporting based on the consequentialism perspective. By examining this perspective, we can gain insight into how employees evaluate the potential outcomes of peer reporting and how they weigh the benefits of reporting against the possible negative consequences, such as retaliation or damage to working relationships within the group.

To summarize, this paper proposes that multiple factors influence employees' decisions to report their peers' ISP wrongdoings. We investigate the impact of three specific factors: personal responsibility to report, organizational support regarding peer reporting, perceived effectiveness of reporting, and seriousness of wrongdoing on peer reporting behavior.

In this study, we plan to conduct a survey among 300 individuals to test our hypotheses. To ensure a diverse range of responses, we will distribute the survey to employees across different industries and organizations. We will collect and analyze the data using MPlus, a statistical analysis software, and report our findings.

The study offers valuable insights into the factors that motivate employees to report their peers' ISP misconduct, providing a more nuanced understanding of the dynamics of peer reporting in

information security. The findings extend the existing literature by identifying the role-prescribed, egalitarian, and cost-benefit aspects of peer reporting, shedding light on the complex interplay of personal and organizational factors that influence employees' reporting behavior. The study highlights the crucial role of personal responsibility in mediating the relationship between organizational policies and peer reporting, emphasizing the need for organizations to recognize and promote employees' sense of duty to report their peers' ISP wrongdoings. Moreover, the study underscores the importance of creating an ethical climate that fosters trust and transparency, while reducing the fear of retaliation, to encourage effective peer reporting. The findings have important implications for practitioners, pointing to the need for targeted awareness programs and training initiatives that emphasize the benefits of peer reporting, provide clear guidelines on reporting procedures, and offer appropriate feedback and recognition for good reporting behavior.

Organizations should establish and implement policies and procedures that encourage peer reporting of ISP misconduct. These policies should emphasize the importance of personal responsibility to report and provide protection against retaliation for those who report their peers' wrongdoings. To encourage peer reporting, organizations should also establish a culture of transparency, trust, and accountability, where employees feel free to raise concerns and report their peers' wrongdoings without fear of retaliation. Furthermore, organizations should provide employees with training and awareness programs emphasizing the importance of ISP compliance and peer reporting in reducing the likelihood of insider threats. To enhance peer reporting effectiveness, organizations should provide prompt and appropriate feedback to employees who report their peers' wrongdoings, recognize and reward good reporting behaviors, and take appropriate steps to address reported ISP wrongdoings.

LITERATURE REVIEW, THEORETICAL FOUNDATION, AND RESEARCH MODEL

Agency Theory and Organizational Control Mechanisms

Preventing and detecting employees' wrongdoings is a top priority for organizational leadership. According to agency theory, organizations' owners or representatives (principals) hire agents to perform various duties on their behalf based on a contract. However, delegating duties to agents can lead to two major issues known as "principal-agent problems." The first problem is adverse selection, which occurs when agents misrepresent their skills during the hiring process. The second problem is moral hazard, which arises when agents' actions are contrary to the principal's interests (Loughry and Tosi 2008).

To prevent or at least minimize the adverse effects of moral hazards, organizations use different mechanisms. One popular approach is offering monetary and/or non-monetary incentives to encourage agents to perform their expected duties and avoid unexpected behaviors. The other approach is monitoring and controlling agents' behaviors to prevent and capture any intentional or unintentional wrongdoings (such as stealing from the organization's assets, ignoring the organization's rules and conduct, and underperformance).

However, the use of monitoring systems can pose a challenge for principals as they must balance the cost of monitoring against the benefits of controlling and preventing moral hazards (Bosse and Phillips 2016). Therefore, implementing efficient and effective control mechanisms to minimize all types of moral hazards is a critical goal for principals.

While organizations explore various control mechanisms such as supervision, leadership, and incentives, the increasing use of teams and self-managed work groups has led organizations to

support peer control alongside other forms of organizational control. Among the various forms of peer control, including monitoring, detecting, correcting, helping, reporting, evaluating, and providing feedback (Loughry 2010), reporting ISP wrongdoing has significant implications for the control of cybersecurity risks in organizations (Lowry et al. 2013).

