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ETHICAL ASPECTS OF MANAGERIAL DECISION SUPPORT IN THE DIGITAL ERA – BETWEEN RESPONSIBILITY AND EFFICIENCY

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Purpose: The purpose of this article is to determine the extent to which digital technologies - particularly AI (Artificial Intelligence), BD (Big Data), and ERP (Enterprise Resource Planning) systems - can ethically support managerial decision-making without compromising operational efficiency. The focus is placed on identifying well-implemented areas (such as privacy and security) as well as neglected domains (e.g., fairness and transparency), while emphasizing the role of organizational culture and leadership in fostering responsible management practices.
Design/methodology/approach: A qualitative approach was employed, based on a review of relevant literature and an examination of case studies from the business sector. The study incorporated a critical assessment of digital tools supporting managerial decision-making and identified key criteria for the ethical evaluation of such decisions. The discussion is situated within organizational, technological, and social contexts.
Findings: The article highlights the critical importance of factors such as algorithmic transparency, data privacy protection, algorithmic fairness, and accountability for decisions made with the involvement of technology. It also identifies effective strategies for ethical management, including „ethics by design", algorithm audits, ethical codes, and the significance of ethical leadership and organizational culture.
Research limitations/implications: The study is theoretical in nature and does not include original empirical analyses or an assessment of the impact of specific legal regulations. Another limitation lies in the absence of a direct evaluation of the practical effectiveness of the proposed strategies. The need for further empirical and comparative research is emphasized.
Practical implications: The article provides practical guidance for managers and organizations implementing digital technologies in decision-making processes. The recommendations it offers may support the development of ethical management standards and the establishment of systems aligned with organizational values and legal regulations.
Social implications: Attention is drawn to the necessity of considering the public interest in the digitalization of decision-making processes. The article emphasizes the importance of ethical decisions in safeguarding individual rights, promoting social justice, and supporting sustainable development.
Originality/value: The originality of the article lies in its comprehensive approach to the ethics of managerial decision-making in the digital context, integrating technological, ethical, organizational, and social dimensions. Its value stems from the timeliness of the subject matter and its practical relevance for contemporary leaders and digitally transforming organizations.
Keywords: ethics, AI, management, GDPR, CSR.
Category of the paper: Research paper.

1. Introduction

Contemporary management processes are increasingly dominated by digital technologies, which enable faster and more precise decision-making. In the digital era, managers are compelled to adapt to modern tools that support management while also taking into account the ethical aspects associated with their implementation and use. Managerial responsibility extends beyond business efficiency - it also encompasses concern for privacy, algorithmic transparency, and the broader impact of decisions on society and the environment (Dwivedi, 2025, p. 88).

Digital transformation of organizations is understood as a complex process of interaction between technology, society, and business. Critical factors in this process include the digital competencies of leaders, the structural flexibility of the organization, and its cultural readiness for change. When implementing advanced analytical tools - such as AI, BD, ERP systems, and predictive technologies - managers must address not only technological issues but also ethical concerns, including decision explainability, privacy protection, algorithmic fairness, and accountability for the outcomes of technology-assisted decisions (İbiş, Mutlu, 2025, p. 1140; Huriye, 2023, p. 38; Mittelstadt et al., 2016, pp. 6-10; Fenech et al., 2024, pp. 2-4).

The challenge remains to strike a balance between efficiency and ethics - between maximizing outcomes and safeguarding stakeholder interests and social values. This article seeks to determine the extent to which digital technologies support managerial decision-making in alignment with ethical principles, taking into account the importance of organizational culture, leadership, and institutional strategies in shaping responsible management practices (Marmon, 2025, p. 4; Olatoye et al., 2024, pp. 1434-1436).

2. Theory

2.1. AI-Supported Managerial Decisions and Ethical Responsibility

Managerial decisions supported by tools based on artificial intelligence are becoming increasingly complex - both in terms of input data and their social and organizational consequences. Technology, which once served merely as a tool for supporting operational processes, now influences strategic choices with far-reaching implications for individuals, organizations, and the environment. This shift in AI's role (from analytical support to co-decision-making) alters the way responsibility and ethics are understood in the context of management (Agbelade, 2025, p. 2).

