

Towards the Design of Effective Whistleblowing Systems

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Abstract

Whistleblowing systems serve as a vehicle for change, empowerment, and ethical/social responsibility. Organizational whistleblowing is a socially complex phenomenon that impacts people and organizations across various disciplines and sectors. Whistleblowing is a high-stakes act involving the dissemination of highly sensitive information about multiple actors with tangling stakes/interests. These features inherently make the task of designing effective whistleblowing systems (WS) a challenging one. To address this, our paper develops key design objectives (DO's) for effective WS. We do this by conducting a qualitative literature review of whistleblowing research and by availing elements from design science methods and stakeholder theory. We present four key DO's for effective WS, which we support with a whistleblowing news dataset. This paper serves as a first step in developing design principles (DP's) for effective WS. This research contributes to a growing discourse on organizational whistleblowing in the IS community.

1. Introduction

Whistleblowing is a powerful mechanism in organizations for fighting corruption and enhancing corporate social responsibility and governance [1]. Whistleblowing has been thrust to the forefront of legislative and corporate discussions in the wake of scandals reported by whistleblowers in high-profile firms and organizations such as Uber, Google, JPMorgan, SNC Lavalin, NSA, and USA Gymnastics [2]. The Sarbanes-Oxley Act, enacted in 2002, mandated public companies within the United States (U.S.) to implement and maintain an anonymous reporting channel for unethical or illegal practices [3]. This increasing relevance of whistleblowing motivates our study, which seeks the design of effective WS. Jubb [4] provides a peer-supported definition of whistleblowing as:

“a non-obligatory act of disclosure, which gets onto public record and is made by a person who has or had

privileged access to data or information of an organization, about non-trivial illegality, or other wrongdoing whether actual, suspected or anticipated which implicates and is under the control of that organization...”[4:55].

Whistleblowing is a high-stakes phenomenon for individuals and organizations. As such, whistleblowing should take center stage in a society's fight against organizational corruption. Information and communication technology has been a dominant medium for whistleblowing, though not the only one, and has increased the likelihood of whistleblowing [5]. Toward designing effective whistleblowing systems, we adopt a systematic theory- and data-driven design science approach based on a deep understanding of the dynamics of whistleblowing and the key constructs and relationships that govern the effectiveness of whistleblowing [6]. Our study contributes to the extant literature by our novel utilization of design science and stakeholder theory to develop DO's for effective whistleblowing systems. There has been research on whistleblowing systems implementations [7, 8, 9]. However, in this paper, we deem it essential that consensus be reached regarding WS DO's by researchers and practitioners alike. The resultant systems would have common driving DO's, which does not preclude differing DP's and implementations and design features (which are the subject of future research).

The remainder of this paper is organized as follows: Section two provides an overview of the study's methodology. Section three presents a review of the whistleblowing literature. In section four, we propose key DO's for effective WS. Finally, section five summarizes our conclusions and plan for future work.

2. Methodology

In this research, we follow a three-stage methodology as outlined in Figure 1. First, we conduct a qualitative literature review aiming to develop a deep understanding of the dynamics of whistleblowing and the key constructs and relationships that govern the

effectiveness of whistleblowing. Second, we distill the knowledge from the literature review and combine it with anecdotes from a whistleblowing dataset in proposing key DO's for effective WS. Third, we use design theory methods to develop and empirically validate DP's for effective WS. The scope of this paper focuses only on the first two stages of this research, and we plan to address the third stage in future research.

For the first stage, we conduct a literature review in the following ordered steps according to best practices [10]. Figure 1 shows the primary and secondary keywords we use to identify relevant articles on the whistleblowing phenomena. We then identify the sources to search for the target article. Due to the multidisciplinary nature of the whistleblowing phenomena, we target several sources that are known to publish academic and practitioner literature in management and law as shown in Table 1. To ensure the quality of the articles we cover, we consult the Australian Business Dean's Council (ABDC) list, which is a globally accepted journal quality ranking list in the business and management research community. Following the article collection process, we conduct an initial round of qualitative examination of the resulting articles aiming to categorize them into key themes that best fit the study of the whistleblowing phenomena so far. Following that, we conduct iterative qualitative examination of the articles for analysis and synthesis.

For the second stage, we build on the understanding accumulated through the literature review in developing DO's for effective WS. To this end, following the design science methodology [11], we use observation and document studies for gaining a better understanding of the practice in which the WS artifact will be used, which can provide clues for eliciting DO's. To accomplish this, we avail the Factiva news database to explore actual instances of whistleblowing. Factiva boasts over 46,000 news articles on whistleblowing as of June 2021 [2]. Based on qualitative examination of this data by two researchers, a consensus is reached on a set of key DO's for effective WS.

3. Whistleblowing: A literature review

Examining the whistleblowing literature, we identify five main themes that we organize this literature review around. Whistleblowing has received widespread attention within business ethics, accounting, and financial crime literature, mostly pertaining to examining the various individual and contextual determinants or correlates of whistleblowing. Law and governance literatures have also explored whistleblowing determinants mainly from whistleblowing regulation and legislation perspectives. While less represented than other disciplines, more

recently, IS/IT studies have also contributed to the whistleblowing phenomenon by exploring how certain technological features impact whistleblowing.

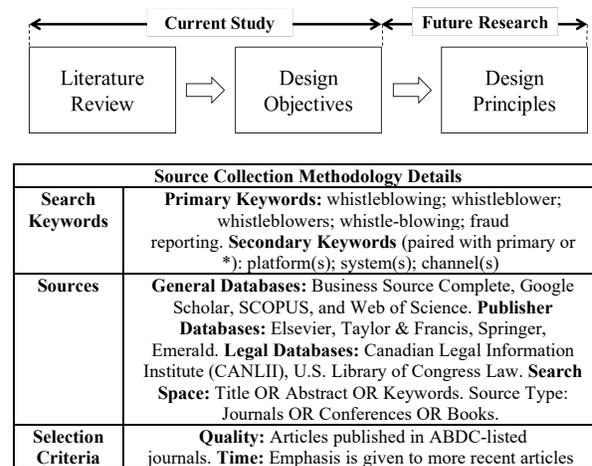


Figure 1 Outline of the Research and Source Collection Methodologies

3.1 Determinants of whistleblowing

Research on determinants of whistleblowing can be categorized into actor-, organization/context- and wrongdoing-related factors as summarized in Table 2. Actor-related determinants are characteristics of the key actors in a whistleblowing scenario including the whistleblower, the alleged wrongdoer, the victim, and the report recipient. Organization/context-related determinants are characteristics that pertain to the organization in power to act on whistleblowing reports or the context in which the wrongdoing has taken place. Wrongdoing-related determinants are characteristics of the wrongdoing itself that potentially predispose the whistleblower to report wrongdoings. Table 2 shows that actor- and organization/context-related determinants are relatively better researched compared to wrongdoing-related determinants. One explanation could be that whistleblowing is mostly reported internally within organizations and obtaining data on such high-stakes wrongdoings is difficult.