As a type of peer control, peer reporting offers several advantages over other forms of control. First, peer reporting is efficient because employees engage in reporting their peers' wrongdoing voluntarily and/or as an extra-role behavior with no expectation of monetary incentives (Victor et al. 1993). However, the effectiveness of peer reporting depends on employees' engagement (Trevino and Victor 1992). The first step in studying employees' motivations for engaging in reporting behavior is to define the scope and boundaries of peer reporting in the context of ISP compliance. Given that there are only a few studies specifically examining peer reporting of ISP wrongdoing, there is still much to explore.

When studying a behavior that has not been extensively studied in a particular context, such as peer reporting in cybersecurity, it is helpful to identify an appropriate typology and relate the behavior to a well-studied behavior type. Peer reporting is often considered a specific type of whistleblowing (Trevino and Victor 1992). Therefore, understanding whistleblowing can provide valuable insights into the motivations behind peer reporting.

In the following sections, we will describe the concept of whistleblowing and its various forms. We will also examine the similarities and differences between whistleblowing and peer reporting. We will define peer reporting and explain the theoretical framework that we will use to explore the motivations behind peer reporting. By doing so, we aim to provide a clear understanding of the relationship between these two concepts and how they relate to our study.

Reporting Wrongdoings - Whistleblowing

Whistleblowing is defined as "the disclosure by organization members (former or current) of illegal, immoral, or illegitimate practices under the control of their employers, to persons or organizations that may be able to effect action." (Miceli and Near 1985, p. 4). It has a significant impact on employees, organizations, and society in general, and it remains a controversial but important topic of discussion. As a form of ethical behavior, whistleblowing serves to protect the interests of stakeholders, including customers, employees, shareholders, or the broader society.

However, whistleblowing may also be associated with risks and challenges for the whistleblower, such as retaliation, ostracism, or legal repercussions (Jubb 1999). Due to the mixed results of whistleblowing, it has been extensively studied in organizational studies, and researchers and practitioners have conducted extensive research to discover the factors that influence whistleblowing behavior.

Whistleblowing is a complex and multifaceted topic that requires consideration of several elements. Miceli and Near (1985) and Jubb (1999) identified several elements to consider when studying whistleblowing, including the act of whistleblowing, party whose wrongdoing is being reported, recipient of the whistleblowing report, wrongdoing, whistleblower, and organization.

Based on these elements, whistleblowing can be classified into several types. Overall, understanding the different types of whistleblowing and how they relate to peer reporting can provide insights into the motivations and behaviors of employees who engage in peer reporting. By examining the similarities and differences between these concepts, we can develop a more nuanced understanding of the factors that influence peer reporting behavior in the context of information security.

Recipient of the Disclosure: Internal, External Whistleblowing

Whistleblowing act can be categorized based on the recipient of the disclosure. An internal whistleblower involves reporting to someone within the company, while an external whistleblower involves reporting to someone external to the company. In general, external whistleblowers tend to have more evidence of wrongdoing and their reporting acts are more effective (Dworkin and Baucus 1998; Jubb 1999). They may, however, experience more extensive retaliation than internal whistleblowers. Due to the fact that external whistleblowers expose the wrongdoing to a wider audience, they are likely to experience more extensive retaliation than internal whistleblowers. It is also possible for them to face legal actions from the organization or from others who were directly involved in the wrongdoing (Dworkin and Baucus 1998). As for the recipient of the report, peer reporting is often considered a type of internal whistleblowing in which a group member goes outside their group to report misconduct (Trevino and Victor 1992, p. 39).

