



# The Role of Technology-Ethical Leadership Interaction in Minimising Unethical Acts: Implications for Research and Practice

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**Abstract.** Various historical events and attitudes have demonstrated that ethical leaders might intentionally or unintentionally make unethical decisions. History suggests that ethical leaders relying on strong technology alone could make unforgivable mistakes, but their interaction can limit such mistakes. In this study, we suggest that the interaction between technology and ethical leadership is proposed as a key factor in precluding or minimising unethical decisions by providing checks and balances capable of reducing the potential for unethical acts. A conceptual model is offered, along with propositions to help guide future research and practice. The degree to which technology and ethical leadership interact represents one of the key factors in understanding the potential for ethical/unethical acts. This conceptual study does not contain empirical data. This study is the first attempt that proposes the need of technology-leadership interaction to minimise unethical acts.

**Keywords:** Technology/ethical leadership · unethical acts · rules · code of ethics

## 1 Introduction

Unethical acts resulting from a reliance on human (ethical) leadership or technology alone have significantly contributed to the topic of business ethics (Cialdini et al. 2021, Hoogervorst et al. 2010; Stylianou et al. 2013; Winter et al. 2004), and, in addition, have become an important issue in multidisciplinary and interdisciplinary literature. Some believe that any investment in the integration of both ethical leadership and technology is the primary key to understanding unethical acts (e.g., Duan et al. 2019). The existence of an association between ethical leadership practices and increased success in Business-to-Business Marketing was revealed by Lin and colleagues (2020), who found from a study of 465 IT Service companies that ethical leadership moderates the technological innovation-financial performance relationship. Accordingly, in the present paper we focus specifically on the role played by the interaction between ethical leadership and technology in the prevention or avoidance of unethical behaviour within organisations.

Well before the emergence of advanced or Artificial Intelligence technologies, a review of the literature on the unethical role of technology revealed that although there are a wide number of studies that mention this negative influence (e.g., Bush et al. 2010; Charki et al. 2017; Leonard and Cronan, 2001; Stylianou et al. 2013), it is argued that there is no need to create a separate ‘ethics of every subtype of technology’ or technological property because all technologies are ethically relevant (Sætra and Danaher, 2022). However, the news media frequently report errors made in every field of technology. Unfortunately, some of these errors result in long-term suffering for individuals and families as when, for example, medical technologies fail to achieve safety criteria and contribute to increased rates of injury or death. An empirical study conducted by Samaranyake et al. (2012), investigated technology-related medication errors between 2006 and 2010. The study revealed that unintended and unanticipated errors can persist even when technology that is designed to reduce error is applied. Moreover, an individual leader can play an essential role in the institutionalisation of unethical practices in an organisation by condoning or supporting unethical practices. An individual leader whose behaviour was unethical would be in position to authorise unethical practices that become pervasive within an organisation (Pearce et al. 2008).

Ill-defined rules or regulatory codes of poor quality can also be the cause of limitless differences in interpretation, resulting in the legitimisation of unethical practices, especially when situational factors and/or political agendas lend authority to such practices. The evidential basis for the link between poorly devised rules and unethical acts has been shown to exist (e.g., Lindgreen, 2004; Poole-Robb and Bailey, 2002), and can be illustrated with reference to events in areas such as politics and sport. We may take as an example the controversial speech given by the American Secretary of State, Colin Powell, to the United Nations Security Council on February 5th, 2003, intended to justify war with Iraq. Intervention by the US and the waging of a war of aggression without the authority of the United Nations and the UN Security Council was not in keeping either with the American democratic tradition or with its moral laws (Zarefsky, 2007). In this example, we note that the Bush administration attempted to justify its war on Iraq by relying on the authority given to the UN Security Council under the UN Charter to authorise member states to use force to repel threats to peace. However, no such threat existed, and consequently there was no legitimate justification for war.

Another example, this time taken from sport, is the case of ‘the hand of Maradona’ that destroyed the England team’s chances in the World Cup quarter-final of 1986. Although none of the referees spotted this unethical behaviour, TV replays of the goal clearly established that Maradona’s goal was illegitimate, since it was scored with the use of his hand (Genschow et al. 2019). In this example, we can note that the rules of football at that time did not give the officials the right to disqualify a goal after the event. The amended rules of football that now exist allow referees to watch a recording of the event and then to make their decision. In Maradona’s case, referees were unable to cancel the goal after the match, because football rules and laws in the 80s did not allow such action.