Research on determinants of whistleblowing has primarily used intent rather than behavior as its dependent variable. This could be attributed to the difficulty of obtaining data on actual whistleblowing behavior [12, 13]. This is demonstrated in Gao and Brink [14] whose review of research on whistleblowing in accounting adopts whistleblowing intent as its dependent variable outcome. Modelling intent and behavior as distinct and interacting constructs is essential to accurately model human decision-making

processes, as indicated most notably by the Theory of Planned Behavior and the Theory of Reasoned Action [15, 16]. In both theories, intention is modelled as an antecedent to behavior. The Theory of Planned Behavior suggests that both intentions and perceived behavioral control are antecedents of behavior [15]. As such, the availability of resources to achieve a behavior must also be considered, along with intent. In a whistleblowing context, an individual may have intentions to report wrongdoing but be unable to achieve the behavior for lack of resources [15].

3.2 Whistleblowing outcomes: cessation and retaliation

The literature has focused on two possible outcomes in response to whistleblowing: cessation of the wrongdoing and retaliation against the whistleblower. The extent of cessation of the wrongdoing determines whistleblowing effectiveness. Whistleblowing effectiveness [6] is defined as “the extent to which the questionable or wrongful practice is terminated at least partly because of the whistleblowing and within a reasonable time”. Five sets of actor-related (whistleblower, wrongdoer, and complaint recipient) and context-related (organization and wrongdoing) characteristics have been presented as drivers of wrongdoing cessation [17, 18].

Retaliation against the whistleblower is another possible outcome of whistleblowing. Rehg et al.

[19:222] define retaliation as “an undesirable action taken against a whistleblower in direct response to the whistleblowing”. Retaliation can occur either directly from the wrongdoer or from others within the organization. Rehg et al. [19] indicate that whistleblower power, seriousness of the wrongdoing, wrongdoer power and lack of organizational support are all antecedents of retaliation against whistleblowers. Parmerlee et al. [21] show that whistleblower characteristics (e.g., age and years of education) can impact the likelihood of retaliation. Fear of retaliation from within the organization has been shown to limit the effectiveness of robust organizational reporting mechanisms [22].

3.3 Whistleblowing channels

Another set of factors that influence whistleblowing dynamics are related to the reporting channel [23]. Whistleblowing involves the dissemination of highly sensitive information and can result in serious career and legal consequences for various parties. As such, the channel through which information about wrongdoing flows plays a key role in effective WS design. Once an individual has decided to blow the whistle, they are also tasked with deciding to whom they should report and using which channel. Employees are commonly faced with the decision of whether to report wrongdoings to

Table 1 Categorization of whistleblowing determinants

Construct(s) (Relationship Direction) [Hypothesis Results]	Construct(s) (Relationship Direction) [Hypothesis Results]	Construct(s) (Relationship Direction) [Hypothesis Results]
Actor-related determinants		
Role-prescription (+), moral compulsion (+), job performance (-) [24] [P]	Low whistleblower power in organization (-) [25] [C]	Reduced Expected Cost of Relation (-) [26] [C]
Knowledge on where to report (+), fear of retaliation (-), gender (+), and moral perceptions (+) [27] [C]	Corporate social responsibility (+) and wrongdoer rank (-) [28] [C]	Cultural orientation and attitudes (+/-) [29] [C]
Supervisor support (+), gender (+) and informal policies (+) [13] [P]	Potential harm (+) and social pressure (+) [30] [C]	Anonymity (+) and personal cost (-) [22] [C]
Perceived personal cost (-), public service motivation (+) and education on whistleblowing (+) [31] [C]	Self-esteem (+), locus of control (-) and ethical beliefs (+) [32] [C]	Cognitions (+) and anger (-) [33] [C]
Personal risk (-), trust in system quality (+), trust in report recipient (+) and system anonymity (+) [34] [C]	Prosocial behavioral characteristics (+/-) [35] [D]	Fear of external threat (+) and perceptions supervisor openness (+) [36] [C]
Perceived behavioral control (+), perceived norms (+), whistleblowing attitude (+), gender (-), organizational role (+) [37] [C]	Impulsion (+) and organizational commitment (+) [38] [D]	Job performance (+), satisfaction (+) and commitment (+) [39] [R]
Individual autonomy (+), morale (+), leader credibility (+), trust (+) and mobbing (-) [40] [P]	Mission valance (+), rational work motives (+), norm-based and affective work motives (+) [41] [P]	Attitude (+), subjective norms (+) and perceived behavioral control (+) [42] [P]
Organization/context-related determinants		
Deterrence sufficiency of whistleblowing system (+) and rewards (+) [43] [C]	Organizational response to wrongdoing (+) [25] [C]	Informal and formal reporting policies (+) [13] [Partially Confirmed]
Respect and openness (+), cooperativeness and flexibility (+), fair treatment (+), and trust in supervisory authority (+) [41]	Organizational justice (+) and safety culture (+) [40] [P]	Information Sharing (+), Partisan Political Environment (-), Training Effectiveness (+), Fairness in Personnel Practices (+), Transformational Leadership (+) [44] [C]
Organizational identification (+) [45] [C]	Organizational climate (+) and response to whistleblowing (+) [46] [C]	Bureaucracy (+) and regulation (-) [24] [C]
Organizational support (+), design of protection system from retaliation (+), proceduralization (+), and organizational diversity (+) [5] [P]	Procedural (+), distributive (+), and interactional justice (+) [47] [C]	Supportiveness of climate (+) [32] [C]

