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Human Dehumanization in the Age of Algorithms: An Integrated Framework of Technology, Psychology and Ethics

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Abstract: ***The rapid growth of artificial intelligence (AI), algorithmic governance, automation systems, and digital surveillance has significantly reshaped how institutions evaluate, categorize, and regulate individuals. Decisions related to hiring, performance evaluation, financial approval, and risk assessment are increasingly mediated by computational systems that prioritize efficiency, scalability, and predictive accuracy. This shift represents more than technological progress; it transforms the structural conditions under which individuals are recognized and valued. While technology ethics scholarship has focused on fairness, bias, and accountability, it has paid limited attention to the psychological processes through which digital systems may influence moral perception.***

Drawing on dehumanization theory—particularly Haslam's distinction between mechanistic and animalistic dehumanization—this paper proposes the Technology–Psychology–Ethics (TPE) framework. The framework argues that technological systems function as structural antecedents that reduce empathy and perceived autonomy, thereby fostering dehumanization processes that influence ethical outcomes such as diminished human dignity, reduced moral concern, and perceptions of injustice. By integrating psychological theory with algorithmic governance research, the TPE framework provides an interdisciplinary explanation of how technological exposure may reshape moral recognition and offers guidance for developing more human-centered digital systems.

Keywords: Technology ethics; dehumanization; artificial intelligence; algorithmic governance; human dignity; surveillance; psychological mediation.

I. INTRODUCTION

Technological systems are increasingly shaping how individuals are evaluated, categorized, and governed in modern societies. Artificial intelligence (AI), predictive analytics, automation, and digital surveillance now influence decisions in hiring, policing, finance, education, healthcare, and corporate management. Processes that once relied on human judgment are increasingly supported—or replaced—by algorithmic systems designed to optimize efficiency, accuracy, and scalability. Although these technologies are often presented as neutral and objective tools that reduce bias, their growing presence may also transform how individuals are perceived, valued, and treated within institutional settings.

Dehumanization has traditionally been associated with extreme violence, war, and intergroup conflict, where certain groups are denied essential human qualities such as rationality, emotional depth, or moral worth. However, contemporary research suggests that dehumanization can also occur subtly within bureaucratic and organizational environments. Individuals may feel treated as numbers rather than persons, or as replaceable units rather than unique human beings. In technologically mediated contexts, such processes may emerge not through open hostility, but through structural abstraction, algorithmic categorization, and systems that prioritize efficiency over relational understanding.

When individuals are evaluated primarily through performance metrics, predictive scores, or automated classifications, complex identities can be reduced to simplified data points. Continuous digital monitoring may decrease perceived autonomy, while automated decision-making may limit opportunities for empathy and contextual explanation. Over time, these practices may normalize instrumental forms of evaluation, subtly encouraging the treatment of individuals as data profiles rather than as fully human agents. Such shifts may influence not only institutional processes but also broader perceptions of dignity and moral worth.

Despite increasing concern about the ethical consequences of AI and automation, research remains divided across disciplines. Psychological studies of dehumanization provide strong theoretical and empirical insights but rarely examine digital infrastructures.

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Conversely, technology ethics and algorithmic governance research focuses heavily on fairness, bias, transparency, and accountability, often without engaging deeply with psychological mechanisms. This separation creates a theoretical gap, limiting understanding of how technological systems may shape moral perception itself.

To address this gap, the present paper proposes the Technology–Psychology–Ethics (TPE) framework. The framework conceptualizes technological systems as structural conditions that influence psychological processes—such as reduced empathy and diminished autonomy—which in turn shape ethical outcomes. Specifically, it examines how exposure to AI, automation, algorithmic classification, and surveillance may foster mechanistic and animalistic dehumanization. By integrating psychological theory with technology ethics, the TPE framework offers an interdisciplinary model for understanding how digital systems may reshape perceptions of humanness and provides guidance for developing more human-centered governance approaches.

II. LITERATURE REVIEW

The study of dehumanization has evolved significantly over the past two decades, moving from a focus on extreme violence and intergroup hostility toward subtler institutional and relational forms of denying humanness. However, the integration of this body of work with contemporary technological systems remains incomplete. This section synthesizes foundational psychological theories, empirical findings, and emerging technological critiques to situate the present framework within the broader scholarly landscape.

A. Classical Psychological Foundations of Dehumanization

Nick Haslam's (2006) integrative review remains the most influential framework for understanding dehumanization in contemporary psychology. Haslam's framework proposes that denying humanness can occur in two distinct ways. One involves stripping individuals of qualities associated with refinement, culture, and moral sophistication. The other involves perceiving people as lacking emotional depth, individuality, or agency, thereby framing them as object-like or machine-like. These two pathways capture different psychological processes through which full personhood can be undermined.

Importantly, mechanistic dehumanization is particularly relevant for technologically mediated contexts. Unlike animalistic dehumanization, which often emerges in overt intergroup conflict, mechanistic dehumanization occurs in bureaucratic and institutional settings where individuals are treated as tools or objects rather than relational beings. Contemporary digital infrastructures mirror precisely these institutional features.

B. Neural and Cognitive Evidence of Dehumanized Perception

Harris and Fiske (2014) extend dehumanization theory into the domain of social neuroscience. Neurocognitive research indicates that perceiving others as less than fully human corresponds with decreased activation in brain regions associated with social cognition and perspective-taking. When these neural systems are less engaged, individuals may show reduced spontaneous consideration of others' thoughts and emotions. This suggests that dehumanization involves not only evaluative attitudes but also shifts in underlying cognitive processing.

This evidence is critical for understanding digital mediation. When technological systems remove emotional and contextual cues—such as facial expression, tone, and narrative continuity—mentalizing processes may be weakened. Thus, technology-induced dehumanization may operate not merely at the attitudinal level but at the level of automatic cognitive processing.