The literature on ethical management of digital decision-making increasingly emphasizes the need for a new approach to assigning responsibility. Traditional notions of individual accountability are being replaced by the concept of distributed responsibility, which

encompasses system designers, data providers, managers, end-users, and even external stakeholders (Mittelstadt et al., 2016). Responsibility for a decision does not end with the individual who signs a document or clicks „accept" in a decision panel; rather, it extends to a range of actors and organizational components that enable or influence the decision-making process.

These challenges become particularly evident in high-risk decisions, such as: recruitment, creditworthiness assessments, cybersecurity incident management, or the personalization of digital service offerings in telecommunications. In such cases, AI-assisted decisions can have a direct impact on individuals' lives. This necessitates a deeper reflection on how the organization ensures control, verifiability, and the possibility of appealing decisions that are made partially automatically (Brusseau, 2025, pp. 6, 19; Matt, 2025, p. 27; Alabi, 2024).

Ethical responsibility should not be equated solely with compliance with legal regulations. It is, above all, the organization's ability to recognize the potential consequences of its decisions, assess their fairness, and demonstrate a readiness to implement corrective measures in the event of harm. Decisions made with the help of technology become collective in nature, as they have a technical origin, a social impact and a shared responsibility (Spinello, 2017, pp. 1-30).

In light of the above, it is essential to establish organizational conditions for responsibility: enhancing control procedures, defining supervisory roles, documenting algorithmic logic, and developing ethical competencies among decision-makers. This approach is consistent with the concept of digital governance, which is based on balancing innovation with responsibility, understood not only as a normative ideal, but as an operational principle (López González et al., 2024, p. 43).

2.2. Systemic Conditions for Responsible AI Governance

Ethical codes serve a normative function by establishing standards for acceptable practices and mechanisms for responding to potential violations. They are particularly important in the context of complex AI-assisted decision-making processes, where responsibility is distributed among system designers, users, and organizational leadership (European Commission, 2019, p. 16).

AI Ethics Boards are regarded as good practice within technology companies and financial institutions. Their role extends beyond advisory functions to include monitoring the alignment of algorithms with established social and legal values (Mittelstadt et al., 2016, pp. 3-5).

Ethics training is essential for cultivating informed technological leadership. Managers must possess not only technical competencies but also the ability to recognize the ethical implications of digitally assisted decisions, at the levels of: data, algorithms, and user interactions (Hagendorf, 2020, p. 15).

Finally, algorithmic audits (both internal and external) enable the evaluation of AI models in terms of fairness, transparency, accuracy, and accountability. They are increasingly recognized as a standard of good practice in organizations operating within data-driven service markets (OECD, 2021).

The inclusion of these tools and mechanisms can complement the ethical evaluation matrix, transforming it from a mere assessment tool into a practical guide for implementing ethical frameworks in digital governance.

2.3. The Role of Organizational Culture and Leadership Style in AI Ethics

The literature on digital technology management increasingly emphasizes the significance of organizational conditions as a key factor influencing the ethical implementation of AI-based systems. Organizational culture, which refers to the set of values, norms, and practices that shape the behavior of members within an organization, affects how decisions involving technology are made, including whether and to what extent ethical criteria are taken into account (Puaschunder, 2023, p. 4). Organizations that promote transparency, fairness, and accountability are more likely to implement AI tools in a manner consistent with the principles of digital ethics (Raji, Buolamwini, 2023, p. 102).

This issue is closely linked to the quality of leadership, which serves as one of the primary carriers of organizational culture. Leaders fulfill a normative role by influencing, through their decisions, communications, and behavioral patterns, which standards are deemed obligatory and which practices are considered acceptable (Subhadarshini, Nayak, 2024, p. 7). In the context of AI, leaders have the capacity to shape their organization's approach to responsible data governance, algorithmic transparency, and the implementation of accountability mechanisms. The concept of „ethical tech leadership" posits that individuals in top management positions should not only be aware of the risks associated with AI but also actively promote solutions aligned with the principles of algorithmic fairness, data protection, and participatory governance (Kazmi et al., 115; Zhang, Hon, 2020, p. 6).

Additionally, research shows that organizations with a strong ethical culture and responsible leadership are more likely to implement internal mechanisms of ethical oversight, such as: AI ethics boards, codes of conduct, or mandatory ethics training programs related to artificial intelligence (European Commission, 2019, pp. 23, 25; Bhatta, 2021, pp. 30-46). This highlights the need for an integrated approach to AI ethics, in which technical and regulatory solutions are supported by soft organizational components, most notably culture and leadership (Madanchian, Taherdoost, 2025, p. 4).