Organizational size (+), proceduralization (+), and whistleblowing training policies (+) [48] [C]	Organizational support and protection (+) [31] [C]	Differing incentive schemes (+) [49] [C]
Moral intensity (+) and ethical decision making (+) [50] [C]	Corporate social responsibility (+) [28] [C]	Clan (+) and hierarchical (-) organizational culture [39] [P]
Financial rewards (+) [22] [C]	Organizational Structure (+/-) [51] [C]	Incentives (+) [52] [C]
Wrongdoing-related determinants		
Seriousness of wrongdoing (+) [24] [C]	Type of wrongdoing (+/-) [24] [C]	Org dependence on wrongdoing (-) [25] [P]

*[C]: Relationship Confirmed

[R]: Relationship Rejected

[P]: Relationship Partially Confirmed

[D]: Proposed

entities outside the organization or to utilize internal reporting channels. Park et al. [29:930] define internal and external whistleblowing as: “Internal whistleblowing is the employee’s reporting of wrongdoing to a supervisor or someone else within the organization who can correct the wrongdoing (whether or not that person has formal responsibility for correcting the wrongdoing). External whistleblowing is reporting of a wrongdoing to outside agencies believed to have the necessary power to correct the wrongdoing.”

External reporting channels may exist through regulatory or governmental bodies, but also include more informal channels, such as media outlets [23]. Whistleblowers are more likely to utilize external reporting channels if their organizations do not have an internal formal process or system in place [53]. Characteristics of the wrongdoing, such as illegality, can also motivate external reporting behavior [6]. Social pressures, perceived potential harm, and individual value orientation can also impact likelihood of choosing an internal or external reporting channel [30].

External whistleblowing is less desirable from an organizational perspective; therefore, it is important for organizations to have available and well-utilized internal reporting channels [54]. However, some studies show that whistleblowers prefer utilizing internal reporting channels over external ones. Though, channel preference can differ depending on factors such as cultural attitudes toward whistleblowing (which can vary from country to country) or whether the organization is public or private [29].

Just as internal employees may observe and report wrongdoings, actors external to the organization may also blow the whistle on wrongdoings they observe. Audit practitioners provide an excellent example of such cases as they often audit other organizations as third party. Smaili and Arroyo [23] indicate that whistleblowers’ intrinsic motivations change depending on whether the whistleblower and the reporting channel are internal or external to the focal organization. Latan et al. [55] argue that whistleblowing behavior of external stakeholders, specifically customers, is often overlooked. Such observations can have implications for the design of effective WS. As such, different DO’s and features are likely necessary in designing WS depending on whether system users are internal and/or external to the focal organization.

3.4 Anonymity in whistleblowing

Whistleblowing channels differ in their support of anonymous reporting. One key provision from the Sarbanes-Oxley Act is the requirement that public companies provide and monitor an anonymous reporting channel [56]. Such anonymous reporting “hotlines” allow organizations to encourage whistleblowing by providing an alternative to a formal reporting process. Notwithstanding, organizations do encourage and train their employees to first try and report wrongdoing through non-anonymous channels before utilizing anonymous channels [56].

Whistleblowers’ choice of anonymous or non-anonymous channels for reporting depends on several factors. Whistleblowers often prefer using anonymous reporting channels especially in the presence of online channels [57]. However, their preference may vary depending on contextual factors such as industry settings and geographic location. In the auditing industry for example, auditors often prefer utilizing non-anonymous reporting channels [58] despite contrasting research, which finds that auditors do prefer anonymous reporting channels where available [55]. The preference of non-/anonymous reporting channels can also differ based on organization’s location and industry [29].

Another factor that influences the choice of anonymous or non-anonymous reporting channels is characteristics of the whistleblower including their value orientation and personality traits [59]. A third factor that affects the use and effectiveness of anonymous reporting channels is organizational characteristics including size and structure [60]. Such differing findings further highlight the potentially complex role of anonymity in effective WS design. A fourth factor is the potential threat of retaliation against the whistleblower. The choice of anonymous reporting channels grows to be more likely when the threat of retaliation is present [59]. Kaplan et al. [61] indicate that previous incidents of retaliation experienced by whistleblowers can reduce reporting likelihood through non-anonymous channels.

Anonymous reporting channels can increase report recipients’ trust in report information quality. Furthermore, such reporting channels can increase whistleblowers’ trust in the report recipient’s authority while decreasing perceived personal risk for the

whistleblower [34]. Lewis [62] indicates that in some cases, anonymity may be discouraged due to the perception that anonymous reports are less credible than non-anonymous ones. Similarly, Stubben and Welch [63] find that managers are less likely to substantiate claims in anonymous reports despite those reports tending to reveal more information about observed wrongdoing. However, to boost whistleblowing reports credibility, Young et al. [7] suggest that creating an active communication channel with the whistleblower can improve the effectiveness of anonymous reporting channels without sacrificing anonymity.

Boasting and guaranteeing anonymity do not always go hand in hand. Marcum and Young [8] stress that many WS in place “still fail to provide adequate anonymity protections for whistleblowers” as system design flaws and user negligence can compromise the anonymity of a reporting channel.

3.5 Technology

Legislations (e.g., the Sarbanes-Oxley act in the U.S.) requiring organizations to implement and monitor whistleblowing channels has led to wide adoption of IT/IS artifacts to fulfill these requirements [34]. Online WS, dubbed virtual whistleblowing, have received increasing research attention. Virtual whistleblowing takes place in online contexts, is anonymous, and often avails specific private networks to transmit information external to the organization where the wrongdoing took place [65]. Di Salvo [67] highlights two weaknesses of virtual whistleblowing. First, whistleblowers may still have their anonymity compromised despite best efforts. Second, virtual reporting channels available to large groups are subject to many false claims of wrongdoing. Gao et al. [9] find that employees are more likely to report wrongdoings via traditional phone communication with live agents than via phone communication utilizing a virtual agent (a form of artificial intelligence AI). Furthermore, they find that employees are more likely to utilize virtual channels that utilize live agents than those that do not. These results suggest opportunities for the use of AI-powered chatbots in boosting the effectiveness of virtual WS.