C. Categorization, Imagined Otherness, and Blatant Dehumanization

Van Loon, Goldberg, and Srivastava (2024) introduce the concept of "imagined otherness," arguing that dehumanization emerges through exaggerated perceptions of cognitive difference between groups. When individuals believe that outgroups think fundamentally differently, they are more likely to engage in blatant dehumanization.

Algorithmic classification systems may unintentionally amplify such processes. Digital platforms cluster users into predictive segments based on behavioral patterns, reinforcing perceived difference and homogeneity within groups. This structural categorization parallels cognitive mechanisms underlying animalistic dehumanization.

Similarly, Markowitz and Slovic (2020) demonstrate that dehumanization toward immigrants correlates strongly with perceived social distance. These findings suggest that technological systems that increase abstraction and distance may foster comparable effects.

D. Organizational Dehumanization and Instrumentality

Research in organizational psychology provides further evidence linking institutional processes to dehumanization. Rubbab et al. (2022) Organizational research shows that when employees perceive themselves as treated primarily as functional resources rather than as whole persons, negative psychological consequences follow. Feelings of replaceability and instrumental evaluation are associated with lower trust, reduced well-being, and counterproductive responses. These findings provide an institutional parallel to mechanistic forms of dehumanization.

Algorithmic management systems—widely used in gig economies and performance-tracked workplaces—replicate many features associated with organizational dehumanization: constant monitoring, metric-based evaluation, and automated decision-making. These parallels suggest that technological dehumanization is not an entirely novel phenomenon but an intensification of institutional instrumentality.

E. Experience of Dehumanization and Measurement Advances

Golossenko et al. (2023) developed and validated the Experience of Dehumanization Measure (EDHM), which captures individuals' lived experiences of being treated as less than fully human. This development marked an important shift from group-based assessments toward experiential measurement.

However, while EDHM advances methodological precision, it was not designed specifically for technologically mediated environments. This limitation underscores the need for theoretical integration between dehumanization research and technological contexts, rather than isolated measurement innovation.

F. Structural and Ideological Contexts of Dehumanization

Maynard and Luft (2023) critique the over-psychologization of dehumanization research, arguing that scholars must consider broader institutional and ideological frameworks. They emphasize that dehumanization is embedded in power structures and cultural narratives.

Technological systems encode institutional priorities such as efficiency, predictability, and scalability. These priorities are not neutral; they reflect socio-economic values that privilege measurable outputs over relational depth. Thus, algorithmic governance may function as a structural vehicle for dehumanization, even in the absence of explicit prejudice.

Historical analyses, such as Steizinger (2018), further illustrate that dehumanization is shaped by ideological frameworks. Although contemporary digital societies differ dramatically from earlier political regimes, the embedding of classification and hierarchy within systems of governance remains a persistent mechanism of moral exclusion.

G. Dehumanization as a Multifaceted Process

Jilowa et al. (2025) conceptualize dehumanization as a multidimensional phenomenon involving cognitive, emotional, and behavioral components. They emphasize that dehumanization enables moral disengagement and social exclusion but also highlight pathways toward dehumanization through institutional reform and empathy-building.

This perspective is especially relevant for technological systems, as digital infrastructures shape not only cognition but also emotional responses and behavioral norms. The normalization of data-driven abstraction may gradually reshape societal understandings of what constitutes full humanness.

H. Emerging Concerns in Algorithmic Governance

Beyond explicitly dehumanization-focused scholarship, literature on algorithmic bias and surveillance consistently documents experiences of objectification and reduced agency. Individuals subject to predictive scoring systems often report feeling reduced to numbers or risk categories. Although such research frequently focuses on fairness metrics, it rarely engages directly with established dehumanization theory.

This conceptual separation has limited interdisciplinary understanding. Ethical analyses emphasize accountability and bias correction, while psychological research examines empathy and stigma. The absence of an integrative framework has prevented systematic exploration of how technological exposure reshapes psychological perception and ethical judgment simultaneously.

I. Algorithmic Governance and the Politics of Datafication

Zuboff (2019) argues that Contemporary digital economies increasingly transform everyday activities into quantifiable behavioral traces that can be analyzed, forecasted, and monetized.

Within this structure, individuals are positioned less as autonomous subjects and more as sources of data used to optimize predictive systems. Within this logic, individuals are not primarily recognized as moral agents but as behavioral inputs. This systemic translation of subjectivity into data reflects a structural form of mechanistic abstraction, aligning closely with mechanistic dehumanization.

Similarly, Kitchin (2017) conceptualizes algorithmic governance as the embedding of code within decision-making systems that structure social life. These systems shape opportunities, risks, and outcomes while remaining opaque to those affected. The reduction of lived experience into computable categories reinforces procedural objectification.

J. Algorithmic Bias, Fairness, and Moral Distance

O'Neil (2016) introduced the concept of "Weapons of Math Destruction," demonstrating how algorithmic systems amplify inequality under the guise of objectivity. Although primarily framed as fairness concerns, such systems also generate psychological experiences of being reduced to risk profiles rather than recognized as full individuals.

Barocas and Selbst (2016) further show how data-driven discrimination operates structurally rather than intentionally. The absence of explicit bias does not eliminate harm; rather, it obscures responsibility. This diffusion of accountability parallels psychological mechanisms of moral disengagement.

Moral distance theory (Coeckelbergh, 2015) suggests that When decision-making is routed through technical systems, the relational connection between those who design or implement policies and those who experience their consequences can become attenuated. This separation may weaken emotional engagement and reduce the immediacy of moral accountability. Increased moral distance weakens empathic engagement and may facilitate dehumanized perception.

K. Human–Computer Interaction and Social Presence

Research in human–computer interaction demonstrates that reduced social presence in mediated environments affects empathy and relational perception. Short, Williams, and Christie's (1976) social presence theory suggests that communication channels lacking emotional richness reduce perceived interpersonal warmth.