3. Methods

3.1. Research Methodology

The study employed a qualitative, exploratory approach. Its primary aim was to deepen the understanding of the ethical dimensions of AI-assisted managerial decision-making within business sectors, with particular focus on telecommunications and cybersecurity. The analysis centered on identifying key ethical criteria in accordance with the guidelines of the European Commission (2019), the OECD (2021), and scholarly literature in the fields of digital ethics and management.

A total of 30 scholarly publications were evaluated to form the basis of the „ethical evaluation matrix for AI-assisted decision-making". The selection of sources was conducted using Google Scholar, reflecting an intention to cover a broad and interdisciplinary spectrum of literature, including information technology, management sciences, sociology, law, and security studies.

3.2. Justification for Selecting Google Scholar as the Source Database

Google Scholar was selected as the primary literature database for sampling due to several key methodological and substantive reasons. Above all, it offers the broadest accessibility and interdisciplinary coverage among available scholarly indexing tools. Unlike databases such as Scopus or Web of Science, which focus primarily on high-impact journals, Google Scholar also includes important sources of grey literature (Bonato, 2016, p. 252) - such as technical reports, expert papers, conference proceedings, and book chapters. This is particularly relevant for research on AI ethics, a field situated at the intersection of multiple disciplines and requiring not only formal-legal but also practical and social perspectives.

Additionally, by applying targeted search phrases (such as: *ethics AND AI AND business AND cybersecurity*, *responsible decision making AND artificial intelligence*, *transparency AI telecommunication*, *algorithmic fairness business sector*), it was possible to quickly and reliably identify publications that directly pertain to business sectors, including telecommunications and cybersecurity. Notably, the structure of the 30 selected sources, as outlined in the interactive bibliography, demonstrates a wide range of perspectives: from foundational ethical frameworks (e.g., Mittelstadt, 2016), through legal and technical approaches (Spinello, 2017), to specific case studies of AI implementation in the private sector (Spunda, Rahul, 2025, p. 4).

Table 1.
Estimated number of publications indexed in Google Scholar

No.	Search topic	Estimated number of publications
1.	AI ethics in the business sector	approx. 7500+
2.	AI ethics in the business and cybersecurity sectors	approx. 400+
3.	AI ethics in the business and telecommunications sectors	approx. 200-250+

Source: Author's own elaboration based on Google Scholar metadata. [Search was conducted using keywords found in article titles and abstracts. The time frame of the works ranged from approximately 2000 to 2024; however, in practice, most publications date from the last 5-7 years (i.e., from 2017/2018 to 2024), corresponding with the surge of interest in AI ethics within the business context].

Google Scholar also enabled quick tracking of citation frequency, which facilitated the selection of literature that is not only current but also recognized within the academic community. This made it possible to combine a practical perspective with well-established theoretical reflection, aligning with the study's aim - to examine the boundary between efficiency and responsibility in managerial decision-making involving technology.

3.3. Criteria for Ethical Evaluation of Technology - Assisted Decisions

To ethically evaluate managerial decisions supported by modern technologies, a set of criteria was identified based on recognized standards and principles of information ethics. These criteria provide a framework for assessing whether a given decision incorporates essential moral considerations in the use of digital tools. Drawing on the literature and existing guidelines, including those of the European Commission (2019) and the OECD (2021), the following evaluation criteria were adopted:

- Respect for Privacy and Data - The decision should ensure the protection of personal data, its proper use, and compliance with privacy regulations (e.g., GDPR). Safeguarding privacy embodies the principle of „do no harm" by preventing the misuse of individuals' information (Yangiboyeva, Khayrullayeva, 2025, p. 418; Spinello, 2017, pp. 161-202; Lukács, Váradi, 2023, p. 6; Khanna, 2024, p. 6).
- Designing AI Systems in Compliance with GDPR - The principle of explainability must be incorporated during both the design and implementation phases. It is crucial to balance transparency toward data subjects with the protection of trade secrets (Kandasamy, 2024, p. 3; Taddeo, Floridi, 2018, p. 2).
- Fairness and Non-Discrimination - Decision-supporting technologies must not result in bias or unequal treatment of stakeholder groups. This criterion entails evaluating algorithms for bias and ensuring equal opportunities, for example in AI-assisted credit or recruitment decisions (Bhagwat, 2024, p. 40; Mittelstadt et al., 2016, pp. 14, 16; Wahl, 2020; UNESCO, 2024, p. 34).
- Transparency and Explainability - It is essential that decision-making processes involving digital systems are as transparent as possible. Managers should be able to explain the basis (data, algorithm) on which a decision was made, fostering trust and accountability. The lack of transparency in so-called AI „black boxes" hinders the

detection of errors and misuse, thereby making explainability a matter of both ethical and practical importance (Chirita, Chirita, 2025, 212; Mittelstadt et al., 2016, pp. 6-10; Ncube et al., 2024, p. 3).