Whistleblowing systems typically involve anonymous “hotlines” through which employees can report observed wrongdoing [9]. Such hotlines can be operated by humans, but more recently the use of AI-powered chat-bots has gained prevalence [9]. Whistleblowing systems can also be external services offered to an organization, as in the case of EDQ in Europe, or internal, as in the case of KPMG who operate an internal whistleblowing system [2]. Virtual whistleblowing systems, such as “WikiLeaks” tend to utilize anonymous “dropboxes” in which whistleblowers

can provide evidence or communicate without fear of retribution or being identified [66].

Generally, whistleblowing legislations have not kept pace with virtual whistleblowing technologies, wasting likely gains in whistleblowing effectiveness [66]. As such, virtual whistleblowers may be discouraged to report wrongdoing due to fear of retaliation. Such observations highlight that while IS artifacts can and do enable whistleblowing, contextual factors such as legislations and culture can be impediments – considerations that need to be taken in the design of effective WS.

4. Design objectives for effective whistleblowing systems

Design objectives (DO’s) are the goals that a design should be able to achieve. The “Design for X” literature emphasizes the need to consider all design goals/objectives in the early stages of design, which is conducive to producing better artifacts. In industrial/manufacturing settings, “X” may refer to goals such as manufacturability, assembly, and quality to mention a few. Furthermore, the design science research methodology [64] has “defining requirements”, which includes developing DO’s as a key stage following the “problem definition” stage. Design science research pertains to the creation and evaluation of “IT artifacts intended to solve identified organizational problems” [64:77]. As such, our artifact of interest is an organizational whistleblowing system, as a general construct.

Peffer et al. [68] indicate that DO’s should be inferred from the problem definition stage of the research process. Furthermore, Hevner et al. [64] assert that in a design science methodology, the theoretical foundations and existing knowledge base of a subject should be effectively utilized in developing a design artifact. As the literature review reveals, whistleblowing involves multiple stakeholders and is experienced at multiple levels of analysis where WS effectiveness has implications at the individual, group, organizational, system and societal levels. Accordingly, our underlying methodology in proposing DO’s for effective WS is based on our stakeholder analysis combined with our synthesis and observations from the literature review along with the anecdotes in Factiva news dataset.

Following design science guidelines [68], we distinguish between DO’s and DP’s. While DO’s are the general goals of the design regardless of how these goals are implemented, DP’s involve implementation aspects such as the functionality or features that can achieve the DO’s. While we expect divergence on DP’s across different WS implementations for pragmatic reasons, we expect consensus on DO’s regardless of the entity(ies)

that would operate a WS (e.g., corporations, independent regulatory bodies, not-for profit, and/or government organizations). We hope that this paper stimulates a discussion about consensus on DO's.

We observe from our review of the literature and qualitative examination of the Factiva dataset that whistleblowing thrives on the activities of the stakeholders involved. Stakeholder theory defines a stakeholder as “any group or individual who can affect or is affected by the achievement of the organization's objectives” [68:22]. Stakeholder theory has been widely used in IS research to understand the factors that lead to meeting their performance goals [69]. Several studies propose different methods in applying the stakeholder perspective in designing information and organizational systems [70, 71]. Common among these methods are first, identifying the stakeholders and second, identifying their stakes/interests, which should then be considered in systems design. Following these methods, Table 2 identifies the stakeholders in a whistleblowing scenario. We allow the victims of wrongdoings to be examined separately from whistleblowers. However, we treat the two as one entity who is in power to act on whistleblowing reports. Furthermore, based on our review of the literature, we identify the stakes for different stakeholders as shown in Table 2.

4.1 Protecting the whistleblower

“Whistleblowers are the single most important corporate resource for preventing fraud” [72]. The first and highest prioritized objective in designing effective WS is to protect the whistleblower from retaliation. The potential threat of retaliation can increase whistleblowers' perceived personal costs associated with reporting wrongdoing, and can lower reporting intention [5, 22, 29, 40]. The whistleblower bears the highest risk. Letting that risk cloud the whistleblower's decision-making process would weaken their intent and behavior to blow the whistle on organizational wrongdoings. Legislative testimonials and law journal publications have also emphasized the importance of protecting whistleblowers from retaliation [73].

The Factiva dataset reveals several recent cases of retaliation against employees who raised concerns related to their employers' handling of COVID-19 related processes. Furthermore, we find instances of retaliation against the whistleblower in large multinational corporations such as Alphabet, JPMorgan Chase & Co, Halliburton, Snapchat, AECOM Technology, and The Carlyle Group. The Factiva dataset also reveals calls for increased whistleblower protection in large U.S. government institutions such as the SEC, the Federal Bureau of Investigation and, most notably, the National

Security Administration (NSA) in the Edward Snowden Case.

Table 2 Stakes for stakeholders of organizational whistleblowing systems [74]

Stakeholder	Key Stakes	Key Stakeholder Characteristics
Whistleblowers	Reward, Retaliation	Personality, Demographic
Victims	Reward, Retaliation	Power, Credibility
Wrongdoers	Reputation, Career, Liability	Power, Credibility
Organizations	Reputation, Performance, Liability	Legislative setting, Appropriateness of whistleblowing

Beyond retaliation, which is inflicted by the wrongdoer and/or authorities in the organization, whistleblowers can also suffer stigmatic repercussions [75], which are inflicted by the organization's broader community. Such stigmatization can be extremely harmful and can lead to devastating social, economic, and mental health outcomes for whistleblowers [76]. One news article argues that many in Australia view whistleblowing as “un-Australian”, which results in instances of bullying and stigmatization by coworkers.

Anonymity of the whistleblower has been the dominant mechanism of protection in the current literature [56, 60, 77]. We regard anonymity as one, but not the only, DP for protecting whistleblowers. In many instances, whistleblowers choose to reveal their identity for various reasons, including infusing credibility in their reports. For example, the much-publicized case of Edward Snowden who went beyond simply revealing his identity to participating in the development of a documentary. Accordingly, we propose that,

DOI: WS will have the objective of protecting the whistleblower from potential retaliation and/or stigmatization resulting from reporting wrongdoings.

