

Ethical challenges facing economic organizations in the digital transformation: negative impact and coping mechanisms

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Abstract:

This study aimed to identify the various ethical challenges facing economic organizations during digital transformation and their negative impact. It also sought to develop practical mechanisms for addressing these ethical challenges. The study employed a descriptive-analytical approach, systematically reviewing various articles that addressed aspects of the topic and examining case studies of organizations that have experienced and been affected by these ethical challenges. The analysis of these articles and information led to the conclusions drawn. The study concluded that digital transformation presents several ethical challenges, including data privacy and security, algorithmic bias, transparency and accountability, digital inclusion and accessibility, and negative environmental impact. These challenges have numerous negative consequences for organizations, such as long-term reputational and consumer losses, in addition to environmental repercussions for society. To address these ethical challenges, organizations must adopt a range of practical mechanisms, such as establishing ethical guidelines, promoting ethical leadership, and engaging stakeholders to overcome digital ethical challenges.

Keywords: Ethical challenges in the context of digital transformation, negative impacts, mechanisms for addressing digital ethical challenges.

1. Introduction

The contemporary world is witnessing radical and rapid transformations driven by the digital revolution, which has reshaped various economic and social activities and given rise to new business models based on innovation, flexibility, and the intensive use of technology. Digital transformation

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has become an indispensable strategic choice for economic organizations, contributing to improved operational efficiency, enhanced competitiveness, and the development of products and services that align with the demands of the modern digital environment.

However, despite the promising opportunities it presents, this transformation also raises a number of complex challenges, perhaps the most prominent of which are the ethical challenges associated with the use of digital technology. With the expansion of technologies such as artificial intelligence and big data analytics, economic organizations are facing several issues related to privacy protection and information security, the fairness of algorithmic decisions, transparency and accountability, the digital divide, and so on.

These ethical challenges, along with their negative impacts on individuals, societies, and the economic organizations themselves, have reinforced the need to adopt a comprehensive ethical approach that ensures a balance between technological advancement and the social responsibility of organizations.

1.1 Problem Statement: The increasing reliance on digital systems in economic organizations has led to the emergence of unethical practices and automated decision-making that may lack human, social, and environmental dimensions. This raises fundamental questions about the limits of technology use and the extent to which economic organizations adhere to business ethics principles in the digital environment. In light of the above, and to understand the ethical challenges facing economic organizations and propose effective mechanisms for addressing them, we formulated the following problem statement:

What are the most prominent ethical challenges facing economic organizations in light of digital transformation? And how can they be managed to achieve a balance between economic efficiency and ethical commitment?

1.2 Objectives and Significance of the Study: This study aims to achieve a number of objectives, the most important of which are:

- Understanding the concept of digital transformation and its importance to economic organizations;
- Identifying the most significant ethical challenges resulting from digital transformation;
- Analyzing the impact of these ethical challenges on the performance of economic organizations;
- Proposing practical mechanisms to promote digital ethics within economic organizations.

This study is significant because it addresses a modern and evolving topic that combines technological, ethical, and administrative dimensions, making it both scientifically and practically valuable.

1.3 Methodology: This study adopted a descriptive-analytical approach, systematically reviewing various articles and literature addressing ethical challenges in the digital age and their various aspects. It also included case studies of some international organizations that have suffered from and been affected by these ethical challenges. We analyzed these articles and information and drew conclusions.

1.4 Key Previous Studies: Studies addressing ethical issues in the context of digital transformation are relatively recent. Among them are: - A study by Dangar (2025) entitled "Ethics in the Digital Age: Challenges and Opportunities for Corporate Social Responsibility." This study aimed to explore how organizations integrate ethical values into their digital operations. The study identifies best practices for managing digital ethics through a comprehensive review of relevant literature and

analysis of case studies. It concludes that organizations can reduce ethical risks, improve their reputation, and gain customers by adopting open databases, applying ethical AI principles, promoting digital accessibility, and fostering a culture of accountability.

- A study by Kamal et al. (2025) entitled "Digital Ethics: A Review of Leadership Theories, Challenges, and Responsibilities"

This study aimed to identify the theoretical foundations of ethical leadership in the digital age, pinpoint the main challenges posed by digital technologies, and develop frameworks to enrich leadership practices. This was achieved through a systematic review of over 156 relevant articles. The study concluded that successful ethical digital leadership requires integrating traditional virtue-based ethical approaches with contemporary stakeholder theory. Furthermore, it emphasized the need for comprehensive ethical frameworks that accommodate cultural diversity while maintaining consistent core principles.

