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Ethical decision-making in IT governance: A review of models and frameworks

Oluwatoyin Ajoke Farayola ^{1,*} and Oluwabukunmi Latifat Olorunfemi ²

¹ *Financial Technology and Analytics Department, Naveen Jindal School Management, Dallas Texas, USA.*

² *Independent Researcher, Chester, United Kingdom.*

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Abstract

Ethical decision-making within the realm of Information Technology (IT) governance is of paramount importance due to its far-reaching implications on organizational integrity, stakeholder trust, and societal welfare. This review presents a comprehensive review of various models and frameworks aimed at guiding ethical decision-making processes within IT governance contexts. The review begins by elucidating the fundamental principles underlying ethical decision-making, emphasizing the significance of moral reasoning, accountability, and transparency in IT governance. It then proceeds to examine prominent models and frameworks, categorizing them based on their theoretical foundations, applicability, and intended outcomes. Firstly, traditional normative ethical theories such as utilitarianism, deontology, and virtue ethics are discussed in the context of their application to IT governance dilemmas. These theories provide overarching ethical frameworks within which IT decision-makers can evaluate actions and policies. Secondly, the review delves into contemporary approaches specifically tailored for IT governance, including the Ethical Decision-Making Framework (EDMF), the Responsible Decision-Making Model (RDM), and the Ethical Governance Framework (EGF). These models offer systematic processes for identifying, analyzing, and resolving ethical dilemmas inherent in IT decision-making, considering factors such as privacy, security, intellectual property rights, and social responsibility. Furthermore, the review highlights the importance of integrating ethical considerations into existing IT governance frameworks, such as COBIT (Control Objectives for Information and Related Technologies) and ITIL (Information Technology Infrastructure Library), to ensure comprehensive governance practices. Lastly, the review examines emerging trends in ethical decision-making within IT governance, including the utilization of artificial intelligence and machine learning algorithms for ethical decision support, the incorporation of ethical design principles in software development processes, and the role of organizational culture in fostering ethical behavior among IT professionals. This review underscores the critical need for robust models and frameworks to guide ethical decision-making in IT governance, providing a foundation for organizations to navigate complex ethical dilemmas while upholding principles of integrity, accountability, and societal welfare.

Keywords: Ethical; Decision-Making; IT; Governance; Models; Framework; Review

1. Introduction

In today's interconnected digital landscape, where information technology (IT) plays a central role in organizational operations and decision-making, the importance of ethical considerations cannot be overstated. Ethical decision-making in IT governance serves as the cornerstone for fostering trust, ensuring accountability, and upholding societal values in the use and management of technology resources (Sucipto *et al.*, 2023). As such, understanding and implementing robust models and frameworks for ethical decision-making within IT governance contexts is imperative for organizations striving to navigate complex ethical dilemmas effectively (Nassar and Kamal, 2021).

* Corresponding author: Oluwatoyin Ajoke Fayayola

Ethical decision-making in IT governance holds profound significance due to its multifaceted impact on various stakeholders and societal welfare. In an era marked by rapid technological advancements, organizations face increasingly complex ethical challenges, ranging from data privacy breaches and algorithmic biases to cybersecurity vulnerabilities and digital divide disparities (Kaledio *et al.*, 2023). Moreover, the pervasive nature of IT in modern societies amplifies the ethical implications of technological decisions, underscoring the need for conscientious governance practices.

Ethical decision-making in IT governance not only safeguards organizational integrity and reputation but also fosters stakeholder trust and confidence. By adhering to ethical principles and values, organizations demonstrate their commitment to responsible use of technology and respect for individuals' rights and interests (Tokat, 2023). Furthermore, ethical governance practices contribute to long-term sustainability and resilience by mitigating risks associated with unethical behavior, such as legal liabilities, financial losses, and reputational damage (Badawy, 2023).

The purpose of this review is to examine and analyze various models and frameworks designed to guide ethical decision-making in IT governance contexts. By synthesizing existing literature and insights from both theoretical and practical perspectives, this review aims to provide a comprehensive understanding of the principles, processes, and challenges inherent in ethical decision-making within the realm of IT governance (Birkstedt *et al.*, 2023).

Structured in seven sections, this review will commence with an exploration of the fundamentals of ethical decision-making, elucidating key principles and theoretical underpinnings. Subsequent sections will delve into traditional normative ethical theories, contemporary models and frameworks, integration with existing IT governance frameworks, emerging trends, and innovations. Through this systematic examination, the review seeks to offer valuable insights and recommendations for organizations seeking to enhance their ethical decision-making practices in the realm of IT governance.