4.2 Protecting the victims of wrongdoing

While the whistleblower may be the victim (or one of the victims) of wrongdoing, this is not always the case. In the audit industry for example, the whistleblower may be an auditor external to an organization and is not a victim of fraud [13]. Individuals may be less pressured to blow the whistle the further their proximity is from the victim(s) [30]. For instance, the Factiva dataset shows a report where an Italian researcher was pressured into falsifying data in a WHO report that examined Italy's COVID-19 pandemic preparedness. Public servants who blow the whistle on wrongdoings in their organizations are driven by their motivation to protect and inform the public, who in this case could be classified as the victims [2]. One article by Sarah Champion, a U.K. MP, indicated that victims of abuse may become more vulnerable to escalation of the wrongdoing after the whistle has been blown. This 2017 article was a call for

change within the Parliamentary system regarding abuse scandals. This case provides tangible evidence that the victims of wrongdoing could see their situation worsen if the whistle was blown on their behalf, or own accord. As such, WS should make provisions to protect not only whistleblowers but also victims of wrongdoings from retaliation. Accordingly, we propose that,

DO2: WS will have the objective of identifying and protecting the victims of wrongdoing from potential retaliation resulting from reported wrongdoings.

4.3 Protecting the falsely accused

Not all whistleblowing reports are valid – some are false, unfounded, and/or inaccurate in representing the facts or accusing the right entity. This is especially the case in virtual whistleblowing systems that receive a large number of reports [35] and where reporting can be easy, costless, and anonymous. Vandekerckhove [78] asserts that for whistleblowing to be effective, false reports must be identified and excluded. At one extreme, false accusation can be made intentionally, which in and of itself is seen as a form of wrongdoing [28] that WS should seek to identify. Bouter and Hendrix [79] argue that like whistleblowers, the falsely accused are a vulnerable group in need of protection.

The Factiva dataset reveals several cases of whistleblowing involving false accusations. In one case, a University of Toronto employee falsely accused a coworker of threatening them at knifepoint and was eventually terminated because of their false accusation. Several other cases in the dataset point to negative career consequences for executives and high-level managers who are victims of false whistleblowing, and negative financial performance and credibility consequences for the focal organizations. As a side effect, the Factiva dataset also indicates that protecting wrongdoers from false whistleblowing can discourage whistleblowing in general. However, protecting the falsely accused by identifying false whistleblowing remains necessary to infuse stakeholders' trust in whistleblowing reports. As such, any protections for falsely accused wrongdoers must not dissuade possible whistleblowers. Protecting the falsely accused by identifying and excluding false whistleblowing is necessary as a self-cleaning mechanism to maintain credible regard for whistleblowing reports. Accordingly, we propose that,

DO3: WS will have the objective of identifying false accusations to protect the alleged wrongdoer from potential consequences of false accusations.

4.4 Pressuring the organization to act

Whistleblowing is often implemented as a vehicle for organizational change and therefore necessitates an

organizational response to act to resolve reported wrongdoings [80]. Verschuuren [81] indicates that the expected organizational response to reported wrongdoing plays a key role in the implementation of effective reporting mechanisms. Termination of the wrongdoing is one possible organizational response to wrongdoing, but it is not the only one [6]. Mesmer-Magnus [12] indicates that once the whistle has been blown, the organization is faced with two key decisions: whether to act on or disregard the report. There are many whistleblowing cases in the Factiva dataset that show that the respective organizations took action to address the wrongdoings. However, there are also many cases of organizations' inaction toward reported wrongdoings.

One case of inaction has recently surfaced when two former Michigan football players went public pledging they could have been spared from sexual assaults if their coach, Bo Schembechler, had addressed complaints about former team doctor Robert Anderson made by Schembechler's son, Matt who was also molested by the same doctor at the age of 10. The coach ignored his own son's whistleblowing, letting the predator later prey on the two players among 800 others who also filed similar legal claims of sexual abuse.

Some organizations may act albeit late, which also causes more victims to fall prey to the wrongdoer. In the wake of the U.S.A Women's Gymnastics team scandal where their osteopathic physician – a Michigan State University medical faculty member – sexually abused team players who were mostly minors. The university's Acting President formally apologized to the survivors where he acknowledged the university was too slow to grasp the enormity of the offenses and failed to treat them with the care and respect they deserved [82]. While cases of the physician's abuse reportedly started during the 1990s, U.S.A Gymnastics denied knowledge of any wrongdoing until 2015. Belkin and Radnofsky [83] report that Michigan State University was aware of and had the chance to stop the wrongdoing but did not do so. When one such case of abuse is too many, delay in acting to stop the wrongdoing brought the tally of victims to 332. Michigan State later settled with the victims for over \$500 million USD.

Also, when organizational action is disproportionately weak compared to the magnitude of the wrongdoing, more victims could fall prey. In one case reported in the Factiva dataset, whistleblowers at 23 care homes across Britain have claimed that tests showing residents had Covid-19 were deliberately not disclosed to staff or families by care home authorities. Staff members were told to play the test results down as disclosing them would "reflect badly" on the homes. As a result of this organizational cover-up, care workers and residents were subjected to infection threats of COVID-19 and some likely unnecessarily contracted it.

Moore and McAuliffe [17] find that most whistleblowers are dissatisfied with organizational action (or lack thereof) to reported wrongdoings. Aside from dysfunction, organizational inaction or late and/or disproportionately weak response to whistleblowing reports can be motivated by their interest in maintaining the status quo and/or protecting those in power. Given the above, pressure should be kept on organizations where wrongdoings are reported to act swiftly and to do so in a manner proportionate to the wrongdoing. Accordingly, we propose that,

DO4: WS will have the objective of pressuring organizations in power to act swiftly and proportionately to address whistleblowing reports.

We speculate that the proposed DO's would be applicable across organizations and countries. Protecting the stakeholders of whistleblowing (the first three DO's) and pressuring the focal organizations to act on reports of whistleblowing are likely to be essential for effective whistleblowing regardless of context. Ultimately however, confirming these speculations would require empirical research.

