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MARTIN HEIDEGGER AND THE QUESTION OF BEING IN THE FOURTH INDUSTRIAL REVOLUTION SPACE

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Abstract

This article critically examines Martin Heidegger's philosophical question of Being within the contemporary context of the Fourth Industrial Revolution (4IR). Heidegger's existential analytics and critique of modern technology provide a robust hermeneutic framework for exploring the ontological dimensions of human existence amid digital transformation, artificial intelligence, and pervasive automation. Through six thematic analyses—Heidegger's fundamental ontology, technology and enframing, authenticity and alienation in the 4IR, digital subjectivity, epistemic mediation, and ethical-political implications—the study investigates how Heidegger's thought elucidates emerging challenges and prospects within the rapidly evolving 4IR milieu. The paper contends that although the 4IR profoundly reshapes the structures of human life, Heidegger's insights remain crucial for cultivating a deeper understanding of our ontological condition and for critically challenging technological determinism and existential alienation in an age characterised by unprecedented digital acceleration.

Keywords: Heidegger, Question of Being, Fourth Industrial Revolution, Technology, Ontology

Introduction and background

Martin Heidegger's philosophical inquiry into the question of Being (Seinsfrage) remains one of the most influential endeavours within twentieth-century continental philosophy. His landmark work, *Being and Time*, marks a radical departure from traditional metaphysics by refocusing attention from entities (beings) to the very meaning and disclosure of Being itself (Heidegger, 1962). The enduring significance of this investigation finds renewed relevance amidst the context of the Fourth Industrial Revolution (4IR)—an era characterised by the convergence of technologies that blur the boundaries separating the physical, digital, and biological realms (Schwab, 2016).

The rise of the 4IR, propelled by automation, the Internet of Things, big data, and artificial intelligence, introduces not only rapid sociotechnical transformation but also prompts profound philosophical questions regarding the nature of reality, human identity, agency, and meaning (Morisson, 2022; Verbeek, 2011). In the milieu of algorithmic governance and pervasive connectivity, the perennial question – "What does it mean to be?" – acquires fresh urgency and complexity. Heidegger's seminal reflections on technology, particularly his notion of enframing (Gestell), offer a vital entry point for interrogating the ontological presuppositions and existential consequences of the 4IR (Heidegger, 1977).

This article seeks to critically scrutinise Heidegger's question of Being as it intersects with, and is interrogated by, the paradigm of the 4IR. The principal aim is to elucidate how Heidegger's phenomenological analysis, his critique of technological modernity, and his ethical-ontological perspectives afford depth and critical distance for understanding human existence today. The study is organised into six thematic sections: (1) Heidegger's fundamental ontology and the *Seinsfrage*; (2) technology, enframing, and the metaphysics of presence; (3) authenticity, alienation, and digital existence; (4) digital subjectivity and the status of Dasein in the 4IR; (5) epistemic mediation and the concealment of Being; and (6) ethical-political implications for human agency and responsibility. Each theme explores a different facet of the encounter between Heideggerian ontology and the realities of contemporary technological society.

The guiding question—*how does Heidegger's philosophy inform our understanding of Being in the age of the 4IR, and how might this understanding shape our navigations of digital transformation?* - remains pertinent for scholars, educators, policymakers, and technologists alike. Addressing this question requires careful engagement with Heidegger's original texts, contemporary commentaries, and critical application to the technological milieu of 4IR. The article draws on both primary and secondary literature to ensure academic rigor, original analysis, and a robustly interdisciplinary scope.

2. Heidegger's Fundamental Ontology and the *Seinsfrage*

At the core of Martin Heidegger's philosophical project lies one of the most profound and enduring questions in the history of thought: What is the meaning of Being? In his monumental work *Being and Time*, Heidegger (1962) undertakes a radical reorientation of philosophy by confronting what he perceives as the forgetfulness of Being that has permeated Western metaphysics since Plato and Aristotle. Rather than aligning himself with abstract metaphysical speculation, Heidegger pursues what he calls a "fundamental ontology"—an inquiry that seeks to uncover the pre-theoretical, existential conditions through which Being becomes meaningful to human existence. This inquiry begins not with detached intellectual reflection but with the lived experience of Dasein, the finite and concrete human being who serves as the site where the meaning of Being is disclosed and articulated (Wrathall, 2025). Dasein, literally translated as "being-there," is not an isolated subject contemplating an external world; rather, it is fundamentally "being-in-the-world," an integrated unity of activity, concern, and understanding. Heidegger's analytic of Dasein, therefore, challenges two millennia of ontological investigation that, as he argues, have concentrated almost exclusively on *beings*—that is, entities and their properties—while neglecting the more original question of *Being* itself (Carman, 2003). In establishing the crucial distinction between "being" (*Sein*) and "beings" (*Seiendes*), Heidegger insists that metaphysics must be grounded not in theoretical abstraction but in the structures of human existence that make possible any intelligible experience of the world (Mulhall, 2013; Wrathall, 2025).