Motivation of the Whistleblower: Altruistic and Self-interested Motivations

Whistleblowers may rationalize their behavior using either altruistic or individual reasons. Altruistic motivations are those that benefit the organization, customers, and society as a whole, whereas individual motivations are those that take into consideration rewards, revenge, legal protection, , among other things (Paul and Townsend 1996; Richardson and Garner 2022). The whistleblower may be motivated by a sense of justice, a desire to uphold ethical standards, or a concern for others' welfare. For instance, a whistleblower may report a company's violation of environmental regulations to safeguard the health of local residents. In contrast, self-interested whistleblowing occurs when an individual speaks out against unethical behavior in order to gain personal gain or benefit. A whistleblower may be motivated by a desire for revenge or to obtain

financial or other rewards or comply with the organization's expectations. As an example, an employee may blow the whistle on their employer's wrongdoing in order to obtain compensation or to increase their chances of prevailing in court. Similarly, peer reporting may be motivated by both altruistic and individual motives. It is possible for peer reporting to be motivated by altruistic motives, such as the desire to maintain ethical standards within the organization or to protect the well-being of colleagues and other stakeholders.

Authorized and Unauthorized Whistleblowing

Whistleblowing acts authorized by law, code, superiors, or other authorities are known as authorized whistleblowing acts. Authorized acts may include reporting illegal activity to a government agency or disclosing confidential information as part of an investigation. In contrast, unauthorized whistleblowing is a disclosure of a wrongdoing that is not encouraged or mandated by law, code, superiors, or other authorities and the individual act with no obligation. Whistleblowing encompasses unauthorized disclosures without a doubt, but the exclusion of authorized acts is subject to argument (Jubb 1999). We argue that peer reporting could be perceived authorized or unauthorized in different circumstances and by different employees.

In summary, Peer reporting can be considered a specific form of internal whistleblowing. It occurs when an employee reports their peers' wrongdoing with information security policies to organizational authorities. While the act of reporting is similar to internal whistleblowing as both behaviors involve the disclosure of wrongdoing, the parties involved are different, as the report is made about a peer rather than a supervisor or higher-level authority. Additionally, the motivation behind peer reporting may differ from other forms of whistleblowing, as it is often driven by a desire to protect the collective interests of the group rather than a focus on individual's wrongdoing.

Peer Reporting: In-Role, Extra-Role, or Job Duty

Peer reporting is the act of reporting a fellow member's misconduct to an authority outside of one's immediate group or team (Trevino and Victor 1992). Although security activities in ISPs are considered in-role behavior (Hsu et al. 2015), we argue that reporting peer's behavior that is against those security activities in ISP could be an in-role, extra-role, or job duty of the employee. Despite the fact that peer reporting is often considered as an extra-role behavior, in some contexts or under specific circumstances this behavior could become a job duty or a role responsibility[3] for employees (Miceli and Near 1984; Victor et al. 1993). For example, an internal auditor is required to report any wrongdoing in accounting-rated tasks because peer reporting is a job requirement of the auditor. Conversely, a sales specialist is not obligated to report a similar wrongdoing because it is not part of the sales specialist's job description (Seifert et al. 2010). Also, some organizations urge their employees to report peers' wrongdoings as a role responsibility through their policies (e.g., organization's code of conduct) (Miceli and Near 1984). Therefore, we argue that peer reporting could refer to different forms of organizational behavior (in-role, extra-role, or job duty) for different jobs (e.g., audit vs. non-audit job) or in various contexts (e.g., medical misconduct, ISP violations, financial frauds).