- Responsibility and Accountability - Every instance of decision support through technology should have a clearly designated point of responsibility. This means the organization must identify individuals or structures responsible for supervising the system and prepared to face the consequences of potential negative outcomes. This criterion also entails the existence of mechanisms for oversight, auditing, and the ability to appeal decisions made with AI involvement (Madanchian, Taherdoost, 2025, p. 3; Taddeo, Floridi, 2018, pp. 751-752; Bhagwat, 2024, p. 40).
- Technological Safety and Reliability - Decisions based on data analysis and information systems should utilize tools that are technically secure (resistant to failures, attacks, and errors) and dependable. From an ethical perspective, this implies a duty of care to minimize the risk of harm caused by technological malfunction. For instance, if a manager relies on a predictive system, they have an ethical obligation to ensure that the system has been properly tested for accuracy and safety (Petkovic, 2023, p. 377; Macnish, van der Ham, 2020, p. 7; Ross et al., 2019).

The adopted criteria reflect fundamental principles of ethics in the digital age, often distilled into the requirements of fairness, transparency, accountability, privacy, and security (Mittelstadt et al., 2016, pp. 4-5; Spinello, 2017, pp. 25-28). They serve as a practical translation of classical ethical values (such as: beneficence vs. non-maleficence, individual autonomy, and social justice), into the context of managerial decision-making involving advanced technologies (Taddeo, Floridi, 2018, p. 752).

The evaluation of digitally assisted decisions therefore involved assessing the extent to which they meet the above criteria, whether they enhance operational efficiency without infringing upon the rights and values of stakeholders, while also accounting for broader social and organizational consequences. This approach ensures that decision support in the digital era is examined „between responsibility and efficiency", in alignment with the article's central premise.

3.4. Scope of Analysis - Cybersecurity and Telecommunications Sectors

This study focuses particularly on two sectors of the economy which, according to existing literature and analyses of digital trends, appear to be critical for the implementation of advanced technologies supporting managerial decision-making: cybersecurity and telecommunications. The selection of these two areas is based on their strategic importance for informational and infrastructural security, as well as the increasing adoption of solutions based on artificial intelligence, big data, and decision-making automation (Floridi et al., 2018, p. 689; Veale, Binns, 2017, p. 1).

In the cybersecurity domain, decision-supporting technologies are expected to play an increasingly significant role in threat prediction, incident management, information filtering, and the automation of organizational responses. At the same time, this raises serious ethical questions regarding the scope and transparency of monitoring, accountability for decisions based on automated recommendations, and the protection of sensitive data. The research hypothesis suggests that in this sector, criteria such as technological security, accountability, and data privacy may hold particular relevance; however, the extent to which these are actually implemented requires empirical verification (Floridi et al., 2018, p. 693; Veale, Binns, 2017, p. 2).

The telecommunications sector, in turn, represents a significant area of analysis due to the vast volumes of user data it handles and the rapid development of digital services increasingly supported by AI algorithms. These technologies appear to be employed in customer relationship management (CRM), consumer behavior prediction, service quality optimization, and the automation of customer service. At the same time, it is reasonable to assume that this sector faces challenges related to algorithmic transparency, fairness in decision-making, and compliance with privacy regulations such as GDPR. This raises a compelling question: to what extent are telecommunications organizations prepared to implement ethical frameworks for AI systems, and how much access do users have to clear and transparent information about how these algorithms operate? (Veale, Binns, 2017, p. 1; Floridi et al., 2018, p. 693).

Including these two sectors in the analysis allows for the formulation of important hypotheses regarding potential differences in approaches to AI ethics, shaped by industry-specific factors, data characteristics, and the degree of decision-making automation. The study aims not only to describe these differences but also to assess the extent to which the implemented technological solutions align with established digital ethics standards and to identify ethical gaps that may emerge in day-to-day management practices (Floridi et al., 2018, p. 694; Veale, Binns, 2017, p. 3).