- The study (Annisa Nur & Padli Nasution, 2025) entitled Ethical Challenges of Information Systems in the Age of Digital Transformation aimed to investigate the relationship between the development of information systems and the growing ethical issues accompanying global digital transformation, through a scientific approach based on a review of academic literature on international business practices to understand how ethical considerations affect the management of modern information technologies. The study concluded that integrating well-established ethical principles into the management of information systems is crucial to ensuring responsible, transparent, and sustainable technological development through a high level of ethical awareness and comprehensive regulatory policies to enable information technology to achieve maximum benefits without compromising ethical responsibilities or human values.

- A study by Rosa (2021) entitled "Exploring the Role of Ethical Issues in the Context of Digital Transformation"

This study aimed to explore the role of ethics in the context of digital technologies, in order to provide a deeper understanding of the phenomenon of digital transformation and thus contribute to a better understanding of the opportunities and challenges facing organizations in a rapidly changing business environment. This was achieved through an exploratory scientific approach to analyzing, evaluating, and reviewing relevant scientific literature. The study concluded that ethical considerations contribute to a deeper understanding of the long-term impact of digital transformation, and that digital technologies and organizational decisions based on the information provided by these technologies must be consistent with ethical considerations. Furthermore, the study emphasized the need to develop organizational accountability for data management to ensure compliance with the legal and ethical aspects of data ownership. Finally, the study concluded that ethical organizational decisions contribute to promoting long-term sustainable development.

Our study complements previous research and addresses the ethical challenges facing economic organizations in the context of digital transformation.

2. Digital Transformation in Economic Organizations

Digital transformation has become a fundamental element in the strategies of organizations in general, and economic organizations in particular. Economic organizations seek to leverage digital technology to drive innovation, enhance customer experiences, and gain a competitive advantage in a highly competitive market.

2.1 Definition and Fundamentals of Digital Transformation

Definition of Digital Transformation: Digital transformation is defined as the process of transforming organizations from traditional methods to modern methods that rely on digital technologies for innovation in services, products, management, and marketing. This is done according to a digital strategy that examines the requirements of digital investment (Haddad & Qarmat, 2025, p. 210). Digital transformation requires organizations to be more flexible, innovative, and adaptable to current and future transformations, with a focus on developing and training human resources. Digital transformation is also defined as the process of "transforming traditional business models of governmental or commercial institutions into a model based on digital technologies and techniques for service delivery, product manufacturing, and human resource management" (Sharqi & Safih, 2023, p. 130). Digital transformation is not limited to economic organizations; it also encompasses governmental organizations and affects all their operations. Furthermore, digital transformation involves using digital technologies in an organization's strategies, processes, and products. Organizations invest in digital transformation to enhance their competitiveness and improve their interaction with and service to their employees and customers (Bouabdellah & Bouabdellah, 2022, p. 72). Therefore, digital transformation can be defined as "a strategic process through which organizations transform traditional business models by integrating modern technology into the business environment, with the aim of facilitating administrative processes and procedures and providing innovative products and services to customers."

Fundamentals of Digital Transformation: The fundamentals of digital transformation are as follows (Ghraissi & Si Tayeb, 2021, pp. 101-102):

- Customer Experience: This involves understanding the needs of current and potential customers and finding ways to satisfy them;
- Process Automation: This is the use of technology, digital techniques, and software in executing processes to facilitate the work of individuals;
- Changing the Traditional Business Model: This is achieved by integrating technology and digital techniques into business activities, offering digital services, and moving towards new markets made possible by the digital transformation process.

3.The Importance of Digital Transformation in Economic Organizations:

Digital transformation in organizations is not merely a technical option, but a strategic, cultural, and organizational project aimed at enhancing performance, transparency, and innovation. It requires a balance between technology, people, and organizational values. The importance of digital transformation extends beyond simply improving tools or accelerating processes. It encompasses profound structural transformations that impact an organization's business logic and economic model. This importance can be analyzed across several interconnected dimensions:

Strategic Importance (Reshaping the Business Model): Digital transformation enables organizations to:

- Shift from traditional models to innovative, digital business models based on platforms and data.
- Shift from selling products to providing digital services (Digital Servitization).
- Emerge as a platform economy.
- Quickly enter new markets.

Here, digital transformation not only improves performance but also redefines the very source of value within the organization (Bharadwaj, El Sawy, Pavlou, & Venkatraman, 2013, pp. 471-482).