Having clarified the perception of others about peer reporting, now we focus on how employees perceive their own reporting activities. Generally, reporting peers' ISP violations is not considered as a job requirement or role responsibility by most employees for at least two reasons which are derived on employee's lack of sense of obligation. First, monitoring peers' compliance

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[3] Role responsibility refers to an employee's personal obligation to engage in a behavior which is not part of the employee's job description but it is encouraged by upper management (King and Hermodson 2000).

with ISP is an informal monitoring and employees often notice wrongdoings as an outcome of a random process (Gershkov and Winter 2015). In fact, employees are not required to monitor or control peers' activities and consequently, they may not notice their peers' wrongdoings. In case of lack of moral obligations, employees could even use their unawareness as a defense mechanism to play the innocent in case they are questioned about their silence. In other words, someone could never be reprimanded for not reporting peers' wrongdoings when the employee was not told to control their peers' activities. Additionally, the employee could always use this as an excuse for remaining silent even if he or she notices wrongdoings. Therefore, awareness of the incident could be a reason for employees to not consider peer reporting as a required behavior or an excuse for not engaging in peer reporting as a behavior that could have several negative consequences such as retaliation for them. Second, employees may not consider reporting peers' ISP violations as a role responsibility because in many cases they are not aware that reporting is part of organization's policies (Lyons and Bowling 2017). However, in some contexts (e.g., Medical, Finance) employees are required to report cybersecurity violations. For example, HIPAA Breach Notification Rule[4] requires medical staff to report any breach related to protected health information.

Generally speaking, although peer reporting of ISP violations is encouraged by many organizations as part of their policies, it is neither part of organizations' performance evaluation systems nor formally required for employees whose duty is not to monitor and report wrongdoings. However, employees who report peers' wrongdoings might receive some forms of rewards indirectly, for example, by saving organization and their team from the threats of peers'

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[4] https://www.hhs.gov/hipaa/for-professionals/breach-notification/index.html#

wrongdoing. Even though reporting peers' wrongdoings is expected by authorities outside the group, it is not part of every employees' job description. Grounded on the aforementioned arguments, in this study, peer reporting of ISP violations refers to a voluntary and extra-role behavior of a group member to report other members' ISP wrongdoings to someone outside the group (King and Hermodson 2000; Victor et al. 1993).

As a summary, we propose that in this study, the scope and boundaries of peer reporting of ISP wrongdoing will be as follows. According to the organization's policies and the employee's role in the organization, peer reporting may be an encouraged (role responsibility) or coerced (job duty) act. The purpose of this study, however, is to study reporting as a role responsibility or extra-role behavior.

Normative Ethics

Normative ethics is a branch of philosophy that seeks to systematically define what actions are right or wrong in ethical terms. In the context of peer reporting, individuals may choose to speak up and report illegal or unethical practices that infringe upon the rights of others. To illustrate the principles of normative ethics, let's consider the example of a surgeon deciding whether to remove a cancerous tumor from a patient. While the potential to save the patient's life is a morally relevant factor to consider, it is not the only factor. The surgeon must also consider the patient's medical history and current condition, as well as the potential risks and side effects associated with the surgery. Ultimately, the interplay of these morally relevant factors will determine whether performing the surgery is the right ethical decision.

Normative ethics offers three perspectives that should be considered when analyzing ethical decisions made by individuals: virtue, deontological, and consequentialism ethics (Kagan 1992;

Wood 2019). From a virtue ethics perspective, the decision to perform surgery should align with the surgeon's moral character and virtues and prioritize the patient's best interests. From a deontological perspective, the decision to perform surgery should be based on the surgeon's duties and obligations to the patient, regardless of the potential outcome of the surgery. For example, surgeons have a responsibility to provide patients with all the necessary information to make informed decisions about their treatment. Finally, from a consequentialism perspective, the surgeon must consider the potential outcomes of the surgery before making a decision. Performing the surgery would be ethically justified if the potential benefits of curing the patient's cancer and prolonging their life outweighed the potential risks and side effects.

Similarly, we argue that when employees decide whether to report a peer's ISP wrongdoing, they may have to balance competing ethical considerations, such as concerns to maintain trust and loyalty with colleagues, uphold organizational values and integrity, and protect potential victims of wrongdoing. Therefore, as a form of internal whistleblowing, peer reporting is an ethical dilemma (Jubb 1999) that involves making a decision that affects multiple ethical considerations.