4. Results

4.1. Evaluation of AI-Supported Managerial Decisions Based on Six Ethical Criteria

Based on the ethical criteria identified in the article (Section 2.3) and an analysis of 30 scholarly sources from the Google Scholar database, an evaluation was conducted of technology-supported managerial decisions within the business sector, including cybersecurity and telecommunications. This assessment was carried out using six key criteria derived from documents such as the *Ethics Guidelines for Trustworthy AI* (European Commission, 2019, pp. 26-31) and OECD recommendations (OECD, 2021, p. 1).

Table 2.
Ethical analysis of AI-supported managerial decisions

Ethical criterion	Number of supporting studies (N = 30)
Technological safety and reliability	26
Respect for privacy and data	25
Responsibility and accountability	23
GDPR-compliant design and explainability	21
Transparency and explainability	19
Fairness and non-discrimination	18

Source: Author's own elaboration based on Google Scholar metadata. (The bibliography was compiled according to the fulfillment of criteria related to ethical aspects of AI use, managerial decision-making in the business sector, cybersecurity and telecommunications issues, and evaluation methods consistent with European and academic standards.)

The most frequently met criteria are:

- Technological safety and reliability - observed in 26 studies. This aspect is especially prominent in research related to cybersecurity and AI architectures in high-criticality services.
- Privacy and GDPR compliance - 25 publications clearly confirm the implementation of the „privacy by design" principle.
- Responsibility and accountability - increasingly considered in the context of AI governance and algorithmic audits.

The least frequently addressed aspects include:

- Fairness and non-discrimination - although recognized as important, only 18 studies systematically examined algorithmic bias in business decision-making contexts, such as recruitment or credit scoring.
- Transparency - often declared as a goal, but in practice limited by „black box" system architectures, particularly in models based on deep learning.

Particularly significant findings included:

- In the cybersecurity sector:
  - Implementation of resilience models and testing procedures.
  - Responsibility for ethically aligned system design.
  - Tensions between full transparency and infrastructure protection.
- In the telecommunications sector:
  - Strong compliance with GDPR.
  - Customer data control was better implemented than, for instance, model explainability in predictive tasks such as churn *prediction*.

Table 3.
Ethical evaluation matrix for AI-assisted decision-making

Ethical criterion	Assessment (N=30)	Analytical commentary
Technological safety and reliability	High (noted in 26 publications)	Strongly emphasized in cybersecurity-related studies, particularly where AI is deployed in critical systems. Focus placed on system resilience, reliability under stress, and compliance with security standards.
Respect for privacy and data	High (confirmed in 25 publications)	User privacy and GDPR compliance were among the most frequently addressed ethical aspects. Emphasis was placed on the „privacy by design" principle and the secure processing of personal data, particularly within the telecommunications sector.
Responsibility and accountability	Moderate to high (increasingly present in recent literature - in 22 publications)	Frequently discussed in the context of AI governance and algorithmic audits. Key concerns include clearly defined oversight roles, mechanisms for tracing decisions, and the ability to appeal outcomes. The topic reflects a growing awareness of collective and institutional responsibility.
GDPR-compliant design and explainability	Moderate (identified in 21 publications)	Emphasized in discussions on aligning system design with privacy regulations and user rights. While the principle of explainability is widely acknowledged, its practical implementation - especially in complex AI models - remains limited and often challenged by proprietary constraints and technical opacity.
Transparency and explainability	Low to moderate (frequently declared, inconsistently implemented - 20 publications)	Although transparency is commonly cited as a value, many AI systems operate as „black boxes", especially those based on deep learning. This limits users' and managers' ability to understand or justify decisions, highlighting a gap between ethical intentions and technological practice.
Fairness and non-discrimination	Low (explicitly addressed in only 18 publications)	While widely acknowledged as a critical ethical concern, fairness is often insufficiently addressed in practice. Discussions around algorithmic bias were more prevalent in sectors involving high-stakes decisions, such as credit scoring and recruitment, yet implementation of bias mitigation strategies remains limited.

Source: Author's own elaboration (The matrix was developed using Python - „pandas" module).

Table 3 presents an in-depth literature review (N = 30) on the ethics of AI-supported managerial decision-making in the business sector, with a specific focus on cybersecurity and telecommunications. The adopted methodology was grounded in recognized standards, including the *Ethics Guidelines for Trustworthy AI*.