Competitive Importance (Building a Sustainable Competitive Advantage): In a dynamic environment, digital transformation empowers organizations to:

- Respond quickly to changes.
- Innovate continuously.
- Excel in customer experience. Competitive advantage no longer depends on physical resources, but rather on data, knowledge, and agility. This makes digital transformation a source of what is called dynamic competitive advantage (Verhoef, et al., 2021, pp. 890-891).

Operational Importance (Achieving Efficiency and Effectiveness): Digital transformation contributes to automating processes, reducing errors, minimizing time and costs, and improving the quality of outputs. Digital transformation not only leads to efficiency but also to effectiveness by improving operational decisions based on data (Vial, 2019, pp. 119-125).

Cognitive Importance (Transforming into a Data-Driven Organization): This is one of the most important dimensions of digital transformation. Organizations are moving towards using Big Data Analytics to support intelligent decision-making and predict future trends. Digital economic organizations are shifting from experience-based management to data-driven management, which enhances what is known as organizational intelligence.

Customer Importance (Redefining the Customer Experience): The customer has become central to digital transformation, with services becoming personalized, interactive, and multi-channel, thus improving customer satisfaction and loyalty.

Digital transformation shifts the organization's focus from the product to the customer experience, and this shift represents one of the most important sources of modern value. Organizational importance (enhancing organizational flexibility and agility):

Digital transformation enables organizations to adapt quickly to crises, work remotely, and easily restructure processes. The concept of the Agile Organization has emerged, which relies on: flexible work teams, decentralized decisions, and supportive technology.

Human Importance (Reshaping the Role of Human Resources): Digital transformation has led to the emergence of new digital jobs and the development of digital skills, in addition to the use of artificial intelligence in recruitment. Human resources is no longer merely an administrative function, but has become a strategic partner in digital transformation (Bondarouk & Ruel, 2009, pp. 505-514).

Economic Importance (Supporting Growth and Sustainability): Digital transformation contributes to increased productivity, supports the digital economy, and creates new job opportunities. It is a key driver of what is known as the Digital Economy.

Importance in Crisis Management: Recent studies and experiences have demonstrated that digital organizations are better able to continue operating during crises, adapt to unforeseen circumstances, and ensure business continuity. Organizations that have adopted digitalization have been able to maintain their activity during crises compared to traditional organizations. A study conducted by PTC, a leading US-based software company specializing in engineering and digital transformation, surveyed 128 executives from organizations that have adopted digital transformation in the United States. The executives stated that digital transformation has provided their organizations with several advantages and benefits, as illustrated in the following figure:

Table (1): Illustrates the advantages offered by adopting digital transformation in economic organizations

Benefits of digital transformation	%
Improving operational efficiency	40%
Meeting customer expectations	35%
Improving the quality of new products	26%
Increasing design reuse	25%
Reducing product development costs	24%
Reducing the costs associated with poor quality	14%

Source:(PTC, 2022, p. 6)

The figure shows that digital transformation offers several advantages to economic organizations, the most important of which are:

- Improved operational efficiency (40%): This is achieved by automating manual processes and saving time and effort, thus reducing human error and increasing performance levels;
- Meeting customer expectations (35%): This is achieved by facilitating product access, providing personalized customer experiences, improving customer interaction, and enhancing loyalty (A. Shaji, 2024, p. 51);
- Cost reduction: Digital transformation has contributed to reducing product development costs (24%), reducing the costs associated with poor quality (14%), and increasing the reuse of designs (25%);
- Improved product quality and a competitive advantage: This is achieved by adapting quickly to market demands and responding to customer requests faster than competitors. Mobile applications (59%), big data and analytics (58%), and application programming interfaces (APIs) (40%) are among the most widely used digital technologies in economic organizations and have contributed to achieving these advantages (Pangarkar, 2026).

Challenges Facing the Adoption of Digital Transformation in Economic Organizations: Despite the numerous advantages and benefits offered by digital transformation, its adoption presents several challenges that must be addressed carefully as they threaten business operations. These include (A. Shaji, 2024, p. 51):

- High Implementation Costs: Digital transformation requires significant investment in technology, employee training on new technologies, and the provision of necessary infrastructure;
- Change Management Challenges: Digital transformation necessitates significant cultural and organizational changes, which are often difficult to implement;
- Cybersecurity Risks and Ethical Challenges: Digital transformation increases the risks of cyberattacks, data breaches, and other cybersecurity threats. It also presents several ethical challenges that, in the long run, can harm customers, society, and economic organizations.