Normative ethics is a framework that examines the ethical principles involved in ethical dilemmas such as peer reporting and can provide a lens through which we can understand the motivational factors that compel employees to report their peers' ISP wrongdoings. Specifically, we will apply the three distinct normative ethics dimensions of virtue, deontology (utilitarianism), and consequentialism, which reflect different aspects of moral reasoning, including the character of the agent (virtue), the duty of the action (deontology), and the outcome (consequentialism) (Kagan 1992). While some scholars propose that each of these three perspectives offers a possible alternative explanation for an act based on normative ethics, we argue that the three perspectives address different concerns regarding normative ethics (Kagan

1992). Based on this view, we argue that we can use each of these three perspectives to create a holistic picture of the motivations for peer reporting of ISP wrongdoing (See Figure 1).
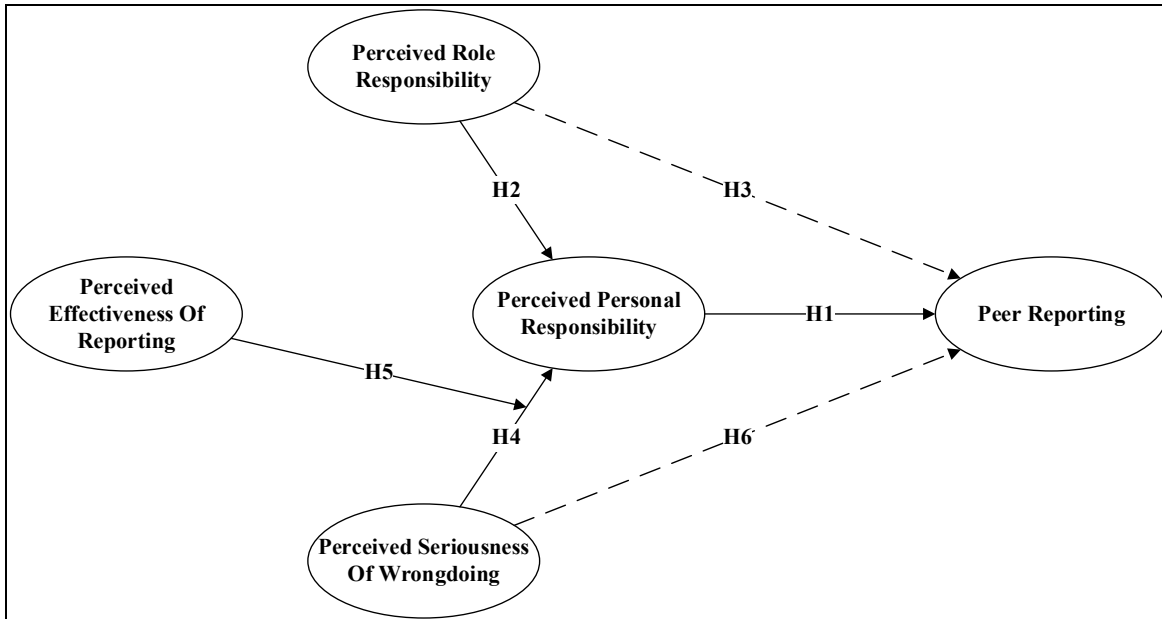
Figure 1. Research Model

Virtue Ethics

Virtue ethics emphasizes the importance of a person's character as a qualitative quality that cannot be identified by material or biological means. According to Aristotle, an act must meet three conditions to be considered virtuous. First, a virtuous person performs the act knowingly, with an understanding of the relevant facts and the practical wisdom necessary to apply it correctly. Second, the act is chosen simply for the sake of virtue, not for personal advantage. Third, the act must be a steady state of character's disposition, not an impulsive or one-time act, regardless of time and place (Whetstone 2001).