We present a straightforward view of the role of rules in technology and also of the part played by individual leaders in the commission of unethical acts. First, we propose that ill-defined rules and poorly devised codes of ethical practice, (i.e., those that allow

hermeneutical differences within the organisation and also permit subjective variations (See also, Sims, 2002; Wasieleski and Hayibor, 2008) are negatively and directly related to unethical acts. Second, we propose that technology (e.g., Charki et al. 2017) and individual ethical leaders (see also, Weaver et al. 2005; Treviño and Nelson, 2007) are incapable of avoiding unethical acts unless they work together.

Although technology can be utilised by various kinds of leaders: responsible, authentic, transformational, etc., the focus in the present study is on the interaction of 'ethical' leadership and -technology. This interaction can be defined as "The use of information and technology to support and improve public policies and government operations, engage citizens and provide comprehensive and timely government services" (Scholl, 2008, p.23). In this paper, we assert that ethical leadership-technology interaction can be a relevant factor in deterring unethical acts. Finally, we assert that unethical acts and practice are a result of the use of technology in decision-making by an ethical leader acting alone and/or as a result of ill-defined rules and also poor-quality codes of conduct, which can also result in unlimited hermeneutical variations and subjective evaluations.

While we acknowledge that ethical leadership plays an essential role in combatting unethical behaviour in an organisation, it is unable to perform this function alone in the absence of a positive and supportive organisational climate (See also Sookdawoor and Grobler, 2022; Umphress and Bingham, 2011). Technology is one of the factors in such a climate. Conversely, technology stands in need of ethical leadership. Therefore, we posit that both ethical leadership and technology should be fully exploited in order to provide an effective buffer against all forms of unethical acts. Part of our argument concerning the role of ethical leadership and technology is that the two should be integrated in the fight against unethical activities within an organisation. Balanced use of ethical leadership and technology can be critically important in sensitive or potentially life-threatening circumstances (see Edwards et al. 2000). An example of such circumstances is the 1983 Soviet nuclear false alarm incident. During the cold war, the nuclear early warning system of the Soviet Union reported the launch of intercontinental ballistic missiles from military bases in the United States. However, it was found that these missile attack warnings were false alarms. The alarm was ignored by a Soviet officer, who thus rescued the world from a nuclear disaster, since the Soviet High Command might have decided to respond by attacking the American missile bases.

## 2 Theoretical Model and Research Propositions

### 2.1 Rules/Codes and Unethical Acts

People inside or outside organisations can be engaged in unethical acts in different ways (Brass et al. 1998; Jago and Pfeffer, 2019; Rees et al. 2021). The reasons for these behaviours are based on a variety of factors. For example, personal characteristics make individuals different in terms of their cognitive moral development, which affects their understanding of ethical behavioural standards (Giacalone et al. 2016; Reynolds, 2006). Role breadth is another reason where organisational citizenship behaviour literature justifies use of extra-role behaviour as a critical role for serving organisational purposes. However, these types of behaviour are not necessarily ethical (e.g., Turnipseed, 2002).

Additionally, culture has been used by cultural anthropologists and scholars to understand divergence and convergence among people, societies, and nations regarding values, norms, moral and ethics (e.g., Davis et al. 1998; Eisenbeiß and Brodbeck, 2014). It is known that national culture can hide within it informal forces (e.g., Wasta, Guanxi, Jeitinho) that can authorise unethical behaviour in the name of public benefit. (Dunfee and Warren, 2001; Duarte, 2006). Overall, this suggests that the public good can be perceived as a valid reason for legitimising unethical behaviour in some cultures, leading some individuals, societies, and countries to accept such behaviour (Smith et al. 2012a; Smith et al. 2012b).

Although the three reasons given above can be seen as grounds for authorising and legitimising unethical behaviour, we argue that rules and codes of ethics are the primary factor in the prohibition or minimisation of unethical acts. According to Merchant and Van der Stede (2012), rules and code of ethics enable domestic and foreign businesses to adjust and control ethical acts at personnel and culture levels.

In contrast, when there are neither strong rules nor a high-quality code of ethics inside or outside an organisation, misconduct prevails, whereas the effectiveness of rules and code of ethics lie in their capacity to deter unethical acts (See e.g., Adam and Rachman-Moore, 2004; Halter et al. 2009; Vitolla et al. 2021). No doubt, there are weaknesses that cause people to circumvent or break rules. Empirical research investigating the relationship between effective business codes of ethics and unethical behaviour revealed that the mere existence of an effective code of business ethics has the effect of minimising unethical behaviour in an organisation (Kaptein, 2011).