2. Fundamentals of Ethical Decision-Making

Ethical decision-making lies at the core of responsible governance practices, particularly in the realm of Information Technology (IT). It involves the process of deliberating and choosing among alternative courses of action while considering moral principles, values, and consequences (Cotton and Cotton, 2021). Understanding the fundamentals of ethical decision-making is crucial for IT professionals and organizational leaders to navigate complex ethical dilemmas effectively.

Ethical decision-making can be defined as the process of evaluating and choosing among various alternatives in a manner consistent with ethical principles and values (Small and Lew, 2021). It involves considering the moral implications and potential consequences of actions, weighing competing interests, and striving to make choices that align with ethical norms and standards (Pflanzer *et al.*, 2023). Ethical decision-making encompasses both individual and collective decision-making processes within organizations, emphasizing the importance of ethical awareness, reasoning, and responsibility (Trunk *et al.*, 2020). Ethical decision-making in IT governance is guided by several key principles that help ensure integrity, accountability, and transparency in decision-making processes. These principles serve as foundational pillars for ethical conduct and decision-making within organizations (Freberg, 2020).

Moral reasoning refers to the process of systematically evaluating ethical dilemmas and reaching reasoned judgments based on ethical principles, values, and norms. It involves considering the rights, interests, and well-being of stakeholders, as well as the broader societal implications of decisions (Schiff *et al.*, 2020). Moral reasoning requires critical thinking, empathy, and the ability to balance competing ethical considerations to arrive at ethically defensible choices. In the context of IT governance, moral reasoning helps decision-makers assess the ethical implications of technology-related decisions, such as data privacy practices, cybersecurity measures, and the use of emerging technologies like artificial intelligence (Raab, 2020). Accountability is the principle of holding individuals and organizations responsible for their actions, decisions, and their consequences. It entails transparency, oversight, and mechanisms for ensuring that decision-makers are held answerable for their ethical conduct. In IT governance, accountability requires clear delineation of roles and responsibilities, adherence to ethical codes of conduct and professional standards, and mechanisms for addressing ethical breaches and misconduct (Constantinescu and Kaptein, 2020). Accountability promotes trust and confidence among stakeholders and helps foster a culture of ethical responsibility within organizations.

Transparency refers to the openness and clarity of decision-making processes, including the disclosure of information, rationales, and justifications behind decisions. It involves communicating openly with stakeholders, sharing relevant information, and soliciting feedback to promote accountability and informed decision-making (Mylrea and Robinson,

2023). Transparency helps build trust, enhance credibility, and mitigate risks associated with perceived or actual unethical behavior. In IT governance, transparency is essential for promoting ethical conduct, ensuring fairness and equity, and maintaining stakeholder confidence in technology-related decision-making processes.

3. Traditional Normative Ethical Theories

Traditional normative ethical theories provide frameworks for evaluating the morality of actions and guiding ethical decision-making in various contexts, including IT governance. These theories offer different perspectives on what constitutes ethical behavior and how ethical dilemmas should be resolved (Nguyen and Crossan, 2022). Three prominent normative ethical theories are utilitarianism, deontology, and virtue ethics, each emphasizing different principles and criteria for ethical evaluation (Taggart and Zenor 2022).

Utilitarianism is a consequentialist ethical theory that evaluates the morality of actions based on their outcomes or consequences. According to utilitarianism, an action is morally right if it produces the greatest amount of happiness or utility for the greatest number of people (Scarre, 2020). The principle of utility serves as the primary criterion for ethical evaluation, with the aim of maximizing overall well-being or societal welfare. In the context of IT governance, utilitarianism may be applied to assess the ethical implications of technology-related decisions by considering their potential impacts on stakeholders, such as employees, customers, and society at large (Khogali and Mekid, 2023). For example, in evaluating the adoption of a new IT system, utilitarian analysis may involve assessing its potential benefits in terms of efficiency, productivity, and user satisfaction, weighed against potential risks or harms to stakeholders.

Deontology is a non-consequentialist ethical theory that emphasizes the inherent rightness or wrongness of actions based on moral rules or principles, rather than their outcomes. According to deontological ethics, certain actions are intrinsically morally obligatory, permissible, or impermissible, regardless of their consequences. Key principles of deontological ethics include duties, rights, and principles of justice, which guide ethical decision-making independently of the consequences (Okoye *et al.*, 2024). In the context of IT governance, deontological principles may be applied to evaluate the ethical permissibility of actions based on adherence to moral duties or principles, such as respect for individual autonomy, privacy rights, and procedural fairness. For example, in considering the collection and use of personal data, a deontological analysis may focus on whether the actions respect individuals' rights to privacy and autonomy, regardless of the potential benefits or harms of the data use.