More recently, Waytz, Heafner, and Epley (2014) demonstrate that anthropomorphism can both enhance and distort human perception in AI interaction. When AI agents mimic human traits, they may trigger identity threat or diminish perceived human uniqueness.

These findings suggest that technological mediation can alter mentalizing processes, providing further support for the psychological dimension of the TPE framework.

L. Automation and the Instrumentalization of Labor

Blauner (1964) first linked automation with alienation, arguing that technological structuring of labor reduces autonomy and meaning. Contemporary gig-economy research (Rosenblat& Stark, 2016) shows that algorithmic management systems intensify this dynamic by replacing human supervisors with opaque computational evaluation.

Moore and Robinson (2016) argue that digital labor environments normalize continuous monitoring, reducing workers to productivity metrics. Such systems embody mechanistic logic, reinforcing objectification.

M. Ethical AI and Human Dignity

Floridi and Cowls (2019) propose ethical principles for AI governance grounded in beneficence, non-maleficence, autonomy, and justice. However, they acknowledge that ethical principles must be operationalized within socio-technical systems.

Binns (2018) emphasizes that algorithmic fairness cannot be reduced to mathematical parity alone; it must consider relational and contextual justice.

These ethical frameworks support the third dimension of the TPE model but often lack psychological integration — precisely the gap your framework fills.

N. Moral Psychology and Dehumanization

Bandura (1999) introduced the theory of moral disengagement, describing mechanisms through which individuals distance themselves from ethical responsibility. Technological mediation may activate similar processes by diffusing accountability across systems.

Gray, Young, and Waytz (2012) argue that moral judgment depends heavily on mind perception. When mind attribution decreases, moral concern weakens. This provides direct psychological grounding for linking dehumanization with ethical outcomes.

Table 1: Synthesis of Literature Underpinning the Technology–Psychology–Ethics (TPE) Framework

Section	Key Scholars	Core Concept	Main Contribution	Relevance to TPE Framework
1. Classical Foundations	Haslam (2006, 2024)	Dual model of dehumanization (mechanistic & animalistic)	Distinguishes denial of warmth/agency vs denial of civility/rationality	Provides core theoretical basis for psychological dimension
2. Neural & Cognitive Evidence	Harris & Fiske (2014)	Reduced mPFC activation during dehumanized perception	Demonstrates neural basis of reduced mentalizing	Supports psychological mediation mechanism
3. Categorization & Otherness	Van Loon et al. (2024); Markowitz &Slovic (2020)	Imagined otherness; social distance	Dehumanization increases with perceived cognitive difference	Links algorithmic classification to animalistic dehumanization
4. Organizational Dehumanization	Rubbab et al. (2022)	Instrumental treatment in workplaces	Organizational dehumanization reduces well-being	Connects automation & monitoring to mechanistic dehumanization
5. Measurement Advances	Golossenko et al. (2023)	Experience of Dehumanization Measure (EDHM)	Shifts focus to lived experience	Highlights need for tech-specific integration
6. Structural & Ideological Context	Maynard &Luft (2023); Steizinger (2018)	Dehumanization embedded in power systems	Moves beyond individual psychology	Supports structural "Technology Dimension"
7. Multifaceted Process	Jilowa et al. (2025)	Cognitive, emotional & behavioral dimensions	Emphasizes moral disengagement pathways	Aligns with multi-layered mediation structure
8. Algorithmic Governance	Zuboff (2019); Kitchin (2017)	Surveillance capitalism; datafication	Human experience translated into data	Illustrates mechanistic abstraction
9. Algorithmic Bias & Moral Distance	O'Neil (2016); Barocas&Selbst (2016); Coeckelbergh (2015)	Structural discrimination; moral distance	Harm without explicit intent	Links structural tech systems to moral disengagement
10. Human–Computer Interaction	Short et al. (1976); Waytz et al. (2014)	Social presence; anthropomorphism	Reduced warmth in mediated interaction	Explains reduced empathy pathway
11. Automation & Labor	Blauner (1964); Rosenblat&Stark (2016); Moore & Robinson (2016)	Alienation; algorithmic management	Automation reduces autonomy & meaning	Supports diminished autonomy mediator
12. Ethical AI Principles	Floridi& Cowls (2019); Binns (2018)	Fairness, autonomy, justice	Normative ethical guidance	Forms Ethical Dimension
13. Moral Psychology	Bandura (1999); Gray et al. (2012)	Moral disengagement; mind perception	Moral concern depends on mind attribution	Grounds ethical outcomes in psychology

III. SYNTHESIS AND THEORETICAL GAP

Taken together, the literature reveals three major gaps:

1) Psychological models of dehumanization are robust but insufficiently applied to technological systems.
2) Technological ethics scholarship identifies fairness risks but rarely grounds them in psychological mechanisms.
3) Organizational and institutional research documents objectification but lacks integration with classical dehumanization theory.

The Technology–Psychology–Ethics (TPE) framework responds to this gap by synthesizing these domains into a unified conceptual structure. It positions technological exposure as a structural antecedent, psychological dehumanization as the mediating mechanism, and ethical outcomes as the downstream consequence.

By integrating these strands of scholarship, the framework advances a coherent explanation of technology-induced dehumanization and its ethical implications.