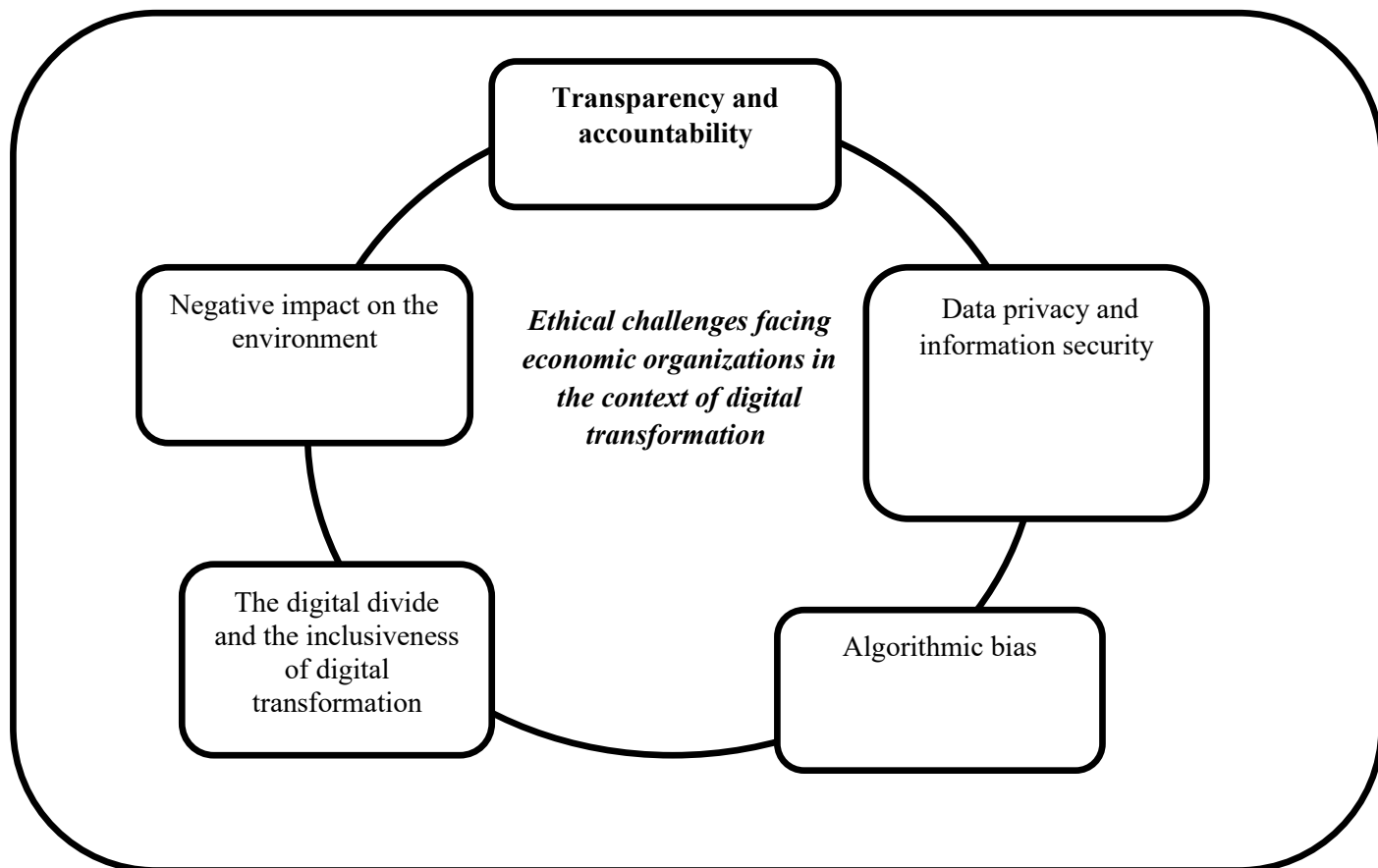
4. Ethical Challenges Facing Economic Organizations in the Context of Digital Transformation and Their Negative Impacts

Ethical Challenges Facing Economic Organizations in the Context of Digital Transformation

The real challenge for economic organizations in the context of digital transformation lies not in processing power, but in the strength of their ethical awareness. Economic organizations that ensure their sustainability and future viability are not only the most technologically advanced, but also the most capable of building a "digital ethical system" that respects human dignity and data sovereignty.