5. Conclusions and future work

At the intersection of corruption, power, public good, and individuals' well-being lies organizational whistleblowing, the most important mechanism in preventing systematic corruption. Despite growing whistleblowing research, regulation, and technology, the fight against organizational corruption appears far from over yet. This research embarks on designing effective WS using systematic theory- and data-driven design science methodology. Toward this goal, we find a myriad of stakeholders with a mesh of tangling interests that we build upon in proposing key DO's for effective WS aiming to protect the stakes and uphold the interests of stakeholders.

Our findings and proposed DO's are a foundation to mount an agenda for future research. First, following best practices [70], we will empirically examine the validity of the proposed DO's using focus groups involving sample stakeholders from actual organizational whistleblowing cases that already took place in North American context. Second, to operationalize the proposed DO's, we will develop a set of DP's to be implemented in a real-life whistleblowing system to allow for field experimental data collection and system effectiveness performance evaluation.

In the wake of whistleblowing reports on momentous wrongdoings involving vulnerable groups, we hope that our research is a step toward safer and more effective whistleblowing for all stakeholders involved and toward an organizational corruption-free society.

References

- [1] Rachagan, S., and K. Kuppusamy, "Encouraging Whistle Blowing to Improve Corporate Governance? A Malaysian Initiative", *Journal of Business Ethics* 115(2), 2013, pp. 367–382.
- [2] "Factiva", *Dow Jones and Company*, 2021. <https://global.factiva.com/>
- [3] Stubben, S.R., and K.T. Welch, "Evidence on the Use and Efficacy of Internal Whistleblowing Systems", *Journal of Accounting Research* 58(2), 2020, pp. 473–518.
- [4] Jubb, P.B., "Whistleblowing: A Restrictive Definition and Interpretation", *Journal of Business Ethics* 21(1), 1999, pp. 77–94.
- [5] Palumbo, R., and R. Manna, "Uncovering the relationship between whistleblowing and organizational identity: Some preliminary evidence from Italian publicly owned universities", *International Journal of Public Sector Management* 33(1), 2019, pp. 94–112.
- [6] Near, J.P., and M.P. Miceli, "Effective Whistle-Blowing", *The Academy of Management Review* 20(3), 1995, pp. 679.
- [7] Young, J.A., J.F. Courtney, R.J. Bennett, T.S. Ellis, and C. Posey, "The impact of anonymous, two-way, computer-mediated communication on perceived whistleblower credibility", *Information Technology and People*, 2020.
- [8] Marcum, T.M., and J.A. Young, "Blowing the Whistle in the Digital Age: Are You Really Anonymous? The Perils and Pitfalls of Anonymity in Whistleblowing Law", *DePaul Business & Commercial Law Journal*, 2019.
- [9] Gao, L., "Technology Advancements for Whistleblowing Reporting Platforms and Employees' Decision to Blow the Whistle", *Accounting and the Public Interest*, 2020.
- [10] Snyder, H., "Literature review as a research methodology: An overview and guidelines", *Journal of Business Research* 104(August), 2019, pp. 333–339.
- [11] Johannesson, P., and E. Perjons, *An introduction to design science*, Springer, 2014.
- [12] Mesmer-Magnus, J.R., and C. Viswesvaran, "Whistleblowing in organizations: An examination of correlates of whistleblowing intentions, actions, and retaliation", *Journal of Business Ethics* 62(3), 2005, pp. 277–297.
- [13] Sims, R.L., and J.P. Keenan, "Predictors of External Whistleblowing: Organizational and Intrapersonal Variables", *Journal of Business Ethics* 17(4), 1998, pp. 411.
- [14] Gao, L., A.G. Brink, and L. Gao, "Whistleblowing studies in accounting research: A review of experimental studies on the determinants of whistleblowing.", *Journal of Accounting Literature* 38, 2017, 1.
- [15] Ajzen, I., "The theory of planned behavior", *Organizational behavior and human decision processes* 50(2), 1991, pp. 179–211.
- [16] Gagozzi, R.P., "The Self-Regulation of Attitudes, Intentions, and Behavior", *Social Psychology Quarterly* 55(2), 1992, pp. 178–204.
- [17] Moore, L., and E. McAuliffe, "Is inadequate response to whistleblowing perpetuating a culture of silence in hospitals?", *Clinical Governance: An International Journal* 15(3), 2010, pp. 166–178.