Personal responsibility is a key factor in driving ethical behavior in the workplace. It involves behaviors that are performed based on internal motivations rather than external ones (DePasquale

1999). To understand the difference, imagine two employees working for an environmentally responsible company tasked with reducing the company's energy consumption. Employee A reduces energy consumption because their performance evaluation is tied to the company's sustainability goals, while Employee B implements energy-saving measures because they feel it is their personal responsibility to behave responsibly. Employee A's behavior is influenced by external factors, such as performance evaluations and potential bonuses, whereas Employee B is driven by an internal sense of responsibility to act ethically. Responsible behaviors tend to be self-directed.

In the context of peer reporting, the virtue ethics perspective suggests that individuals who report their peers' ISP wrongdoing are motivated by their sense of responsibility to act honorably, honestly, and courageously in accordance with their personal and organizational values. We refer to this as a sense of personal responsibility to report peers' ISP wrongdoing.

We propose that the personal responsibility to report peers' ISP wrongdoing is a virtuous belief that meets Aristotle's three conditions for virtuous behavior and could lead to the ethical act of peer reporting. Firstly, employees who report wrongdoings in the workplace based on a sense of personal responsibility may be more discerning in their reporting practices, as they take a heightened sense of accountability for their actions and decision-making (Hernandez 2008). As a result, employees may not report wrongdoing unless they are confident that it has taken place. An employee who reports wrongdoing after they are confident that they have witnessed an actual wrongdoing shows a high degree of diligence and thoroughness. They do not make rush decisions or act impulsively, but instead gather and analyze relevant facts before taking action as a result of their sense of responsibility.

Secondly, employees who have a sense of personal responsibility act based on their internal, rather than external reasons, and therefore think about doing the right thing and usually make the right decision even in the absence of external motivators (DePasquale 1999; Geller 2001). Therefore, employees who have a sense of personal responsibility for reporting wrongdoings demonstrate consistency with Aristotle's three conditions for virtuous behavior.

Thus, employees who perceive sense of personal responsibility are obligated to act against the wrongdoings of their peers based on their internal values as virtuous individuals. Accordingly, we hypothesize that:

H1: *Perceived sense of personal responsibility for reporting peer's wrongdoing positively influences peer reporting.*

Deontological Ethics

Deontological ethics, unlike virtue ethics, focus on the external factors that influence someone to perform a specific act. It is an ethical system that is based on the concept of duty and right, which can be established through reason alone and are independent of experience. According to deontological ethics, the rightness of an action depends on the fulfillment of the actor's expected duties (Micewski and Troy 2007). Therefore, deontological ethics is closely related to employee responsibility as it emphasizes employees' obligations at work, including their role responsibilities, regardless of potential benefits and consequences.

We propose that peer reporting can be considered a role responsibility for employees, despite the fact that not all organizations may formally encourage or require it. Upper management can promote peer reporting as a role responsibility through the implementation of policies, codes of ethics, and other mechanisms that signal the importance of reporting wrongdoing (King and

Hermodson 2000; Trevino and Victor 1992). By doing so, employees may feel a sense of obligation to report wrongdoing, as it is viewed as an important aspect of their role within the organization. This aligns with deontological ethics, which emphasizes fulfilling one's duties and obligations regardless of the potential positive or negative consequences (Micewski and Troy 2007). Therefore, we argue that employees who perceive peer reporting as a role responsibility are more likely to engage in reporting wrongdoing.

While consequentialists and deontologists are often viewed as diametrically opposed (Crane et al. 2019; Derry and Green 1989; Sacchi et al. 2014), the relationship between consequentialist or deontological ethics and virtue ethics is more nuanced and complex. We argue that the upper management's expectations of employees shape their sense of personal responsibility. When individuals have clear expectations and obligations associated with their roles, they are more likely to feel a sense of ownership and accountability toward their work. In the case of peer reporting, if employees perceive it as a role responsibility through policies and codes of ethics and see it as a recommendation by upper management, they are more likely to take responsibility for reporting wrongdoing. Accordingly, we hypothesize that:

> **H2**: *Perceived role responsibility for reporting peer's wrongdoing positively influences peer reporting.*

While employees may be concerned about the negative consequences of reporting wrongdoings, they may use different excuses to justify not reporting them. An employee's observation of their peers' compliance with ISP is informal and often the result of a random process (Gershkov and Winter 2015). Additionally, In many instances, employees are unaware that reporting peers' ISP violations is part of the organization's policies (Lyons and Bowling 2017). Consequently,

employees can find a way to at least pretend that they were not aware of the ISP wrongdoing incidences and use this unawareness as a scapegoat to avoid reporting their peers' wrongdoing.

Nevertheless, employees who have a strong sense of personal responsibility perceive reporting peers' wrongdoing as a moral obligation, even if it is not explicitly stated as a required duty. Also, we argue that employees with a strong sense of personal responsibility are not going to use unawareness to play the scapegoat and avoid peer reporting. The reason is that they consider reporting of wrongdoing as a moral obligation, even if it may be difficult or uncomfortable to do so.

Furthermore, employees' sense of personal responsibility reinforces the relationship between their perceived role responsibilities in reporting peer ISP wrongdoings and their participation in reporting. This is because their sense of moral obligation strengthens their motivation to report, even when reporting is not explicitly required. Therefore, we propose that employees' sense of personal responsibility mediates the positive relationship between their perceived role responsibility and peer reporting. Accordingly, we hypothesize that:

> **H3:** Perceived *sense of personal responsibility mediates the positive relationship between perceived role responsibility and peer reporting.*

Consequentialism Ethics

Similar to deontological ethics, consequentialism ethics, also known as utilitarian or teleological ethics, focuses on the ethical evaluation of actions. This ethical philosophy places a strong emphasis on the outcomes or consequences of an action as the basis for evaluating its ethical value (Chakrabarty and Erin Bass 2015). There are many different negative consequences that

can arise from the ISP wrongdoings, and the reports of these wrongdoings, on the other hand, might prevent these consequences or any future threats from occurring.

An employee's sense of personal responsibility can be influenced by seriousness of the wrongdoing they witness. When the wrongdoing is particularly serious, such as a major instance of ISP wrongdoing, the witness may feel a stronger moral obligation to report it due to the importance of upholding personal values and moral principles. We posit that in cases of serious wrongdoing, the failure to report it could have negative consequences for the organization, the team, and the individual who committed the violation. The potential harm resulting from the wrongdoing could increase an employee's sense of responsibility to report the wrongdoing. Accordingly, we hypothesize that:

> **H4:** *Perceived seriousness of wrongdoing positively influences perceived sense of personal responsibility.*

Furthermore, employees may feel a greater sense of responsibility to report serious wrongdoing if they believe that it will result in tangible and meaningful action, such as corrective action. This perception of effectiveness is an important factor that motivates employees to take action, as it creates a sense of purpose and impact. On the other hand, if an employee believes that reporting wrongdoing will not result in any meaningful action, they may be less likely to feel personally obligated to report it. Therefore, we suggest that the perception of potential effectiveness moderates the relationship between the seriousness of the wrongdoing and the personal responsibility to report it. Accordingly, we hypothesize that:

> **H5:** *Perceived effectiveness of reporting peer's wrongdoing positively moderate the impact of perceived seriousness of wrongdoing on perceived sense of personal responsibility.*

In some cases, however, the emphasis on outcomes or consequences may undermine others' rights and interests, especially when business behavior is solely driven by profit (DeGeorge 1992). Therefore, consequentialist or utilitarian ethics, while important for achieving positive results, must also consider whether actions are ethically appropriate and how they affect other people's rights and interests.