The following figure illustrates the most important ethical challenges facing economic organizations in the context of digital transformation.

Figure (01) illustrates the most important ethical challenges facing economic organizations in the context of digital transformation.



The figure shows that digital transformation is surrounded by several ethical challenges, the most important of which are:

1.1.3Challenges of Transparency and Accountability in Decision-Making: Transparency is a crucial issue in the decision-making process supported by artificial intelligence and algorithms. AI systems face an ethical dilemma known as the "black box" problem, where users find it difficult to interpret, justify, or understand the mechanism by which these systems make their decisions, especially in sensitive areas such as healthcare and finance (Verma, 2025, p. 2367). For this reason, it becomes essential for AI decisions to be clear and transparent to ensure fairness and equality. This makes it difficult as responsibility becomes intertwined, since developers, organizations, and users share the outcomes of artificial intelligence, complicating the application of the principle of accountability and determining who bears responsibility when errors occur (Ayman, 2025)

2.1.3 Data Privacy and Information Security: Data is a valuable asset, akin to the new oil of our time, for any organization, given its significant economic value. Managing and protecting data in the digital age faces numerous ethical challenges, including:

-Informed Customer Consent and Data Security: To improve decision-making, enhance the efficiency and quality of products and services, and boost competitive advantage, economic organizations collect vast amounts of personal, behavioral, and transactional information. However, this reliance on data raises crucial ethical challenges: How is this data obtained, stored, and used? Who owns this information, and how is this consent protected? (Kamal, et al., 2025, p. 6) With increasing customer awareness of how their data is collected and used, organizations are now required to... By ensuring robust data protection and obtaining explicit customer consent, organizations can mitigate the risk of privacy violations. A lack of transparency in how data is collected, stored, and used significantly damages consumer trust (Mrinalini, 2025, p. 16). Organizations that disregard consumer consent and transparency risk losing customer trust, as well as facing legal repercussions.

-Commodification of Data: The ethics of selling user data to third parties without complete transparency;

-Digital Surveillance: The expansion of employee monitoring through productivity tracking software can violate their privacy and create an environment of distrust. Concerns have been raised about the ethical use of personal data as a result of high-profile data breaches, such as the 2018 Facebook-Cambridge Analytica scandal, which is a prime example of ethical violations in data use. The incident involved the collection of personal data from 87 million Facebook users without their consent, and this data was used for targeted political advertising. This led to widespread outrage and calls for stricter data privacy laws (SocialTargeter, 2025.)

Algorithmic Bias: Economic organizations increasingly rely on algorithms to make decisions regarding hiring, promotion, or even granting loans. Algorithmic bias can be defined as a phenomenon that refers to systematic errors that occur in decision-making, leading to unfair outcomes (Sahnoun & Baalache, 2024, p. 707). Although the primary cause of algorithmic bias is the users themselves, it is also... There are several reasons, which are shown in the following table:

Table No. (02) explains the reasons for algorithmic bias

Real-life examples	Cause of algorithmic bias
- Facial recognition systems continue to racially discriminate against women and people of color at rates up to 30% higher than white men; - - The word "doctor" is often translated as masculine, while the word "nurse" is often translated as feminine; - - When searching for the word "player" on Google Images, the majority of images appear as football players, while there are no images of, for example, a chess player.	Biased data: The data that was entered from the beginning was biased (developer data, user data, historical data), which makes AI systems learn and amplify pre-existing biases that can contain bias based on race, religion, gender or any other characteristics.
In criminal prediction systems, black individuals	Generalizations: Generalizing the results

are unfairly targeted because algorithms issue false warnings based on the assumption that most black people are dangerous.	of a case to similar cases, such as generalizing risks.
The Google Translate app relies on translating with masculine pronouns rather than feminine ones because masculine pronouns in English language sources are twice as common as feminine pronouns, and every time the app makes this translation mistake, the relative frequency of masculine pronouns on the internet increases.	Faulty algorithms: The source of bias may be the algorithms themselves, which may be mathematically correct but raise ethical challenges, and algorithms can amplify bias through feedback.
Lack of diversity: Insufficient and unbalanced representation, both in the data used and in the teams developing these systems, leads to discriminatory and unfair results against certain groups.	