- [18] Skivenes, M., and S.C. Trygstad, "When whistle-blowing works: The Norwegian case", *Human Relations* 63(7), 2010, pp. 1071–1097.
- [19] Rehg, M.T., M.P. Miceli, J.P. Near, and J.R. van Scotter, "Antecedents and outcomes of retaliation against whistleblowers: Gender differences and power relationships", *Organization Science* 19(2), 2008, pp. 221–240.
- [20] Sumanth, J.J., D.M. Mayer, and V.S. Kay, "Why good guys finish last", *Organizational Psychology Review* 1(2), 2011, pp. 165–184.
- [21] Parmerlee, M.A., J.P. Near, and T.C. Jensen, "Correlates of Whistle-Blowers' Perceptions of Organizational Retaliation", *Administrative Science Quarterly* 27(1), 1982, pp. 17.
- [22] Utami, N.M.M.A., G. Irianto, and Y.W. Prihatiningtias, "Analyzing the effect of financial reward, personal cost and reporting channel on whistleblowing intentions utilizing an experimental study", *International Journal of Research in Business and Social Science (2147- 4478)* 9(2), 2020, pp. 125–132.
- [23] Smaili, N., and P. Arroyo, "Categorization of Whistleblowers Using the Whistleblowing Triangle", *Journal of Business Ethics* 157(1), 2019, pp. 95–117.
- [24] Miceli, M.P., J.P. Near, and C.R. Schwenk, "Who Blows the Whistle and Why?", *Industrial and Labor Relations Review* 45(1), 1991, pp. 113.
- [25] Callahan, E.S., and T.M. Dworkin, "Who Blows the Whistle to the Media, and Why: Organizational Characteristics of Media Whistleblowers", *American Business Law Journal* 32(2), 1994, pp. 151–184.
- [26] Heese, J., and G. Pérez-Cavazos, "The effect of retaliation costs on employee whistleblowing", *Journal of accounting and economics*. 71, 2021, 101385.
- [27] Keenan, J.P., "Whistleblowing and the First-Level Manager: Determinants of Feeling Obligated to Blow the Whistle", *Journal of Social Behavior and Personality* 10(3), 1995, pp. 571.
- [28] Brink, A.G., C.K. Eller, and K.Y. Green, "The effects of corporate social responsibility and wrongdoer rank on whistleblowing", *Accounting and the Public Interest* 18(1), 2018, pp. 104–128.
- [29] Park, H., J. Blenkinsopp, M.K. Oktem, and U. Omurgonulsen, "Cultural orientation and attitudes toward different forms of whistleblowing: A comparison of South Korea, Turkey, and the U.K.", *Journal of Business Ethics* 82(4), 2008, pp. 929–939.
- [30] Chen, C.P., and C.T. Lai, "To blow or not to blow the whistle: The effects of potential harm, social pressure and organisational commitment on whistleblowing intention and behaviour", *Business Ethics* 23(3), 2014, pp. 327–342.
- [31] Cho, Y.J., and H.J. Song, "Determinants of whistleblowing within government agencies", *Public Personnel Management* 44(4), 2015, pp. 450–472.
- [32] Starkey, P.L., "Whistleblowing behavior: The impact of situational and personality variables", *ProQuest Dissertations and Theses*, 1998.
- [33] Gundlach, M.J., M.J. Martinko, and S.C.B.T.-S.A.M.A.M.J. Douglas, "A new approach to examining whistle-blowing: the influence of cognitions and anger", *Advanced Management Journal* 73(4), 2008, pp. 40+.
- [34] Lowry, P., G. Moody, D. Galletta, and A. Vance, "The drivers in the use of online whistle-blowing reporting systems", *Journal of Management Information Systems* 30(1), 2013, pp. 153–190.
- [35] Dozier, J.B., and M.P. Miceli, "Potential Predictors of Whistle-Blowing. A Prosocial Behavior Perspective.", *Academy of Management Review* 10(4), 1985, pp. 823–836.
- [36] Lebel, R.D., "Overcoming the fear factor: How perceptions of supervisor openness lead employees to speak up when fearing external threat", *Organizational Behavior and Human Decision Processes* 135, 2016, pp. 10–21.
- [37] Brown, J.O., J. Hays, and M.T. Stuebs, "Modeling accountant whistleblowing intentions: Applying the theory of planned behavior and the fraud triangle", *Accounting and the Public Interest* 16(1), 2016, pp. 28–56.
- [38] Hennequin, E., "What motivates internal whistleblowing? A typology adapted to the French context", *European Management Journal* 38(5), 2020, pp. 804–813.
- [39] Taylor, J., "What causes employees to whistle while they work? Factors affecting internal whistle-blowing in the Australian Public Service", *Australian Journal of Public Administration* 78(4), 2019, pp. 497–515.
- [40] Iko Afe, C.E., A. Abodohou, T.G.C. Mebounou, and E. Karuranga, "Perceived organizational climate and whistleblowing intention in academic organizations: evidence from Selçuk University (Turkey)", *Eurasian Business Review*, 2018, pp. 1–20.
- [41] Lavena, C.F., "Whistle-Blowing: Individual and Organizational Determinants of the Decision to Report Wrongdoing in the Federal Government", *American Review of Public Administration* 46(1), 2016, pp. 113–136.
- [42] Zakaria, M., N. Omar, I. Rosnidah, H. Bustaman, and S. Hadiyati, "Adopting The Planned Behavioural Theory in Predicting Whistleblowing Intentions Among Indonesian Public Officials", *MANAGEMENT & ACCOUNTING REVIEW* 19(3), 2020.
- [43] Ayagre, P., and J.A. Buameh, "Whistleblower Reward and Systems Implementation Effects on", *European Journal of Accounting Auditing and Finance Research* 2(1), 2014, pp. 80–90.
- [44] Kwon, M., S.H. Jeon, and Y. Ting, "The Impact of Predisposed Traits and Organizational Factors on the U.S. Federal Employee Perception of Whistleblowing", *Public personnel management*. 50, 2021, 258–282.
- [45] Liu, Y., S. Zhao, R. Li, L. Zhou, and F. Tian, "The relationship between organizational identification and internal whistle-blowing: the joint moderating effects of perceived ethical climate and proactive personality", *Review of Managerial Science* 12(1), 2018, pp. 113–134.
- [46] Waples, C.J., and S.S. Culbertson, "Best-laid plans: Can whistleblowing on project problems be encouraged?", *Academy of Management Perspectives* 25(2), 2011, pp. 80–82.
- [47] Seifert, D.L., J.T. Sweeney, J. Joireman, and J.M. Thornton, "The influence of organizational justice on accountant whistleblowing", *Accounting, Organizations and Society* 35(7), 2010, pp. 707–717.
- [48] Previtali, P., and P. Cerchiello, "The determinants of whistleblowing in public administrations: an analysis conducted in Italian health organizations, universities, and