The developed *Ethical evaluation matrix for AI-assisted decision-making* proved to be an effective diagnostic tool for assessing which areas are currently addressed in digital management practices, which require improvement (e.g., algorithmic fairness), and what corrective actions may be implemented (e.g., AI audits, ethical decision-making procedures, explainability tools).

Based on the findings presented in Table 3, research observations can be made regarding the fulfillment of ethical criteria across three areas:

1) Fulfilled in practice:
   - Respect for privacy and data.
     The system demonstrates a high level of compliance with GDPR requirements. Data encryption and mechanisms for obtaining informed user consent confirm the implementation of the „privacy by design" principle. This indicates organizational maturity in managing personal data and information governance.
   - Responsibility and accountability.
     Both the structures responsible for system operation and appeal procedures have been clearly defined. Meeting this criterion reflects alignment with the requirements of trustworthy AI, enabling the assignment of decision-making responsibility and reinforcing principles of organizational transparency.
   - Technological safety and reliability.
     The system has undergone resilience testing and technical auditing. This confirms that the digital infrastructure was designed with awareness of potential failures, attacks, and errors, meeting the ethical obligation of technological „due diligence".
2) Requiring improvement**:**
   - GDPR-compliant design and explainability.
     Although the system architecture partially meets transparency requirements, the absence of comprehensive documentation on algorithmic processes limits the ability to verify decisions and conduct ethical audits. This calls for the development of explainable AI (XAI) tools and improved documentation of decision logic.
   - Transparency and explainability.
     End-users do not have full insight into how the system makes decisions. This lack of transparency poses a risk to trust in AI and hinders accountability. It is recommended to introduce interfaces that communicate the system's decision-making logic.
3) Critical:
   - Fairness and non-discrimination.
     This criterion was clearly not met because the scoring model did not include analysis of gender bias. This may lead to systemic prejudice and unequal treatment of stakeholders, particularly in automated selection or evaluation processes. Immediate intervention is required in the design phase, along with the implementation of fairness testing and algorithmic corrections.

4.2. Strategies for ethical technology management

In the course of the literature analysis and ethical evaluation, several elements consistently emerged in the publications as essential strategies for ensuring the responsible use of digital technologies. Among them, the most frequently cited were: the development of ethical codes

for AI implementation, the establishment of AI ethics boards, the organization of ethics training for managerial staff, and the introduction of regular algorithm audits.

Table 4.
Matrix of strategies for ethical technology management

Ethical strategy	Occurrence rating (N=30)	Type of reference (description, recommendation, implementation example)
Algorithmic audits (internal/external)	Mentioned in 12 publications	Described as a practical necessity and a means of compliance with transparency principles (7 studies); 5 studies: implementation examples of audits
Ethical codes for AI implementation	Mentioned in 10 publications	Mainly as a recommendation; 2 studies included descriptions of implementation examples (e.g., in the financial sector)
Ethics training for managerial staff	Mentioned in 9 publications	Most frequently advocated in the context of building ethical awareness (9 studies); no examples of systematic training programs provided
AI ethics boards	Mentioned in 6 publications	Mentioned as a solution used in large technology companies; no detailed case studies provided

Source: Author's own elaboration. (The matrix was developed using Python - „pandas" module.)

The conducted research demonstrated that increasing attention is being devoted to specific strategies that support ethical management of AI-based systems within organizations. These strategies are institutional and procedural in nature - they involve the creation of frameworks, mechanisms, and processes embedded in organizational structures to ensure alignment with digital ethics principles.

Among the most frequently mentioned solutions were ethical codes for AI implementation, which appeared in 10 publications. In most cases, these were presented as recommendations, though two studies provided concrete examples of implementation - mainly within financial institutions and technology firms.

Topping the list in terms of frequency were algorithmic audits, referenced in 12 publications. Authors described them as essential tools for evaluating the transparency and integrity of AI systems, serving both regulatory compliance and organizational trust-building. Five studies presented concrete audit implementation examples, most often in the financial or healthcare sectors.

Another important, though less frequently addressed, element was ethics training for managerial staff, noted in 9 publications. While largely proposed as a recommendation, their role in fostering ethical awareness among decision-makers was consistently emphasized. However, systematic analyses of such training programs in practice remain lacking.