Virtue ethics is an ethical theory that focuses on the character traits or virtues of individuals and the cultivation of moral excellence or virtuous conduct. According to virtue ethics, ethical behavior arises from the development and exercise of virtuous qualities, such as honesty, integrity, compassion, and courage (Dursun and Mankolli, 2021). Virtue ethics emphasizes the importance of character development, moral education, and the pursuit of excellence in ethical decision-making. In the context of IT governance, virtue ethics may be applied to cultivate ethical leadership, promote a culture of integrity and trust, and foster professional excellence among IT professionals. For example, in addressing ethical challenges related to cybersecurity, virtue ethics may emphasize the importance of cultivating virtues such as honesty, diligence, and responsibility in cybersecurity practices, as well as fostering a culture of ethical awareness and accountability within organizations (Formosa *et al.*, 2021).

Each of these traditional normative ethical theories offers distinct perspectives and criteria for evaluating the morality of actions and guiding ethical decision-making in IT governance contexts. Utilitarianism emphasizes the consequences of actions and the maximization of overall utility or well-being, deontology emphasizes adherence to moral duties or principles independent of outcomes, and virtue ethics emphasizes the cultivation of virtuous character traits and the pursuit of excellence in ethical conduct (Jamader, 2022). In practice, IT governance decisions may involve a combination of these ethical theories, with decision-makers considering various ethical principles, values, and perspectives to arrive at ethically defensible choices. By drawing on insights from these theories, organizations can develop more robust ethical frameworks and decision-making processes to address complex ethical dilemmas in the rapidly evolving landscape of information technology (Patel, 2024).

4. Contemporary Models and Frameworks

Ethical decision-making in IT governance is facilitated by various contemporary models and frameworks that provide structured approaches for identifying, analyzing, and resolving ethical dilemmas (de Almeida *et al.*, 2021). These models aim to guide decision-makers in navigating complex ethical challenges inherent in technology-related decisions. Three prominent contemporary models and frameworks include the Ethical Decision-Making Framework (EDMF), the Responsible Decision-Making Model (RDM), and the Ethical Governance Framework (EGF).

The Ethical Decision-Making Framework (EDMF) offers a systematic approach for ethical decision-making, specifically tailored for IT governance contexts. The framework consists of several components and stages designed to facilitate the ethical analysis and resolution of dilemmas (Kumar and Suthar, 2024).

The EDMF typically comprises the following stages; The first step involves recognizing and defining the ethical issue or dilemma at hand, including the relevant stakeholders, values, and principles implicated. This stage entails collecting relevant data, facts, and contextual information to fully understand the ethical dimensions of the issue and its potential impacts. Decision-makers assess the available options or courses of action, considering their ethical implications, consequences, and alignment with organizational values and goals (Okoye *et al.*, 2024). Based on the ethical analysis and evaluation, a decision is made regarding the most ethically appropriate course of action to pursue. The chosen course of action is implemented, taking into account any necessary considerations for stakeholder engagement, communication, and follow-up. After implementing the decision, stakeholders reflect on the outcomes, lessons learned, and opportunities for improvement, with a view to continuous learning and ethical improvement. The EDMF is applicable across various IT governance contexts, including decision-making related to data privacy, cybersecurity, technology adoption, and digital transformation initiatives. However, the framework may have limitations in addressing highly complex or novel ethical dilemmas that require interdisciplinary expertise or consideration of broader societal impacts (Peters *et al.*, 2020). Additionally, the effectiveness of the EDMF may depend on factors such as organizational culture, leadership support, and stakeholder engagement.

The Responsible Decision-Making Model (RDM) provides a structured approach for ethical decision-making that emphasizes the principles of responsibility, accountability, and stakeholder engagement. Developed specifically for technology-related decisions, the RDM offers a comprehensive framework for assessing and addressing ethical dilemmas in IT governance (Haythornwaite *et al.*, 2023).

The RDM typically consists of the following principles and processes; Decision-makers recognize their ethical responsibility to consider the interests, rights, and well-being of all stakeholders affected by the decision. Decision-makers are held accountable for their ethical conduct and the consequences of their decisions, with mechanisms in place for oversight, transparency, and accountability. The model emphasizes the importance of engaging relevant stakeholders in the decision-making process, soliciting their input, and considering their perspectives and concerns. Decision-makers systematically analyze the ethical dimensions of the issue, considering relevant ethical principles, values, and consequences. Based on the ethical analysis and stakeholder input, a decision is made regarding the most responsible course of action to pursue (Adaga *et al.*, 2024).