Source: Prepared by the researchers based on (Qaraza and Qas'a, 2022, pp. 10-14)

From the real-world examples shown in the table, we find that algorithmic bias poses ethical challenges that are not abstract but directly affect rights, opportunities, and justice. It can reinforce social inequalities, leading to unfair outcomes in employment, lending, and law enforcement. Addressing it requires proactive measures that combine technological solutions with effective governance and oversight.

The Digital Divide and the Inclusiveness of Digital Transformation: One of the important ethical challenges posed by digital transformation is that it may unintentionally lead to the exclusion of certain groups through: - Technical discrimination: Excluding customers or employees who do not possess advanced technical skills or fast internet access;

-Job Erosion: The ethical challenge here lies in how to deal with the workforce that will be replaced by automation (will they be laid off or retrained.?)

A major ethical challenge is the risk of widening the digital divide between societies. While some societies and organizations are becoming more familiar with digital technologies, others risk being left behind. Ethical digital transformation requires a commitment to inclusivity and ensuring that digital products and technologies are accessible, affordable, and designed to meet the needs of less developed communities (Strauss, 2025.)

Environmental Responsibility: The negative impact of digital transformation on the environment is rarely mentioned. Although it offers numerous opportunities for environmental sustainability, it also poses significant threats to the use of artificial intelligence technologies in digital marketing. The sources of this negative impact are numerous, and some of the most prominent are shown in the following table:

Table No. (03) illustrates the negative impact of digital transformation on the environment.

negative impact on the environment	Digital risk
- The rapid development of digital technologies has led to an increase in electronic waste, making it one of the fastest-growing types of waste in the world. Global e-waste production reached 62 million tons in 2022, an 82% increase from 2010, with only 22.3% being properly recycled. - E-waste contains hazardous materials such as lead, mercury, and cadmium, which can leach into the environment, increasing soil and water pollution. - -The digital transformation has shortened the lifespan of electronic devices that are not properly recycled, accelerating their obsolescence.	Digital waste
Digital data analytics centers and blockchain technologies are among the most energy-intensive infrastructures, consuming approximately 1% of global electricity consumption. This figure is likely to rise sharply in the coming years, as data centers consumed 460 terawatt-hours in 2022, a figure that could rise to more than 1,000 terawatt-hours by the end of 2026 (a typical data center may consume the same amount of energy as 25,000 homes)	Energy consumption in data analytics centers
Some rare earth elements and metals are essential components in digital devices, such as smartphones and computers, which have a short lifespan, leading to frequent replacement (resource-intensive). These devices constitute a large part of the global demand for cobalt (9.4%) and palladium (8.9%), in addition to significant shares of tantalum, silver, gold, and magnesium, highlighting their large impact on resource consumption and the need to improve recycling and collection practices.	raw material consumption
With the increasing global demand for artificial intelligence, water consumption at Microsoft's data center could reach between 4.2 and 6.6 billion cubic meters by 2027, equivalent to the annual water consumption of 4 to 6 countries like Denmark or half the consumption of Britain.	Water consumption
Projections indicate that if current trends continue, the information and communications technology sector could contribute up to 14% of global carbon emissions by 2040, surpassing the agricultural sector in terms of carbon footprint.	carbon footprint

Source:(Goel, Masurkar, & Pathade, 2024, pp. 11-18) and (Ralitza, 2026, pp. 1-3)

2.3 The Impact of Ethical Challenges on Economic Organizations

Falling into the aforementioned ethical challenges leads to economic organizations losing their reputation and consumer trust, and ultimately, their demise in the long run if they do not address the issue. The following table illustrates the impact of some digital ethical violations on consumer trust and brand reputation:

Table No. (04) illustrates the impact of some ethical violations on customer trust and brand reputation

Impact on	Assessing	Assessing	Statistics or examples	Examples of	The ethical
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brand reputation	consumer confidence after ethical breach	consumer trust before ethical violation	of economic organizations that have suffered from these violations	ethical problems	challenge
Customer skepticism (negative advertising)	35%	65%	Statistics indicate that 77% of consumers value transparency in the use of artificial intelligence.	The results of vague decision-making without clear justifications and without traceability	Transparency issues
Loss of trust and legal and financial penalties	30%	75%	Facebook - Cambridge Analytica, 2018	Misuse of user data	Data privacy
Public outrage and a drop in brand value	25%	70%	Amazon's biased automated hiring tool	Exclusion based on gender (bias towards males against females)	algorithmic bias
Improving reputation and increasing customer loyalty		80%	Statistics indicate that brands with strong ethical standards experienced a 55% improvement in their reputation and a 10% increase in customer loyalty.	Clear guidelines and responsible use of artificial intelligence	Commitment to digital ethics

Source:(Mrinalini, 2025, p. 17).