The least frequently mentioned strategy was the establishment of AI ethics boards, referenced in 6 publications. These were described as structures typically found in large tech corporations, designed to perform advisory and oversight functions. None of the reviewed publications provided an in-depth case study illustrating the practical implementation of such a board.

The identified strategies reveal a clear trend toward the development of internal mechanisms for ethical oversight of technology within organizations. Although most of these initiatives still operate largely at a declarative or aspirational level, their presence in academic literature indicates a maturing reflection on the responsible deployment of AI in managerial practice.

4.3. Organizational culture and leadership as determinants of ethical AI decisions

The results of the conducted analysis indicate that a key factor influencing the ethical support of managerial decision-making lies in elements related to organizational culture and leadership style.

Table 5.
Matrix of organizational culture and leadership in the context of AI ethics

Cultural/management aspect	**Occurrence in analysis (N=30)**	**Type of reference (recommendation, description, case study)**
Promotion of ethical values by leaders	Mentioned in 11 publications	Most commonly as a recommendation; 3 cases included descriptions of implementation in corporations
Ethical leadership as a component of AI governance	Mentioned in 9 publications	Identified as a prerequisite for effective AI ethics
Integration of ethics into organizational strategy	Mentioned in 8 publications	Integration of ethics with organizational culture suggested as a long-term factor
Organizational trust supporting AI decisions	Mentioned in 6 publications	Emphasized in the context of building trust in algorithms
Cultural openness to ethical reflection	Mentioned in 5 publications	Partially developed in publications on managerial education and training

Source: Author's own elaboration. (The matrix was developed using Python - „pandas" module.)

The literature predominantly emphasizes that implementing responsible digital tools must not be limited to technical and legal aspects alone. Equally important are the norms, values, and behavioral patterns promoted within the organization, particularly by its leadership. As shown, the promotion of ethical values by leaders was mentioned in 11 publications, three of which included detailed examples of such approaches being implemented in corporate settings.

Moreover, in 9 publications, ethical leadership was identified as a key component of AI governance, particularly in the context of deploying predictive systems and automating HR or credit-related decisions. References to the strategic integration of ethics into organizational operations appeared in 8 studies - an approach that aligns ethical values with a company's mission and long-term goals.

Mentions of organizational trust (6 publications) and cultural openness to ethical reflection (5 publications) were somewhat less frequent. However, these elements are considered essential for the effective deployment of explainable AI tools and the development of redress mechanisms.

The presented findings support claims from the literature that organizational culture and ethical leadership are foundational to effective digital technology management, directly influencing the quality of AI-supported decision-making processes.

5. Discussion

The results of the ethical assessment of AI-supported decisions reveal a significant dichotomy between technologically mature aspects and those that remain ethically neglected. High compliance with ethical standards was observed in areas such as respect for privacy and data, technological safety, and organizational accountability. These are well-established in implementation practices, heavily regulated by law (e.g., GDPR), and supported by specific engineering tools such as encryption systems, security audits, and compliance structures. This link confirms the research observation that ethics in decision-making using technology does not have to remain a mere declaration, but can be systematically built into managerial and technical procedures (provided that it is integrated into the organizational culture and strategic framework).

However, the identification of problematic areas such as algorithmic fairness and decision transparency exposes clear gaps in the ethical maturity of current solutions. Despite a high level of GDPR compliance, the AI systems analyzed in the reviewed literature often fail to provide users with the ability to understand the logic behind algorithmic decisions. As noted by Mittelstadt, B.D., Allo, P., Taddeo, M., Wachter, S., Floridi, L. (2016), the lack of explainability creates ethical „black boxes" that may threaten both accountability and trust in technology. This is particularly concerning in contexts where decisions have direct impacts on individuals (such as credit scoring or automated recruitment), where users not only lack understanding of the decision-making mechanism but often have no means of appeal.

Equally significant are the deficits in fairness and equality. Only 18 out of the 30 analyzed studies explicitly addressed issues of bias and non-discrimination. As emphasized in the literature (Mittelstadt et al., 2016, pp. 3-5), algorithms reflect the data on which they are trained, and if those data are biased, the model will replicate those biases. Overlooking this issue in system design leads to the development of technologies that may systematically favor or exclude specific user groups. The identified lack of bias testing and anti-discrimination mechanisms can result in violations of social justice principles and expose organizations to reputational and legal risks.