Examples of the RDM in practice may include; A technology company facing a decision regarding the use of AI algorithms in its products conducts stakeholder consultations and ethical impact assessments to evaluate potential risks and benefits. A government agency developing a cybersecurity policy engages with industry experts, civil society organizations, and the public to solicit feedback and ensure that the policy reflects diverse perspectives and ethical considerations.

The Ethical Governance Framework (EGF) provides a structured approach for integrating ethics into organizational governance practices, with a focus on promoting ethical behavior, decision-making, and culture (Osafo *et al.*, 2021). The framework aims to foster a culture of integrity, trust, and accountability within organizations, guiding leaders and employees in upholding ethical principles and values.

The EGF typically includes the following components and objectives; framework emphasizes the role of ethical leadership in setting the tone at the top, promoting ethical values, and demonstrating a commitment to ethical conduct. The framework seeks to cultivate an ethical culture within organizations, where ethical behavior is valued, rewarded, and embedded in organizational norms and practices. The framework provides mechanisms for identifying, assessing, and managing ethical risks, including ethical impact assessments, risk mitigation strategies, and monitoring and reporting mechanisms (Ahmad *et al.*, 2021). The framework encourages stakeholder engagement and dialogue on ethical issues, ensuring that diverse perspectives are considered in decision-making processes.

Implementing the EGF may pose challenges related to organizational culture, resistance to change, and resource constraints. However, best practices for successful implementation may include; Strong leadership commitment and support are critical for driving ethical governance initiatives and fostering a culture of integrity and accountability (Zarghamifard and Danaeefard, 2020). Engaging employees at all levels of the organization in ethical governance efforts can help build buy-in, ownership, and commitment to ethical values and practices. Ethical governance is an ongoing process that requires regular review, evaluation, and adaptation to changing ethical risks and organizational dynamics.

5. Integration with Existing IT Governance Frameworks

Integration of ethical considerations into existing IT governance frameworks is essential for ensuring comprehensive governance practices that address both technical and ethical dimensions of decision-making (Chukwu *et al.*, 2023). Two prominent IT governance frameworks, COBIT (Control Objectives for Information and Related Technologies) and ITIL (Information Technology Infrastructure Library), provide guidance on incorporating ethical considerations into IT governance processes.

Control Objectives for Information and Related Technologies (COBIT) is a widely recognized framework for IT governance, providing principles, practices, and guidelines for effective management and control of IT resources (De Haes *et al.*, 2020). Integrating ethical considerations into COBIT can enhance its ability to address ethical dimensions of IT governance, such as data privacy, cybersecurity, and technology ethics.

COBIT can be expanded to include specific controls, objectives, and practices related to ethical decision-making, such as ethical impact assessments, ethical risk management processes, and ethical oversight mechanisms. Ethical considerations can be integrated into various COBIT domains and processes, including governance and management processes, risk management, compliance, and performance management.

Integrating ethical considerations into COBIT aligns with its core principles of stakeholder focus, alignment with organizational goals, and enabling a holistic approach to IT governance (Abdulrasool and Turnbull, 2020). By incorporating ethical considerations, COBIT helps organizations address emerging ethical challenges and regulatory requirements, enhancing their overall governance effectiveness and risk management capabilities.

Information Technology Infrastructure Library (ITIL) is a set of best practices for IT service management, focusing on delivering high-quality IT services to meet business needs and objectives. Embedding ethical dimensions into ITIL can help organizations ensure that IT services are delivered in an ethical and responsible manner.

ITIL processes can be augmented with ethical considerations, such as privacy-by-design principles, ethical user behavior guidelines, and ethical service delivery standards (Maas *et al.*, 2020). Ethical considerations can be integrated into various ITIL processes, including service strategy, service design, service transition, service operation, and continual service improvement. Implementing ethical practices within ITIL helps organizations build trust with customers, suppliers, and other stakeholders, enhancing their reputation and competitive advantage. By aligning ITIL practices with ethical principles and values, organizations can mitigate ethical risks, improve decision-making processes, and demonstrate their commitment to ethical conduct and corporate social responsibility (Abdulrasool and Turnbull, 2020).

In conclusion, contemporary models and frameworks, such as the Ethical Decision-Making Framework (EDMF), the Responsible Decision-Making Model (RDM), and the Ethical Governance Framework (EGF), provide valuable guidance for ethical decision-making in IT governance. Integrating these frameworks with existing IT governance frameworks, such as COBIT and ITIL, enhances organizations' ability to address ethical dimensions of IT governance effectively and responsibly (Karataş and ÇAKIR, 2023). By adopting a holistic approach that considers both technical and ethical aspects of decision-making, organizations can foster a culture of integrity, trust, and accountability in the use and management of information technology resources.