Table 2: Identified Gaps in Existing Literature

Domain	Strength	Limitation	How TPE Addresses It
Psychological Dehumanization	Strong empirical foundation	Limited engagement with technological systems	Applies dual-model to digital infrastructures
Technology Ethics	Focus on bias & fairness	Lacks psychological mediation explanation	Introduces dehumanization as mediator
Organizational Research	Documents objectification	Not integrated with classical dehumanization theory	Connects automation to mechanistic logic
Governance Studies	Normative frameworks exist	Insufficient attention to moral perception	Grounds governance in psychological processes

IV. THE TECHNOLOGY–PSYCHOLOGY–ETHICS (TPE) FRAMEWORK

Conceptual Model Diagram

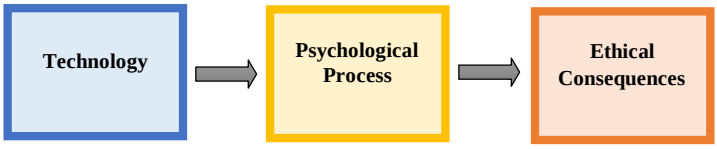


Figure 1. The Technology–Psychology–Ethics (TPE) Conceptual Model

Figure 1 presents the proposed Technology–Psychology–Ethics (TPE) framework as a multi-layered model explaining how technological exposure leads to ethically significant outcomes through psychological processes. The framework is organized into three distinct but interconnected dimensions:

(A) the Technology Dimension,
(B) the Psychological Dimension, and
(C) the Ethical Dimension.

A. Technology Dimension (Structural Antecedents)

The first layer includes four major forms of technological exposure:

- Artificial intelligence interaction
- Automation systems
- Computational sorting and categorical assignment
- Digital surveillance infrastructures

These technologies act as structural conditions that influence how individuals are evaluated, categorized, monitored, and treated in institutional and social settings. Rather than viewing them as neutral tools, the framework understands these systems as socio-technical environments that shape recognition, agency, and interpersonal dynamics. In other words, technology influences not only decisions but also how individuals are seen and valued.

B. Psychological Dimension (Mediating Mechanisms)

The second layer includes the psychological processes that explain how technological exposure affects ethical perception. This dimension operates in two sequential stages.

1) Primary Psychological Mediators

- Reduced empathy
- Diminished perceived autonomy
- Lower interpersonal warmth

These variables represent immediate psychological changes that occur in technologically mediated environments. Reduced empathy reflects a weakened ability or tendency to understand others' thoughts and feelings. Diminished perceived autonomy refers to a reduced sense of control or personal agency when interacting with automated or surveillance systems. Lower interpersonal warmth reflects a decline in relational closeness or emotional connection.

2) Dehumanization Processes

- Mechanistic dehumanization (denial of emotionality, warmth, individuality, and agency)
- Animalistic dehumanization (denial of civility, rational refinement, and moral sophistication)

Mechanistic dehumanization is expected to be more strongly linked to automation and surveillance, where individuals may feel treated like objects or machines. Animalistic dehumanization is more likely to occur in situations involving algorithmic classification and risk labeling, where individuals may be reduced to simplified categories or judgments.

Within the model, these forms of dehumanization serve as the central mediating processes that connect technological exposure to ethical outcomes.

C. Ethical Dimension (Normative Outcomes)

The final layer includes the ethically significant consequences that arise from dehumanization processes. These include:

- Diminished recognition of intrinsic worth
- Perceived unfairness
- Ethical risk perception
- Reduced moral responsiveness

In the TPE framework, ethical problems are not understood only as technical errors, such as biased algorithms. Instead, ethical risks are seen as outcomes that emerge when technological systems influence how people perceive and value humanness.

a) Conceptual Logic of the Model

The model follows a sequential mediation structure:

- Technological systems change how people are evaluated and how social interactions occur.
- These changes reduce empathy and perceived autonomy.
- Reduced empathy and autonomy increase mechanistic and/or animalistic dehumanization.
- Dehumanization then leads to greater ethical risk perception and reduced recognition of dignity.

Thus, ethical outcomes are shaped by psychological processes, which are themselves shaped by technological structures.

b) Theoretical Contribution of the Diagram

The conceptual model contributes to existing research in four important ways:

- It combines psychological dehumanization theory with discussions of AI governance and technology ethics.
- It clearly separates structural technological factors from individual psychological processes.
- It identifies dehumanization as the key mediating link between technology and ethical outcomes.
- It moves ethical AI research beyond general moral critique by grounding it in established psychological theory.

Model Flow:

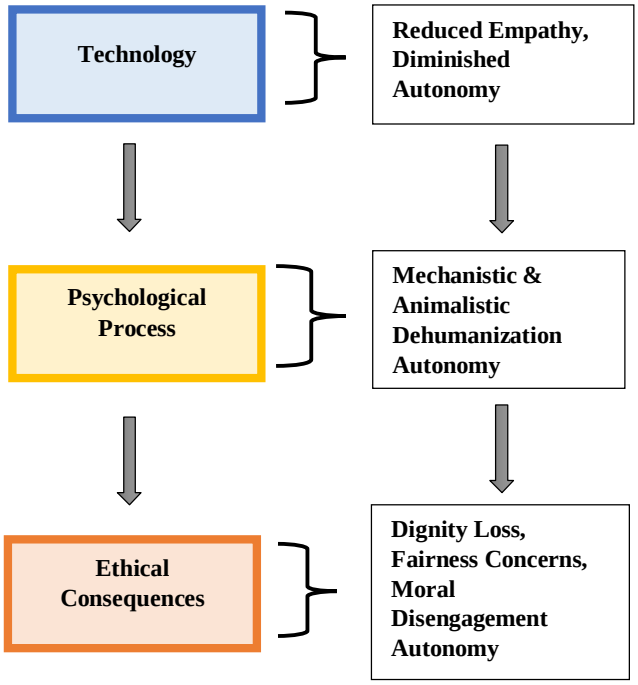


Figure 2. The Mode Flow

V. STRENGTHENED CRITICAL ARGUMENT

A. Technology as Ontological Redefinition

Technological systems do more than evaluate individuals—they may gradually reshape what it means to be human within institutional settings. In many organizations today, value is increasingly measured through performance metrics, predictive accuracy scores, productivity dashboards, and compliance indicators. While these systems are designed to improve efficiency and objectivity, they may unintentionally narrow the criteria by which individuals are recognized and appreciated.