In pursuit of desirable outcomes, individuals may compromise their personal values and moral principles. However, personal virtues such as sense of personal responsibility can help mitigate these negative impacts. When faced with serious wrongdoing, employees may feel a heightened moral obligation to report it, but the severity of the wrongdoing may also increase the risks associated with reporting it. This is because the person being reported may retaliate or punish the employee who reported it, especially in cases of serious wrongdoing (Near and Miceli 1986). Despite these risks, an employee's sense of personal responsibility may motivate them to report the wrongdoing. Accordingly, we hypothesize that:

> **H6:** *Perceived sense of personal responsibility mediates the positive relationship between perceived seriousness of wrongdoing and peer reporting.*

METHODOLOGY

The study will use a survey research method design to investigate the factors that influence employees' decision to engage in peer reporting of ISP misconduct. We plan to conduct a survey among a sample of 300 employees across different industries and organizations. Please refer to Table 1 for the list of items. The survey will consist of questions, which are adapted from prior studies and measure employees' attitudes and beliefs regarding peer reporting, as well as their perception of organizational policies and support for peer reporting. The survey will also assess

employees' sense of personal responsibility to report their peers' ISP misconduct and their perception of the seriousness of the wrongdoing.

Construct	Items
Peer Reporting	I would tell a supervisor/manager if there is anyone not complying with the ISP. I would let a coworker know if there is anyone not complying with the ISP. I would tell a supervisor/manager if others do not follow the ISP. I would let a coworker know if others do not follow the ISP.
Perceived Seriousness of Wrongdoing	In general, ISP Wrongdoing can lead to severe consequences. There would be high potential for loss associated with ISP wrongdoing. There would be many repercussions associated with ISP wrongdoing.
Perceived Effectiveness of Wrongdoing	When employees report ISP wrongdoing, it leads to outcomes that are considered desirable. When people report ISP wrongdoing, the organization will use a fair process.
Perceived Role Responsibility	Does your company maintain a written policy manual regarding reporting ISP wrongdoing? Does your company have a specific policy requiring you to report ISP wrongdoing by other employees? Does your company have a unit of personnel assigned specifically to investigate complaints of ISP wrongdoing by employees? My company actively encourages employees to report ISP wrongdoing.

Table 1. Measurement Items

To ensure a diverse range of responses, we will select participants from various industries and organizations. Participation in the study will be voluntary, and informed consent will be obtained from all participants. To minimize potential biases, we will ensure the anonymity and confidentiality of the survey responses.

The data collected will be analyzed using structural equation modeling (SEM) techniques in MPlus, a statistical analysis software. SEM will be used to test the hypotheses and examine the relationships between the variables of interest. Specifically, we will use confirmatory factor analysis (CFA) to establish the reliability and validity of the measurement scales, and path analysis to test the hypothesized relationships between the variables.

The study will also include a reliability analysis of the survey instrument, which will be measured using Cronbach's alpha. The validity of the survey instrument will be assessed using content, and construct validity. Content validity will be evaluated by a panel of experts in the field of information security and organizational behavior, and construct validity will be evaluated using confirmatory factor analysis.

EXPECTED CONTRIBUTIONS

The expected contribution of this study is two-fold. First, it will provide a more nuanced understanding of the factors that influence employees' decision to engage in peer reporting of ISP wrongdoing. By examining the impact of personal responsibility, organizational policy, and perceived effectiveness of reporting on peer reporting behavior, this study will shed light on the complex interplay of personal and organizational factors that drive reporting behavior. This insight can inform the development of targeted awareness programs, training initiatives, and policies that encourage effective peer reporting of ISP wrongdoing, ultimately reducing the likelihood of insider threats and minimizing the risk of information security breaches.

Second, the study will extend the existing literature on peer reporting in information security by identifying the role-prescribed, egalitarian, and cost-benefit aspects of peer reporting. This will help to bridge the gap in the literature by providing a comprehensive framework that captures the multifaceted nature of peer reporting behavior. The findings of this study can inform future research on peer reporting in information security, as well as guide practitioners in developing effective strategies for encouraging and promoting peer reporting behavior. We believe this study has the potential to make a significant contribution to both the academic literature and the practice of information security management.

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