In the literature of business ethics there are discussions of cases in which employees engaged in unethical acts for the intended purpose of benefitting the organisations to which they belonged (Umphress and Bingham, 2011). In such cases, we should be aware of the differences between individuals in terms of their understanding of ethical standards (e.g., Duh et al. 2010; Finegan, 1994). Future research may explore how geographical location frames people's understanding of ethical behaviour. Ethical standards in one geographical location can be different from, or entirely opposite to, those of another location, particularly, when the public benefit is the primary justification for action. Empirical evidence has revealed that voluntary and non-profit leaders in the Middle East do not hesitate to practice unethical acts for a public benefit (Megheirkouni and Weir, 2019). The following proposition more formally articulates this viewpoint, the logic of which is depicted in Fig. 1

**Hypothesis 1:** *Ill-defined rules and low-quality codes of ethics promote unethical acts, such that those rules and codes can be a key for unlimited hermeneutics, resulting in unethical acts.*

## 2.2 Technology/Ethical Leader Solo and Technology- Ethical Leadership Interaction

Ethical leadership is a critical element in supporting positive functional outcomes (Eisenbeiß et al. 2015; Kalshoven et al. 2011). Brown and Treviño (2006) suggested several factors that moderate the effect of individual characteristics and situational influences in ethical leadership. The ethical context in which ethical leaders operate is one of the key factors in this regard. According to Treviño et al. (1998), the ethical context and

ethical culture can determine whether the organisation supports ethical behaviour and practices. Ethical culture refers to a subset of an organisation's culture, including formal and informal behavioural control systems that can moderate the relationship between an individual's level of moral reasoning and ethical/unethical acts (Trevino, 1986; Trevino and Nelson, 2021).

Ethical climate refers to "the prevailing perceptions of typical organisational practices and procedures that have ethical content" or "those aspects of work climate that determine what constitutes ethical behaviour at work" (Victor and Cullen, 1988, p. 101). Although little is known about the ways in which an unethical climate affects an ethical leader's success and whether this kind of leadership would be accepted when the organisation reinforces an unethical culture (Morais and Randsley de Moura, 2018), we propose that an ethical leader is unable to work effectively without a supportive environment inside or outside the organisation. Technology is one powerful factor in the 21st century, where ethical leadership would be weakened by its absence. In other words, interaction between ethical leaders and technology provides an ethical leader with a capability for better control, knowledge and understanding.

Advanced technology, however, despite its rapid development over the last two decades, is not free from a reputation for being unethical and of presenting a long-term threat to human beings (Duan et al, 2019). For instance, technology failure has been discussed in its various forms, such as its financial impact on business and the market (Bharadwaj et al. 2009), manipulation and control (Cram and Wiener, 2020), which is its principal means of facilitating unethical behaviour (Chatterjee et al. 2015), and because of the practice of transferring risky technology to countries lacking in trained and skilled personnel (Velasquez, 2000). In this study, we propose that technology alone is unable to work effectively in providing satisfying results and in spreading its benefits across the whole organisational structure. It needs to be under the controlling influence of ethical leaders. This relationship can be expressed by the following proposition:

***Hypothesis 2:*** *The dependency on technology alone or on ethical leadership alone is ineffective, and this weakness can be avoided through an integrated relationship of the two.*

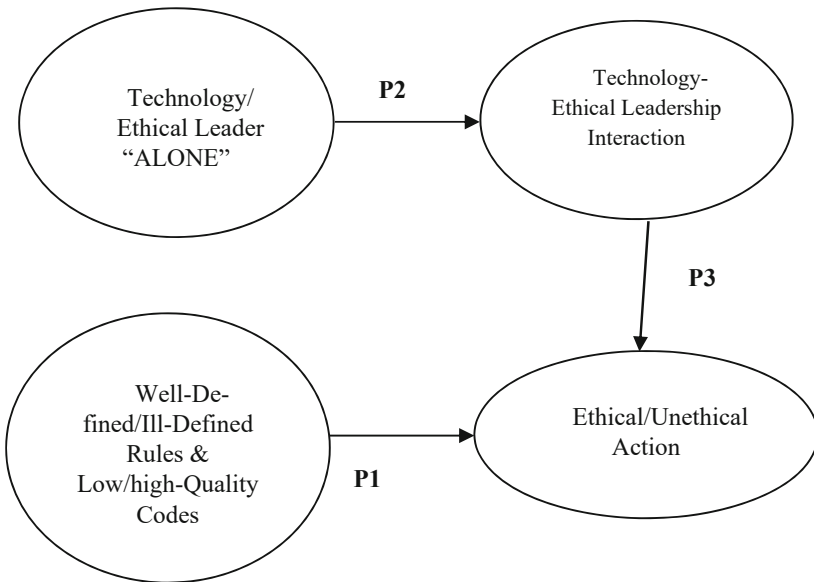
### **2.3 Technology- Ethical Leadership Interaction and Unethical Action**