For Heidegger, the question of Being—what he terms the *Seinsfrage*—is neither merely epistemological nor linguistic. Rather, it concerns the fundamental modes of disclosure through which the world, and our place within it, become meaningful. Being, he maintains, "makes sense" only through our everyday engagements, practical involvements, and concerns, which reveal reality not as an aggregate of objects, but as a dynamic field of significance (Heidegger, 1962; Carman, 2003). Ontological inquiry is thus an investigation into the "conditions of intelligibility," the deep structures that shape the human capacity to interpret, understand, and dwell in the world. Dasein's finitude, historicity, and temporality become critical to this task, for only a finite being—one situated within time and history—can pose the question of Being in the first place (Polt, 1999). In this sense, the *Seinsfrage* invites philosophy to reawaken the question that underlies all forms of knowledge and practice: How is it that beings are manifest and comprehensible to us at all? Heidegger's approach marks a departure from Cartesian dualisms and Enlightenment rationalism, dissolving the boundary between subject and object, theory and practice, mind and world, in favour of a phenomenological understanding of existence as relational and holistic.

This ontological framework acquires renewed relevance in the context of the 4IR, a historical epoch characterised by the fusion of digital technologies, artificial intelligence, robotics, and big data—developments that profoundly reconfigure human existence and self-understanding (Verbeek, 2011; Schwab, 2016). Insofar as human activity and perception are increasingly mediated by technological systems, the conditions for the disclosure of Being are themselves undergoing transformation. Technologies do not merely extend human capability; they reshape our horizon of meaning, redefining what it means "to be" in a digitised and algorithmically structured world (Horrigan-Kelly et al., 2016). From this perspective, Heidegger's fundamental ontology provides a critical lens for examining how digital infrastructures alter the modes in which beings—and, by extension, Being itself—are encountered. The pervasive presence of algorithmic mediation raises the question of whether our technological domination of nature results in a deeper understanding of existence, or whether it sustains a new form of ontological concealment, in which the richness and openness of Being are eclipsed by technical efficiency and instrumental rationality.

In this light, Heidegger's *Seinsfrage* retains its diagnostic power for contemporary life, serving as a philosophical safeguard against the uncritical assimilation of technological paradigms. His analysis reminds us that technology, far from being a neutral tool, is a way in which the world reveals itself—a mode of *unconcealment* (*aletheia*) that simultaneously illuminates and conceals aspects of Being. The challenge, then, is not only to embrace technological innovation but to recognise its ontological stakes: how it redefines what it means to exist, to relate, and to understand. By foregrounding the question of Being in the age of AI and digital interconnectivity, Heidegger calls for a renewed attentiveness to the meaning-structures that shape human life and worldhood. This vigilance, as Ndubisi (2025) and Kruger-Ross (2015) suggest, is indispensable in preserving the authenticity of human

existence against the tendency of modern technology to reduce Being to mere calculability. The enduring significance of Heidegger's fundamental ontology thus lies in its capacity to reinvigorate our philosophical and ethical engagement with the world, compelling us to ask anew not simply what entities exist, but what it means, in any epoch, to *be*.

3. Technology, Enframing, and the Metaphysics of Presence

Heidegger's contribution to the philosophy of technology remains one of the most profound interventions in twentieth century thought. His exploration of the "essence" of technology, encapsulated in the notion of "enframing" (Gestell), reorients the discussion from practical utility to ontological significance. Technology, for Heidegger, is not a neutral collection of tools designed merely to extend human capacity but a "mode of revealing," a distinctive way in which reality is disclosed and ordered to human understanding (Heidegger, 1977; Wrathall, 2025). Through enframing, the world appears as a calculable, predictable system of entities that can be controlled and manipulated for specific ends. Such a framework constitutes an ontological condition rather than a technical phenomenon—it defines how humans come to encounter and interpret Being itself. Heidegger's insight illuminates the subtle interplay between human intentionality and technological mediation, revealing that the modern technological enterprise shapes not only what we know but how we come to know it.

This philosophical stance marks a radical departure from instrumentalist conceptions of technology, which conceive it as a neutral means to an end. Heidegger's distinction between the technological understanding of being and older, more poetic or contemplative modes of existence underscores the shift in humanity's relation to the world (Heikkinen & Huttunen, 2017; Huttunen, 2021). Under the sway of enframing, both nature and humanity are rendered as *standing-reserve* (Bestand)—resources to be optimized and managed within a schema of efficiency and control. In contrast, earlier modes of revealing, such as the poetic or the artistic, allowed beings to disclose themselves in their intrinsic essence. Within the technological worldview, however, beings are approached primarily in terms of utility and productivity; they are valuable insofar as they serve human or systemic goals (Dreyfus, 1991; Koskinen, 2024). Heidegger thereby demonstrates that technology, at its core, is a metaphysical disposition: an interpretative framework that conditions our entire experience of the world rather than a set of tools external to human being.