6. Emerging Trends and Innovations

Advancements in artificial intelligence (AI) and machine learning (ML) have led to the development of innovative tools and algorithms for ethical decision support in IT governance. These technologies can analyze vast amounts of data, identify patterns, and provide insights to help decision-makers assess ethical implications and make informed choices.

Ethical decision support systems leverage AI and ML algorithms to assess complex ethical dilemmas by analyzing relevant data, considering various factors, and identifying potential consequences of different courses of action (Hassan *et al.*, 2024). Machine learning models can predict the potential outcomes of different decisions, allowing decision-makers to anticipate and mitigate ethical risks and uncertainties. Ethical decision support systems can generate recommendations or suggestions based on ethical principles, best practices, and previous experiences, aiding decision-makers in selecting the most ethical course of action. By harnessing the power of AI and ML for ethical decision support, organizations can enhance their ability to navigate ethical challenges effectively, promote transparency and accountability, and foster ethical behavior in IT governance processes (Bankins, 2021).

The integration of ethical design principles in software development is gaining prominence as organizations recognize the importance of incorporating ethical considerations into the design and development of technology products and services. Ethical design principles aim to ensure that technology solutions are designed with ethical values, considerations, and user interests in mind, promoting responsible use and mitigating potential harms.

Key ethical design principles include: Ethical design prioritizes user privacy and data protection by implementing robust security measures, minimizing data collection and retention, and providing transparent information about data practices. Ethical design strives to promote fairness and equity by minimizing bias in algorithms and decision-making processes, ensuring equal access and opportunities for all users, and addressing potential discrimination or harm (Tsamados *et al.*, 2021). Ethical design emphasizes transparency and accountability by providing clear explanations of how technology works, disclosing potential risks and limitations, and enabling users to make informed choices.

By integrating ethical design principles into software development processes, organizations can create technology solutions that align with ethical values, enhance user trust and satisfaction, and contribute to positive societal impacts. Organizational culture plays a crucial role in fostering ethical behavior and decision-making within IT governance. A strong ethical culture promotes shared values, norms, and behaviors that prioritize ethical considerations, integrity, and accountability throughout the organization (Akindote, 2023).

Key factors that contribute to a culture of ethics in IT governance include; Ethical behavior starts at the top, with leaders setting the tone, demonstrating ethical values, and holding themselves and others accountable for ethical conduct. Organizations empower employees to raise ethical concerns, provide input on decision-making processes, and participate in ethical training and education initiatives. Organizations incentivize and reward ethical behavior through recognition programs, performance evaluations, and career advancement opportunities.

By nurturing a culture of ethics, organizations can create an environment where ethical decision-making becomes ingrained in organizational practices, guiding behavior at all levels and enhancing trust and credibility with stakeholders (Chukwu *et al.*, 2023).

7. Future Outlook

The future of ethical decision-making in IT governance will be shaped by ongoing advancements in technology, evolving regulatory landscapes, and shifting societal expectations. Key trends and developments to watch for include; continued innovation in ethical decision support tools. AI and ML will continue to advance, enabling the development of more sophisticated ethical decision support systems that can analyze complex ethical dilemmas and provide actionable insights. Integration of ethics into emerging technologies. As technologies such as blockchain, IoT, and quantum computing become more prevalent, there will be a growing need to integrate ethical considerations into their design, development, and deployment (Babarinde *et al.*, 2023). Focus on ethical leadership and corporate governance. Organizations will increasingly prioritize ethical leadership and governance practices, recognizing the importance of fostering a culture of ethics and accountability throughout the organization.

8. Recommendation and Conclusion

Robust models and frameworks for ethical decision-making are essential for guiding organizations in navigating complex ethical dilemmas in IT governance effectively. By providing structured approaches, tools, and principles, these frameworks help decision-makers assess ethical implications, make informed choices, and uphold ethical values and standards.

Organizations must prioritize ethical decision-making in IT governance as a fundamental aspect of responsible corporate citizenship. By embedding ethics into organizational culture, policies, and practices, organizations can build trust with stakeholders, mitigate risks, and contribute to positive societal impacts. Future research and practice in the field of ethical decision-making in IT governance should focus on addressing emerging challenges, advancing ethical frameworks and methodologies, and promoting interdisciplinary collaboration. By staying abreast of evolving trends and developments, organizations can ensure that their ethical decision-making processes remain relevant, effective, and aligned with ethical principles and values.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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