The empirical evidence on human-technology interaction to date has consistently linked it to positive outcomes (Duan et al, 2019; Hudson et al. 2019; Orlikowski, 2000; Pitardi and Marriott, 2021; Thüring and Mahlke, 2007; Tay et al. 2014; Wilkens and Dewey, 2019). Most studies have examined some dimension of influence and efficacy stemming from this interaction. No study, however, has examined leadership-technology interaction in general and ethical leadership-technology interaction. The most clearly related to the present study is the work of Wilson and Daugherty (2018) who argue that collaboration between humans and artificial intelligence technologies is perceived as an effective tool to cope with today's business requirements. One of these requirements is ethical outcomes. Duan et al. (2019) found a link between advanced technologies and human decision makers. They claim that such technologies can play multiple roles in decision making by human decision makers, and thus can be perceived as a decision support and augmentation tool, particularly in environments that vary significantly in the degree of

endorsement of aspects of ethical leadership (e.g., Resick et al. 2006) and need more supportive tools, such technology.

Specifically, we view ethical leadership-technology interaction as an important moderator of the relationship between ill-defined rules as well as low-quality of codes and unethical acts. The basis of our argument in the present study is that ethical leadership-technology interaction can provide a robust system of checks and balances inside the organisation, thereby enhancing the latter’s creditability by acting as a moderator of the relationship between ill-defined rules as well as low-quality of codes and unethical acts. The following proposition more formally articulates this predictive relationship.

**Hypothesis 3:** *Technology-ethical leadership interaction will moderate the relationship between ill-defined rules as well as low-quality of codes and unethical acts. Specifically, when technology and ethical leadership are integrated for the purpose of organisational leadership and management tasks, the negative relationship between ill-defined rules as well as low-quality of codes will be weaker, and vice versa.*



**Fig. 1.** Theoretical model of technology/ethical leader “ALONE” and well-defined/ill-defined rules & low/high-quality codes, technology-ethical leadership interaction, and ethical/unethical acts

### 3 Implications

There are several potential theoretical and practical implications of technology-ethical leadership interaction that can be derived from the model we suggest. Specifically, our model, building on the work of scholars investigating technology-human interaction (Duan et al. 2019) ethical leadership and ethical climate (Hassan et al. 2014; Kuenzi

et al. 2020; Neubert et al. 2009), suggests that the orientation toward relying solely on technology or an ethical leader may need to be reconsidered if the aim is to mitigate against unethical practices or tendencies. Ethical leadership literature provides evidence that weak ethical climates (e.g., Lau and Wong, 2009) that can be seen in several forms, such as ill-defined rules as well as low-quality codes of ethical conduct, which encourage unethical behaviour, play an essential role in influencing the effectiveness of both ethical leaders and cutting-edge technology.

Technology has the power to facilitate and support the role of all kinds of leadership, including ethical leadership of an organisation. However, this power might differ based on the level of leadership and the situation (e.g., Parry et al. 2016). One perspective that can provide an explanation for this claim is offered by the analysis of expert systems adopted for business decision-making at different leadership decision levels: (strategic, tactical, and operational) (Edward, 2000). According to this analysis, technology can replace leadership decision makers at both operational and tactical levels (structure or semi structured decisions), but technology is more effective if it is used as a supportive tool for dealing with unstructured decisions at the strategic decision level. However, the analysis of expert systems adopted for business decision-making at different leadership decision levels shows the importance of technology-leadership interaction only at the strategic level. The example of the 1983 Soviet nuclear false alarm incident confirms that technology-leadership interaction is also essential at the lower levels of the military hierarchy. Despite its efficiency, advanced technology used for decision making cannot replace ethical leaders in situations where it functions as “an extended brain in making data-driven, evidence-informed decisions” that would facilitate a leader’s decision making using “a blend of data-driven, evidence-informed decision-making and value-based moral decision-making” (Wang, 2021, p 256). Accordingly, to the extent that existing theories and approaches evolve toward incorporating wider conceptualizations of leadership and its interaction with cutting edge technologies in the era of artificial intelligence, more research will be necessary in order to expand our existing knowledge regarding the importance of this interaction. More specifically, further efforts directly investigating the relationships between technology-ethical leadership interaction and its role in minimising unethical practices will be necessary.