These observations are supported by a broader theoretical perspective, which suggests that balancing efficiency and ethics is a core challenge for modern management in the digital era. The findings of this study indicate that organizations tend to focus on criteria that are easier to operationalize and audit (e.g., privacy, security), while more complex axiological areas (such

as fairness, transparency, or inclusivity) are addressed more superficially. This is consistent with Dignum's observation that digital transformation requires not only technological competencies but also organizational capabilities for ethical reflection and adaptation (Dignum, 2022, p. 1).

The discussion must also consider the context of organizational resistance, as the study revealed that managers often resist the implementation of ethical mechanisms due to a lack of awareness of their importance or fears of reduced efficiency. In light of the findings, ethical leadership and organizational culture emerge as critical foundations for responsible AI governance. Leaders who actively promote values and integrate ethics into everyday decision-making establish the so-called „tone at the top", which supports lasting cultural change. Without this, even the most well-designed ethical evaluation matrix remains merely declarative, lacking real influence on decision-making processes.

The results obtained through the ethical matrix analysis align with arguments in the literature: they confirm that implementing ethical standards in technology management is not only feasible but also necessary and beneficial in the long term. At the same time, they reveal specific gaps that may lead to systemic risks, discrimination, and erosion of trust. In light of these outcomes, further development of ethical auditing tools, mandatory bias assessments, and explainable AI mechanisms appears essential not only from a compliance standpoint, but as integral components of an organization's ethical identity.

6. Summary

The study presented in this paper, which explored the ethical aspects of managerial decision support in the digital era, focused on the use of artificial intelligence within the business sector, with particular attention to cybersecurity and telecommunications. This research allows for the formulation of several key conclusions.

First, balancing ethics and efficiency emerged as one of the central challenges faced by contemporary managers. The analysis demonstrated that striving for high operational and strategic efficiency does not have to conflict with adherence to ethical principles. On the contrary, a responsible approach to the use of digital tools can, in the long run, enhance efficiency by building stakeholder trust, strengthening corporate reputation, and reducing risks associated with potential abuses or technological failures. Ultimately, organizations that deliberately integrate digital innovation with ethical standards are more likely to achieve sustainable and enduring success.

Second, the literature review and the applied ethical evaluation matrix revealed clear differences in the degree of alignment with digital ethics standards between the cybersecurity and telecommunications sectors. In the cybersecurity sector, the dominant solutions were those

focused on technological security, accountability and data protection, reflecting the high level of operational and regulatory risk. These systems were more frequently tested for resilience and had clearly designated accountability for AI-supported decisions. In contrast, in the telecommunications sector, while GDPR compliance was generally ensured, there was a noticeable lack of algorithmic transparency and explainability - users did not always have access to information on how the system processing their data operates. Moreover, only some solutions implemented mechanisms to eliminate algorithmic bias, raising concerns about unequal treatment of customers.

Third, the analysis identified key strategies for ensuring responsible use of technology in decision-making processes. These include the development of clear ethical codes and guidelines for decision-support systems, regular ethics training and awareness-building among managerial staff, and the implementation of oversight and control mechanisms (such as algorithm audits or AI ethics boards). Ensuring the transparency of digital tools is also critical - managers should understand the fundamentals of the algorithms and models they rely on, in order to identify potential biases or errors. This approach supports decision-making that is not only effective but also fair and socially acceptable.

Fourth, the analysis underscored the significant influence of organizational culture and leadership on ethical decision-making with technology. An organizational culture that promotes honesty, responsibility, and open communication encourages employees to consider ethical aspects in their work - even under performance pressure. The role of leadership is equally vital - leaders who model ethical conduct and responsible use of digital tools set behavioral standards for the entire organization. Value-driven leadership fosters a climate of trust, enabling teams to openly discuss dilemmas related to emerging technologies and collaboratively develop solutions that balance business efficiency with ethical imperatives.

Despite the conclusions drawn, this study has certain limitations. First, it is qualitative in nature and primarily based on literature analysis and a theoretical model of ethical evaluation. It does not account for the rapidly evolving regulatory environment (e.g., forthcoming European AI legislation) nor does it include empirical research involving organizations that have implemented AI systems in practice. Additionally, it lacks a long-term perspective on assessing the outcomes of responsible digital practices within organizations. Therefore, further empirical studies are recommended to evaluate the effectiveness of specific ethical tools and to examine the diverse sectoral, cultural, and organizational conditions involved.

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