- municipalities”, *Public Management Review* 20(11), 2018, pp. 1683–1701.
- [49] Boo, E., T.B.P. Ng, and P.G. Shankar, “Effects of incentive scheme and working relationship on whistle-blowing in an audit setting”, *Auditing* 35(4), 2016, pp. 23–38.
- [50] Valentine, S., and L. Godkin, “Moral intensity, ethical decision making, and whistleblowing intention”, *Journal of Business Research* 98(January), 2019, pp. 277–288.
- [51] King, G., “The Implications of an Organization’s Structure on Whistleblowing”, *Journal of Business Ethics* 20(4), 1999, pp. 315.
- [52] Andon, P., C. Free, R. Jidin, G.S. Monroe, and M.J. Turner, “The Impact of Financial Incentives and Perceptions of Seriousness on Whistleblowing Intention”, *Journal of Business Ethics* 151(1), 2018, pp. 165–178.
- [53] Miceli, M.P., J.P. Near, and T.M. Dworkin, *Whistle-blowing in organizations.*, Routledge/Taylor & Francis Group, New York, NY, US, 2008.
- [54] Jeon, S.H., “Where to report wrongdoings? Exploring the determinants of internal versus external whistleblowing”, *International Review of Public Administration* 22(2), 2017, pp. 153–171.
- [55] Latan, H., C.J. Chiappetta Jabbour, and A.B. Lopes de Sousa Jabbour, “Social Media as a Form of Virtual Whistleblowing: Empirical Evidence for Elements of the Diamond Model”, *Journal of Business Ethics*(0123456789), 2020.
- [56] Berry, B., “Organizational culture: A framework and strategies for facilitating employee whistleblowing”, *Employee Responsibilities and Rights Journal* 16(1), 2004, pp. 1–11.
- [57] Roth, V., B. Güldenring, E. Rieffel, S. Dietrich, and L. Ries, “A secure submission system for online whistleblowing platforms”, *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, (2013), 354–361.
- [58] Robertson, J.C., C.M. Stefaniak, and M.B. Curtis, “Does wrongdoer reputation matter? impact of auditor-wrongdoer performance and likeability reputations on fellow auditors’ intention to take action and choice of reporting outlet”, *Behavioral Research in Accounting* 23(2), 2011, pp. 207–234.
- [59] Dhamija, S., and S. Rai, “Role of retaliation and value orientation in whistleblowing intentions”, *Asian Journal of Business Ethics*, 2017, pp. 37–52.
- [60] Johansson, E., and P. Carey, “Detecting Fraud: The Role of the Anonymous Reporting Channel”, *Journal of Business Ethics* 139(2), 2016, pp. 391–409.
- [61] Kaplan, S.E., K. Pany, J. Samuels, and J. Zhang, “An examination of anonymous and non-anonymous fraud reporting channels”, *Advances in Accounting* 28(1), 2012, pp. 88–95.
- [62] Lewis, D., “The contents of whistleblowing/confidential reporting procedures in the UK: Some lessons from empirical research”, *Employee Relations* 28(1), 2006, pp. 76–86.
- [63] Stubben, S.R., and K.T. Welch, “Evidence on the Use and Efficacy of Internal Whistleblowing Systems”, *Journal of Accounting Research* 58(2), 2020, pp. 473–518.
- [64] Hevner, A.R., S.T. March, J. Park, and S. Ram, “Design science in information systems research”, *MIS Quarterly: Management Information Systems* 28(1), 2004, pp. 75–105.
- [65] Lam, H., and M. Harcourt, “Whistle-blowing in the digital era: motives, issues and recommendations”, *New Technology, Work and Employment* 34(2), 2019, pp. 174–190.
- [66] Cherry, M.A., “Virtual whistleblowing”, *S. Tex. L. Rev.* 54, 2012, pp. 9.
- [67] di Salvo, P., “Securing Whistleblowing in the Digital Age: SecureDrop and the Changing Journalistic Practices for Source Protection”, *Digital Journalism* 0(0), 2021, pp. 1–18.
- [68] Peffers, K., T. Tuunanen, M.A. Rothenberger, and S. Chatterjee, “A Design Science Research Methodology for Information Systems Research”, *Journal of Management Information Systems* 24(3), 2007, pp. 45–77.
- [69] Freeman, R.E., *Strategic management : a stakeholder approach*, Pitman, Boston, 1984.
- [70] Bryl, V., P. Giorgini, and J. Mylopoulos, “Designing socio-technical systems: From stakeholder goals to social networks”, *Requirements Engineering* 14(1), 2009, pp. 47–70.
- [71] Yuthas, K., and J.F. Dillard, “Ethical Development of Advanced Technology”, *Journal of Business Ethics* 19, 1999, pp. 35–49.
- [72] Elias, A.A., R.Y. Cavana, and L.S. Jackson, “Stakeholder analysis for R&D project management”, *R&D Management* 32(4), 2002, pp. 301–310.
- [73] National Whistleblowers Center, “www.whistleblowers.org”, www.whistleblowers.org, 2021.
- [74] Chodos, B., “Getting to the heart of the SNC-Lavalin affair”, *Inroads (Ottawa)*(45), 2019, pp. 72.
- [75] Elias, A.A., R.Y. Cavana, and L.S. Jackson, “Stakeholder analysis for R & D project management”, *R and D Management* 32(4), 2002, pp. 301–310.
- [76] Stein, M., “The Lost Good Self: Why the whistleblower is hated and stigmatized”, *Organization Studies*, 2019.
- [77] Kenny, K., M. Fotaki, and S. Sriver, “Mental Health as a Weapon: Whistleblower Retaliation and Normative Violence”, *Journal of Business Ethics* 160(3), 2019, pp. 801–815.
- [78] Curtis, M.B., and E.Z. Taylor, “Whistleblowing in public accounting: Influence of identity disclosure, situational context, and personal characteristics”, *Accounting and the Public Interest* 9(1), 2009, pp. 191–220.
- [79] Vandekerckhove, W., “Whistleblowing and Information Ethics: Facilitation, Entropy, and Ecopoiesis”, *Journal of Business Ethics* 152(1), 2018, pp. 15–25.
- [80] Bouter, L.M., and S. Hendrix, “Both Whistleblowers and the Scientists They Accuse Are Vulnerable and Deserve Protection”, *Accountability in Research* 24(6), 2017, pp. 359–366.
- [81] Miceli, M.P., J.P. Near, and T.M. Dworkin, “A word to the wise: How managers and policy-makers can encourage employees to report wrongdoing”, *Journal of Business Ethics* 86(3), 2009, pp. 379–396.
- [82] Verschuuren, P., “Whistleblowing determinants and the effectiveness of reporting channels in the international sports sector”, *Sport Management Review* 23(1), 2020, pp. 142–154.
- [83] Michigan State University News, “Nassar-related information”, *Michigan State University*.
- [84] Belkin, D., and L. Radnofsky, “Michigan State to Pay Victims of Larry Nassar Abuse \$500 Million”, *Factiva*, 2018.