When measurable outputs become the primary basis of evaluation, qualities that are harder to quantify—such as empathy, relational warmth, moral judgment, creativity, and contextual reasoning—may receive less importance. Over time, institutions may begin to define competence and worth mainly in terms of data-driven performance. This shift represents a movement from moral recognition, where individuals are valued as complex human beings, to computational recognition, where individuals are valued based on measurable data patterns. In this sense, technology does not simply support institutional processes; it influences how institutions define personhood itself.

B. The Normalization of Abstracted Humanity

Historically, dehumanization was often associated with explicit language or extreme situations such as war, discrimination, or political propaganda. In those contexts, individuals or groups were openly described in degrading or dehumanizing ways. However, in digital societies, dehumanization may occur more subtly. Instead of hostile rhetoric, abstraction becomes normalized.

Today, many people are evaluated through scores, rankings, ratings, and performance dashboards. Credit scores determine financial access, algorithmic ratings shape job opportunities, and performance metrics influence career progression. Because these systems are widely accepted as modern and efficient, individuals may not immediately perceive them as dehumanizing. Yet the process of reducing a person to numerical indicators can simplify complex identities and experiences into limited categories.

This normalization is ethically significant because it makes structural harm less visible. When abstraction becomes routine, the reduction of individuals to data profiles may appear neutral or even necessary. As a result, people may accept instrumental treatment as standard practice, without questioning its impact on dignity and moral recognition.

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C. Scalability and Moral Distance

One defining feature of digital infrastructures is scalability. Algorithmic systems can evaluate thousands or even millions of individuals simultaneously. While scalability increases efficiency, it also reduces direct interpersonal contact. In face-to-face interactions, moral accountability is reinforced through relational cues such as eye contact, emotional expression, and personal explanation. Digital systems, however, often remove these cues.

When decisions are automated, responsibility is distributed across complex systems rather than resting with a clearly identifiable individual. This diffusion of responsibility may increase what scholars call moral distance—the psychological distance between decision-makers and those affected by decisions. As moral distance grows, empathy may weaken and ethical reflection may become less immediate.

In such environments, individuals may feel that "the system" made the decision, rather than a person. This can facilitate moral disengagement, where responsibility is attributed to technological processes rather than human judgment. Over time, this dynamic may reduce sensitivity to the ethical consequences of automated decisions.

D. The Risk of Systemic Dehumanization

When algorithmic systems consistently prioritize efficiency, predictability, and optimization, mechanistic logic may become embedded within institutional culture. Organizations may gradually internalize the values of automation, emphasizing speed and measurable output over relational nuance and contextual understanding. In this way, dehumanization can become systemic rather than intentional.

The risk is not limited to biased outputs or unfair results. Even technically accurate systems may contribute to subtle shifts in how individuals are perceived. If people are consistently treated as data points, productivity units, or risk profiles, this may reshape broader cultural norms regarding dignity and personhood. Over time, society may come to accept instrumental evaluation as the dominant mode of recognition.

Thus, the ethical concern extends beyond algorithmic bias. The deeper risk lies in altered perceptions of humanness itself—where being measurable becomes more important than being relational, and where efficiency gradually replaces empathy as the primary organizing principle of institutional life.

VI. ETHICAL IMPLICATIONS

The Technology–Psychology–Ethics (TPE) framework highlights four major ethical risks that may arise from increased exposure to AI, automation, algorithmic classification, and digital surveillance. These risks are not limited to technical errors or biased algorithms. Instead, they emerge through psychological processes that shape how individuals perceive and treat one another in technology-driven environments.

A. Erosion of Perceived Human Dignity

One major ethical concern is the weakening of perceived human dignity. When individuals are evaluated mainly through scores, metrics, and automated classifications, complex identities may be reduced to data points. This can create the impression that people are valued for measurable output rather than intrinsic human worth.

For example, algorithmic hiring tools may reduce candidates to rankings, and continuous digital monitoring may treat employees as productivity units. Over time, such practices can normalize instrumental evaluation and weaken recognition of dignity within institutions.

B. Reduced Empathy and Moral Concern

A second risk involves reduced empathy and moral concern. Automated systems often replace face-to-face interaction, limiting opportunities for emotional understanding and contextual dialogue. When decisions are delivered through impersonal interfaces, emotional connection may decrease.

Reduced empathy can weaken moral sensitivity. Without relational context, it may become easier to justify decisions that negatively affect others, as their lived experiences remain unseen.

C. Perceived Injustice in Algorithmic Outcomes

A third concern is perceived injustice in algorithmic decisions. Even when technically accurate, systems may appear unfair if individuals feel reduced to labels or risk scores. Reliance on historical data may overlook personal circumstances.

When decisions are opaque and lack explanation, trust in institutions may decline. Perceived injustice is therefore shaped not only by bias but also by how decisions are experienced psychologically.

D. Institutional Diffusion of Responsibility

The fourth risk is diffusion of responsibility. In automated systems, accountability is often distributed across algorithms and institutional processes, making it difficult to identify who is responsible when harm occurs.

When decisions are attributed to "the system," personal accountability may weaken. This can normalize ethical detachment and reduce institutional responsiveness to harm.

E. Psychological Mediation of Ethical Risk

The TPE framework emphasizes that these risks are not solely technical problems. They are mediated through psychological processes such as reduced empathy, diminished autonomy, and dehumanization.

Thus, ethical challenges in digital societies require more than technical corrections. They demand attention to how technological systems shape human perception, relationships, and moral recognition.

F. Governance and Design Implications

The Technology–Psychology–Ethics (TPE) framework argues that ethical AI governance must go beyond accuracy and statistical fairness. While bias detection and transparency are important, governance must also address the psychological effects of technological systems—particularly their impact on empathy, autonomy, dignity, and moral recognition.