From the table above, we can see that when organizations face ethical challenges, they lose their reputation, customer trust collapses, and ultimately, their very existence. To avoid this, economic organizations must adopt a set of practical mechanisms to promote the adoption of digital ethics.

Practical Mechanisms for Promoting Digital Ethics at the Level of Economic Organizations

Digital ethics can be defined as the ethical standards and principles that govern how technology is used in society and business (Dangar, 2025, p. 339). These digital ethical standards are formulated in a way that combines classical ethical theories, such as duty theory, utilitarianism, and virtue ethics, with contemporary digital challenges (Bhatta, 2021, p. 32). To promote digital ethics at the level of economic organizations, they must establish a set of practical mechanisms to facilitate this, including:

Establishing Ethical Guidelines: Accelerating the introduction of new regulatory principles and an ethical framework for emerging digital technologies is an urgent necessity in this era. Economic

organizations should establish clear ethical guidelines that govern the use and exploitation of digital technologies. These principles effectively address the unique ethical challenges posed by these technologies. They should be disseminated across all levels of the organization and integrated into decision-making processes. These ethical guidelines aim to achieve several key objectives (Shittu, et al., 2024, p. 1264):

- Providing clear ethical standards to guide the development and application of digital technologies, and promoting responsible practices that are compatible with the social, cultural, and economic context;
- Encouraging the creation and use of digital systems that are transparent, impartial, and equitable, thereby reducing discrimination and ensuring that the benefits of technology are distributed fairly across all segments of society.
- Establishing robust protocols to protect personal data and enhance customer privacy, ensuring that digital systems respect and protect individual rights.
- Building customer trust in artificial intelligence and digital technologies by demonstrating a commitment to ethical principles, leading to wider acceptance and adoption of these innovations.

Promoting Ethical Leadership: Ethical leadership is defined as leadership that focuses on promoting ethical behavior and positive values within the organization by modeling behavior based on integrity, fairness, and respect. Leaders then instill and encourage these values among their subordinates (Othman & Abu Al-Diyar, 2025, p. 1383). Establishing ethical values at the highest levels of management requires ethical leadership. Leaders should be role models in ethical behavior and support responsible digital practices. Leaders of economic organizations today are constantly required to make decisions that answer the question: How can digital technologies be used to improve business processes and results without compromising the organization's ethical obligations? (Bhatta, 2021, p. 38)

Building an Ethical Organizational Culture: An ethical organizational culture is the foundation upon which ethical organizations are built in the digital age. Organizations must create environments where ethical principles are not merely spoken but actively practiced. This is achieved by promoting positive role models, disseminating ethical guidelines that address ethical issues to all employees, involving them in ethical decision-making processes, fostering ethical dialogue to discuss ethical challenges faced by employees, reporting unethical behaviors, and reflecting on the impact of using digital strategies (Kamal, et al., 2025, p. 9).

4.4 Stakeholder Engagement and Collaboration: With the increasing number of stakeholders in the digital age, it has become essential to involve them in the organization's strategy and collaborate with them in a way that fosters trust, mutual respect, and shared responsibility (Dangar, 2025, p. 340).

Adopting Sustainable Digital Practices: As part of their commitment to digital ethics and social responsibility, organizations should promote environmental sustainability initiatives to minimize their negative impacts by using renewable energy sources, managing their waste, and reducing their use of raw materials (Gazard & Moreau, 2025).

In addition to the mechanisms mentioned above, economic organizations should collaborate with ethical technology partners who prioritize responsible technological solutions and conduct ethical impact assessments before implementing any new digital technologies. This proactive approach allows organizations to mitigate potential problems beforehand.

Discussion and Analysis of Results:

The findings of this study highlight the critical intersection between "digital innovation" and "ethical responsibility." The challenges are no longer confined to purely technical aspects but extend to the core of social justice, individual privacy, and environmental sustainability.

Digital transformation can be considered a double-edged sword: while it enhances efficiency and innovation, it also poses profound ethical challenges that may threaten the sustainability of organizations if not addressed with strategic awareness.