Another interesting implication of our model relates to the implications of work by researchers such as Lin and colleagues, who studied the mediating role played by ethical leadership operating in the relationship between innovative AI and improved financial performance. Although it remains true that building ethical AI is “an enormously complex and challenging task” (Siau and Wang, 2020), the task is not merely technical or regulatory. It may also involve more emphasis on practice rather than theory, and thus practitioner-located field research is necessary for a better understanding of the behaviours and practices that may be regarded as “ethical” in real life situations, rather than further exegetic and theoretical critiques of the abstract principles or philosophical underpinnings of leadership. This may not require a reversion to the debates on “machine ethics” but an emphasis on the nature of agency that comprises both human and non-human agents. In this context the recent experience of the impact of Covid-driven

lockdowns of teaching systems and programme delivery in higher education may provide useful parallels in that the outcome seems to favour a blended learning strategy for successful outcomes, rather than the either/or of traditional or online-only models.

Human systems are inevitably complex systems (Beer, 1973) and the leadership of complex systems cannot be reduced to simplistic models, whether they be Asimov's three laws of robotics or Kant's categorical imperative. Beer, in the same publication, identifies something very significant for the interpretation we are proposing in this paper when he states that "The variety attenuators to use here are not policy documents from the centre, but the managers themselves. That is what managers are for. As to the criterion of fairness, the manager—or any individual, in whatever he does—ought to be ready to take responsibility for his own decisions." (Beer, 1973, p 37). The role of the leader needs to be strengthened further in a situation of complexity, where system outputs and operations must be mediated by those who are good practical ethical decision-makers. As Boulton (2022, p. 1) points out "...while those at Number Ten were taking advantage of the lovely weather and having 'socially distanced drinks' (in apparent contradiction of the 'rule of six' in place at the time), many in the country were suffering. People weren't allowed to spend precious time with their dying relatives". That is what leaders are for. They are not there to make strategic decisions. They are there to make right decisions. If leaders break the rules that they have set for others, just because they can or because they do not care about convention, it is the whole systemic framework that is damaged (Green, 2019).

Our own generation has witnessed a recognition that AI can encompass vastly more than variety-handling and has also come to realise that the complexity of humans and machines implies a need to understand and allow for an emergent ethical competence for them both. Therefore, a fortiori, complex systems that are both technologically sophisticated and are operating in diverse and evolving environments cannot be integrated into an all-encompassing set of strategies driven by infallible procedures or unquestionable protocols. The purpose and basis of organisational leadership is to deal with the unexpected because, whatever the odds against them, unpredicted events will happen. Thus, system designers need to accept that ethical decisions are very hard to make computable and that the needs for variety, diversity and that exceptional and adaptive evolutionary change require mediation from human agencies that are varied, flexible and more likely to lead to acceptable outcomes for all system elements.

This approach may make AI systems seem more rather than less robust. As Santos-Lang (2014) argues, reliance on AI paradigms such as neural networks and genetic algorithms indicates that as scientific method changes, so it will be necessary for ethical frameworks to evolve. But at no stage can outcomes be regarded as terminal while the possibility of change exists, so we are likely always to be in a situation of never-ending learning. In such an ecology, ill-defined rules have definite value. But accepting that AI can never provide absolute organisational certainty does not imply that something has gone wrong. The wrongness lies in the expectation of certainty because this has always unreasonable. A lack of absolute definition can only be seen as a system weakness in the short term. As the French proverb has it "autres temps, autres moeurs". The role of the ethical leader does not include claiming to abolish uncertainty. The outcomes of systems, however complex, will continue to be judged on the grounds of effectiveness in



relation to the achievement of humanly determined objectives rather than simplistically, on the criteria of efficiency of performance. De Rosa and Trabalzi (2016), who point out the way illegality becomes an institution, argue that legality and illegality are not universal value, but socially constructs that are the product of institutional selection. In line of this argument, we suggest that once technology is fixed and supported by heavy investment in hardware and specialist skills, then it becomes a constraining force that limited the range of possible behavioural outcomes.

## 4 Conclusion

Overall, it seems clear that technology-ethical leadership interaction deserves more theoretical and empirical attention. It offers a ground for the study of an important and under-researched ethical leadership perspective and a promising approach for the minimisation of unethical acts in organisations. Greater emphasis theoretically and practically on technology-ethical leadership may well offer the potential to help organisations limit the possibility of future unethical practices.

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