If technology shapes how individuals are perceived and valued, then ethical governance must consider not only outcomes but also user experience. This requires integrating psychological insight into system design, regulation, and policy development.

G. Human-in-the-Loop Evaluation

Automated systems should include human oversight, especially in high-stakes decisions such as hiring, healthcare, finance, or legal judgments.

Human involvement allows contextual interpretation, empathy, and moral reflection. It also ensures clear accountability and reduces the risk of responsibility being shifted entirely to "the system."

H. Narrative Explanations in Automated Systems

Many automated systems provide decisions without meaningful explanation. The framework recommends incorporating clear, context-sensitive explanations rather than only scores or binary outcomes.

When individuals understand how decisions are made, they are more likely to perceive fairness. Explanations can also reduce feelings of objectification and restore a sense of recognition.

I. Empathy-Aware Interface Design

Interface design influences how systems are experienced. Cold, purely numerical interfaces may increase detachment, whereas relational and respectful communication styles can preserve dignity.

Features such as personal input options, appeal mechanisms, and contextual feedback can strengthen perceived autonomy and reduce mechanistic perception.

J. Transparency in Classification Logic

Algorithmic systems often operate as opaque "black boxes." Clear communication about data sources, criteria, and decision processes can reduce perceptions of unfairness.

Transparency enhances trust, strengthens accountability, and reduces moral distance between institutions and individuals.

K. Limiting Over-Quantification of Identity

Excessive reliance on metrics can oversimplify human identity. While quantification is necessary, individuals should not be reduced entirely to data points.

Balanced evaluation systems that combine quantitative and qualitative assessment can better preserve dignity and prevent mechanistic dehumanization.

L. *Integrating Psychological Insight into Governance*

Overall, the TPE framework emphasizes psychologically informed governance. Ethical AI requires attention not only to technical performance but also to how systems shape empathy, autonomy, and moral recognition.

VII. DIRECTIONS FOR EMPIRICAL VALIDATION

The TPE framework is both theoretical and testable. Empirical research is needed to validate and refine its proposed pathways. The following approaches can support systematic evaluation.

A. *Structural Equation Modeling (SEM)*

SEM is well suited to test the multi-layered structure of the TPE model. It allows researchers to examine direct and indirect relationships between technological exposure, psychological mediators, dehumanization, and ethical outcomes.

SEM can validate latent constructs and test whether the proposed sequential structure is statistically supported.

B. *Mediation Analysis*

Because the framework emphasizes psychological mediation, mediation analysis is central. Researchers can test whether reduced empathy and diminished autonomy explain the link between technological exposure and ethical outcomes.

Bootstrapping methods can assess the strength of indirect effects and clarify whether ethical risks arise directly from technology or through psychological processes.

C. *Experimental AI Interaction Paradigms*

Experimental designs allow stronger causal testing. Participants can interact with different AI systems—such as automated versus human-supervised systems, or transparent versus opaque systems.

By manipulating transparency, relational tone, or automation level, researchers can examine how these features influence empathy, autonomy, and dehumanization.

D. *Longitudinal Exposure Studies*

Long-term studies are needed to understand cumulative effects. Repeated exposure to algorithmic systems may gradually normalize abstraction and instrumental treatment.

Tracking individuals over time can determine whether technology-induced dehumanization increases, stabilizes, or diminishes.

E. *Cross-Cultural Examinations of Humanness Norms*

Perceptions of dignity and fairness vary across cultures. Cross-cultural research can test whether the TPE model operates similarly in different social contexts.

Cultural differences in autonomy, institutional trust, and acceptance of automation may moderate the model's relationships.

F. *Toward a Comprehensive Research Agenda*

Together, these methods form a structured research agenda for validating the TPE framework. Combining modeling, experimentation, longitudinal analysis, and cross-cultural comparison will strengthen theoretical refinement and practical relevance.

Empirical validation is essential not only for advancing theory but also for informing governance strategies grounded in psychological evidence.

VIII. RESULTS AND DISCUSSION

A synthesis of interdisciplinary research supports the core logic of the Technology–Psychology–Ethics (TPE) framework. Evidence from psychology, organizational studies, and algorithmic governance consistently shows that technologically mediated environments—particularly those built around automation, predictive scoring, classification systems, and digital monitoring—alter the conditions of social perception. When relational cues are reduced and individuals are evaluated primarily through metrics and data profiles, empathy, perceived autonomy, and interpersonal warmth tend to decline. Research on organizational dehumanization and algorithmic management further demonstrates that continuous metric-based evaluation can lead individuals to feel standardized, replaceable, or instrumentalized, reflecting mechanistic dehumanization. Similarly, classification and predictive labeling systems may increase social distance and obscure individuality, aligning with animalistic forms of dehumanization.

Moral psychology findings reinforce that diminished mind attribution reduces moral concern and diffuses responsibility. Together, these patterns provide theoretical support for the sequential pathway proposed in the TPE model.

The integrated findings suggest that ethical risks in digital societies extend beyond biased algorithms or technical inaccuracies. Technological systems shape not only decisions but also the psychological processes through which individuals recognize one another as fully human. When measurability becomes central to institutional evaluation, relational and contextual dimensions of personhood may be marginalized. Scalable digital infrastructures can also increase moral distance by diffusing responsibility across systems rather than individuals. However, the framework does not assume that technology inevitably leads to dehumanization; rather, outcomes depend on design and governance choices. Systems incorporating transparency, contextual explanation, and human oversight can mitigate psychological reduction, whereas efficiency-driven systems lacking relational safeguards may intensify abstraction. Overall, the TPE framework highlights that preserving dignity in digital environments requires attention not only to technical performance but also to the psychological architecture of technological systems.