Therefore, achieving a balance between economic performance and ethical commitment has become a prerequisite for the success of economic organizations in the digital age. Based on an in-depth analysis of current digital practices, the most important findings that outline the ethical challenges and define practical paths for addressing them can be reviewed according to the following axes:

Results Related to the Nature of Digital Ethical Challenges:

- The "Black Box" Dilemma and Lack of Accountability: Transparency emerges as the biggest obstacle in algorithmic decision-making. It is difficult to explain how decisions are made (especially in finance and health), leading to a fragmentation of responsibility among developers, organizations, and users when errors occur.

- Data has become a strategic economic asset, but its collection has raised ethical concerns surrounding "informed consent." The commodification of data and its sale to third parties (such as the Cambridge Analytica scandal) has undermined individual privacy.

Algorithmic bias in digital systems is not merely technical; it reflects biased historical data or a lack of cultural diversity within development teams, perpetuating social discrimination in hiring and loan allocation.

Contrary to the common perception that digital transformation is environmentally friendly, the findings reveal a devastating environmental impact. The technology sector is projected to consume 14% of global carbon emissions by 2040, with data centers consuming enormous amounts of water and energy.

Findings related to the impact on business organizations: The data demonstrated a direct correlation between ethical commitment and brand value. Consumer trust plummets (by more than 50%) when privacy violations or algorithmic bias are present. - An ethically unsound digital transformation leads to the marginalization of traditional skills and exacerbates inequalities between societies, placing upon organizations the responsibility of "digital inclusion" rather than mere automation.

- The study revealed that digital transformation has given rise to new practices with ethical dimensions, most notably:

- ☐ Intensive digital surveillance of employees;

- ☐ Over-reliance on automated decisions in recruitment and evaluation;

- ☐ A decline in the human element in human resource management, which negatively impacts organizational trust and job satisfaction.

Conclusion and Recommendations

In light of the rapid digital transformations the world is witnessing today, digital transformation is no longer a supplementary option for Arab economic organizations, but rather a strategic necessity dictated by the requirements of competitiveness and sustainability. However, this study has shown that this digital transformation, despite the advantages it offers in terms of efficiency, innovation, and improved performance, is accompanied by the emergence of profound and complex ethical challenges that touch the very core of the relationship between the economic organization and its environment.

The study's findings revealed that the ethical challenges associated with digital transformation are primarily embodied in issues of data protection and privacy, weak transparency and accountability in algorithmic decisions, the prevalence of digital algorithmic biases, and the problems of the digital divide and negative environmental impacts. Furthermore, it was shown that these challenges are not limited to the ethical dimension alone, but extend to directly affect organizational performance, reputation, and customer trust, which may threaten their long-term viability.

Therefore, the success of economic organizations in general, and Arab organizations in particular, in the digital age is no longer solely dependent on their ability to adopt technology, but also on their capacity to integrate the ethical dimension into their digital strategies. This involves adopting responsible practices that balance economic efficiency with respect for human and social values. Digital ethics has become one of the most important determinants of excellence and sustainability in the contemporary business environment.

Based on the preceding findings, the ethical challenges facing economic organizations in the context of digital transformation, whether in Algeria or any other Arab country, are inseparable from their Arab context. Economic organizations in the Arab region share a common challenge: the gap between the rapid pace of digitalization and the existing value and legal frameworks. Therefore, adopting a shared Arab ethical charter that respects cultural and linguistic specificities is essential to ensure a safe and sustainable digital transformation. Among the recommendations we propose in this context are: - Respecting Cultural Sensitivity: It is necessary to formulate digital ethical frameworks that not only adhere to international standards but also align with the social and religious values of Arab societies, especially regarding family privacy, digital content, and the handling of personal data, which is particularly sensitive in conservative societies.

- Addressing "Technical Dependency" and Examining Imported Algorithms: Since most software and systems in the Arab region are imported, we recommend that Arab organizations establish "local ethics audit" units to ensure that these algorithms do not carry biases (cultural, linguistic, or ethnic) that could disadvantage the Arab consumer or employee.

- Regional Cooperation in "Cross-Border Digital Governance": Encouraging Arab economic organizations to build alliances to create a "Unified Arab Digital Code of Ethics" that facilitates the secure exchange of data between Arab countries and protects regional digital sovereignty, thus reducing the encroachment of major global technology organizations. - Investing in "Digital Arabic" and Sovereign Artificial Intelligence: Supporting investment in artificial intelligence systems that understand the Arabic language context with its various dialects, to reduce errors and biases resulting from machine translation in administrative decision-making, and to ensure the inclusiveness of digital transformation for all segments of society.

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Informed Consent: Informed consent was obtained from all participants.

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