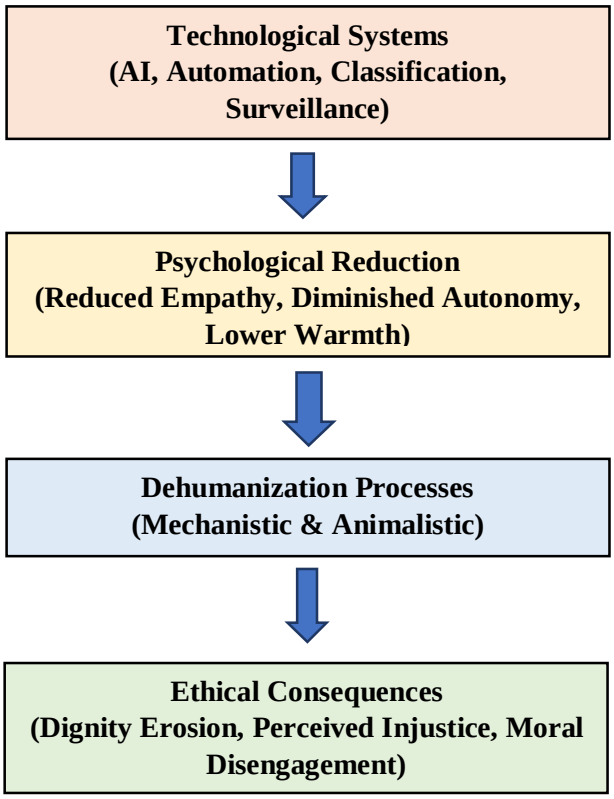


Figure 3. Conceptual Flow Diagram

IX. CONCLUSION

Technological systems are no longer simply tools that support institutional processes; they have become central forces shaping contemporary social life. Artificial intelligence, algorithmic governance, automation, and digital surveillance now influence how individuals are evaluated, categorized, monitored, and granted access to opportunities. Across workplaces, educational institutions, financial systems, and public governance, these digital infrastructures shape not only decisions but also the deeper conditions under which people are recognized and valued. As such systems become normalized, they increasingly influence how humanness itself is interpreted within institutional contexts.

This paper has argued that ethical challenges in digital societies cannot be fully understood through technical analysis alone. While fairness, transparency, and accountability are critical, they address only one dimension of the issue. The Technology–Psychology–Ethics (TPE) framework highlights how technological exposure can affect psychological processes such as empathy, perceived autonomy, and interpersonal warmth. When these processes are weakened, mechanistic and animalistic forms of dehumanization may emerge. These shifts are often gradual and structural rather than intentional, but over time they can reshape perceptions of dignity, fairness, and moral responsibility.

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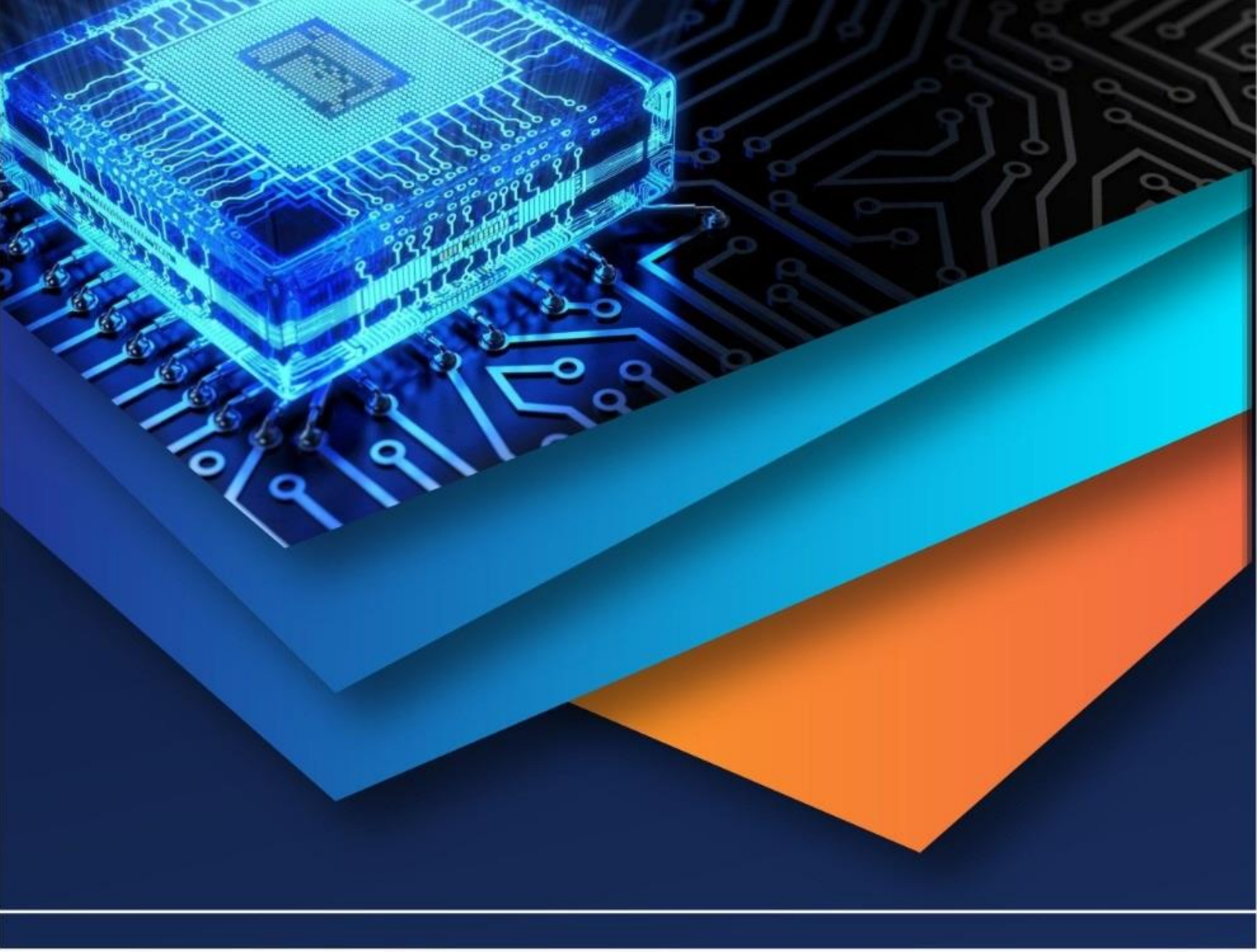
By integrating dehumanization theory with research on algorithmic governance, the TPE framework provides a structured explanation of how technological systems influence moral perception. Ethical risks do not arise solely from biased outputs or flawed datasets; they may also result from subtle changes in how individuals are recognized. When people are increasingly viewed through data profiles, productivity metrics, or risk classifications, relational and contextual dimensions of personhood may be overshadowed by computational evaluation.

Importantly, the framework does not assume that technology is inherently dehumanizing. Ethical consequences depend on design choices and governance priorities. Systems that include human oversight, transparency, contextual explanation, and empathy-aware design can help preserve dignity and relational recognition. In contrast, systems that prioritize efficiency without considering psychological effects may unintentionally normalize instrumental treatment and moral distance.

Ultimately, preserving human dignity in digital societies requires integrating psychological insight into technological governance. Digital infrastructures shape not only behavior but also perception and moral evaluation. As automation and artificial intelligence continue to expand, safeguarding humanness becomes both a psychological and ethical responsibility. The TPE framework offers a foundation for future empirical research and governance strategies aimed at ensuring that technological progress remains aligned with empathy, autonomy, and moral accountability.

REFERENCES

[1] Bandura, A. (1999). Moral disengagement in the perpetration of inhumanities. Personality and Social Psychology Review, 3(3), 193–209. https://doi.org/10.1207/s15327957pspr0303_3
[2] Barocas, S., &Selbst, A. D. (2016). Big data's disparate impact. California Law Review, 104(3), 671–732.
[3] Bastian, B., & Haslam, N. (2011). Experiencing dehumanization: Cognitive and emotional effects of everyday dehumanization. Journal of Personality and Social Psychology, 101(2), 295–310. https://doi.org/10.1037/a0023658
[4] Binns, R. (2018). Fairness in machine learning: Lessons from political philosophy. In Proceedings of the 2018 Conference on Fairness, Accountability and Transparency (pp. 149–159).
[5] Blauner, R. (1964). Alienation and freedom: The factory worker and his industry. University of Chicago Press.
[6] Citron, D. K., & Pasquale, F. (2014). The scored society: Due process for automated predictions. Washington Law Review, 89, 1–33.
[7] Coeckelbergh, M. (2015). Artificial agents, good care, and modernity. Theoretical Medicine and Bioethics, 36(4), 265–277.
[8] Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and self-determination. Psychological Inquiry, 11(4), 227–268.
[9] Davis, M. H. (1983). Measuring individual differences in empathy. Journal of Personality and Social Psychology, 44(1), 113–126.
[10] Floridi, L., & Cowls, J. (2019). A unified framework of five principles for AI in society. Harvard Data Science Review, 1(1).
[11] Golossenko, A., Palumbo, H., Mathai, M., & Tran, H.-A. (2023). Am I being dehumanized? Development and validation of the Experience of Dehumanization Measure (EDHM). British Journal of Social Psychology. https://doi.org/10.1111/bjso.12633
[12] Gray, K., Young, L., &Waytz, A. (2012). Mind perception is the essence of morality. Psychological Inquiry, 23(2), 101–124.
[13] Harris, L. T., & Fiske, S. T. (2014). Dehumanized perception: A psychological means to facilitate atrocities, torture, and genocide? ZeitschriftfürPsychologie, 222(4), 175–181. https://doi.org/10.1027/2151-2604/a000065
[14] Haslam, N. (2006). Dehumanization: An integrative review. Personality and Social Psychology Review, 10(3), 252–264. https://doi.org/10.1207/s15327957pspr1003_4
[15] Haslam, N., & Loughnan, S. (2014). Dehumanization and infrahumanization. Annual Review of Psychology, 65, 399–423.
[16] Kitchin, R. (2017). Thinking critically about and researching algorithms. Information, Communication & Society, 20(1), 14–29.
[17] Kline, R. B. (2016). Principles and practice of structural equation modeling (4th ed.). Guilford Press.
[18] Markowitz, D. M., &Slovic, P. (2020). Social, psychological, and demographic characteristics of dehumanization toward immigrants. Proceedings of the National Academy of Sciences, 117(17), 9260–9269. https://doi.org/10.1073/pnas.1921790117
[19] Maynard, J. L., &Luft, A. (2023). Humanizing dehumanization research. Current Research in Ecological and Social Psychology, 5, 100102. https://doi.org/10.1016/j.cresp.2023.100102
[20] Moore, P., & Robinson, A. (2016). The quantified self: What counts in the neoliberal workplace. New Media & Society, 18(11), 2774–2792.
[21] O'Neil, C. (2016). Weapons of math destruction: How big data increases inequality and threatens democracy. Crown.
[22] Pasquale, F. (2015). The black box society. Harvard University Press.
[23] Rosenblat, A., & Stark, L. (2016). Algorithmic labor and information asymmetries. International Journal of Communication, 10, 3758–3784.
[24] Rubbab, U. E., Khattak, S. A., Shahab, H., & Akhter, N. (2022). Impact of organizational dehumanization on employee knowledge hiding. Frontiers in Psychology, 13, 803905. https://doi.org/10.3389/fpsyg.2022.803905
[25] Zuboff, S. (2019). The age of surveillance capitalism. PublicAffairs.



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