In the context of the 4IR, Heidegger's analysis acquires renewed urgency and depth. The digital transformation of society—manifested through automation, artificial intelligence, and pervasive datafication—intensifies the condition of enframing to an unprecedented degree (Morisson, 2022). In the 4IR, reality itself is refracted through streams of information, measurable variables, and algorithmic predictions, leading to a worldview that privileges computation over contemplation. As data becomes the "new oil" of the global economy, existence is increasingly interpreted through metrics, analytics, and optimisation protocols (Koskinas, 2024; Schwab, 2016). This phenomenon converts both human and non-human entities into informational resources: quantifiable, sortable, and exploitable. The danger that Heidegger anticipated—namely, the reduction of Being to mere functionality—now unfolds through the pervasive logic of digital capitalism and the algorithmic governance of everyday life.

Heidegger's warning about the predominance of "calculative thinking" remains profoundly relevant within this technological milieu. When calculation, efficiency, and control overshadow other forms of engagement with reality, modes of revealing rooted in art, play, care, or contemplation are marginalised and devalued. The digital sublime of the 4IR—with its utopian promises of hyper-connectivity, automation, and limitless access—disguises a deeper existential threat: an erosion of meaningful human presence and authenticity (Heidegger, 1977; Verbeek, 2011). The danger is that humanity becomes entrapped in a self-reinforcing technological loop where the pursuit of efficiency supersedes the quest for meaning. In such a world, even education, governance, and social interaction are conditioned by algorithmic rationality, reducing complex human phenomena to data-driven abstractions. The resulting ontological impoverishment signals a loss of the capacity to dwell poetically within the world—a central concern of Heidegger's later works.

Nonetheless, Heidegger does not position technology solely as a destructive or alienating force. Rather, he suggests that within every mode of revealing lies an opportunity for discovering truth and exercising freedom (Wrathall, 2025). Enframing, while perilous, also opens a space through which alternative ontological possibilities can emerge. The task, therefore, is not to reject technology but to inhabit it reflectively—to remain aware of its metaphysical implications and to cultivate forms of thought and practice that resist its totalising tendencies (Heidegger, 1977; Huttunen, 2021). This requires reclaiming the capacity for *meditative thinking*—a mode of reflection that perceives technology as both a danger and a gift. By recognising the dual nature of technological revealing, humanity may retrieve the possibility of a more authentic mode of being in the digital age, one that integrates technological progress with ethical and poetic attunement to the world.

4. Authenticity, Alienation, and Digital Existence in the 4IR

Heidegger's existential analytic articulates a profound duality between authentic and inauthentic modes of existence, a distinction that remains vital for philosophical reflection in an era defined by unprecedented technological transformation (Heidegger, 1962). For Heidegger, authenticity entails a resolute confrontation with one's finitude, an acceptance of being-towards-death, and an active projection of oneself into possibilities that reflect individual freedom rather than collective conformity. To live authentically is to grasp the truth of one's own being and to exist with awareness of the temporal and finite nature of human life. Inauthenticity, by contrast, occurs when the self becomes absorbed in the everyday routines, language, and expectations of "the They" (das Man)—a social order in which individuality dissolves into anonymous conformity (Polt, 1999; Wrathall, 2025). In such a condition, human existence loses the capacity for self-determination, becoming entangled in social conventions that obscure genuine self-understanding.

The emergent reality of the 4IR amplifies this Heideggerian tension between authenticity and inauthenticity through the pervasive mediation of digital technologies. The exponential growth of digital platforms, the ubiquity of algorithmic personalisation, and the omnipresence of social media have engendered novel forms of existential distraction and alienation (Morisson, 2022; Koskinen, 2024). Individuals are increasingly encouraged to conceive of themselves as profiles rather than persons—as data-driven constructs optimised for visibility, productivity, and consumption. Online identity becomes a curated simulation of being, shaped by algorithmic logic and governed by the demand for constant connectivity. This phenomenon, while expanding communicative possibilities, simultaneously empties existence of depth and interiority, replacing reflection with performance and relationality with spectacle. The Heideggerian notion of *being-in-the-world* thus risks mutation into *being-on-the-platform*, where existence itself is mediated by digital visibility and numerical metrics of engagement.

Within this technological order, the individual risks becoming indistinguishable from what Heidegger termed "standing reserve"—resources to be exploited within the framework of efficiency and control (Verbeek, 2011; Huttunen, 2021). The human subject is thus transformed into a functional node within digital networks, valued not for intrinsic being but for data productivity and algorithmic relevance. Surveillance capitalism and datafication further erode the boundaries of authentic existence by intruding upon private consciousness and reducing human expression to patterns of behavioural prediction. As participants in such a system, individuals may experience a profound alienation, not only from others but from the very conditions of their being. Heidegger's warning about the danger of technological enframing becomes urgently pertinent: when technology is no longer a tool but a total environment that shapes thought, behaviour, and perception, authenticity requires more than choice—it demands ontological resistance.

Yet, Heideggerian philosophy does not necessitate a rejection of technology itself. Digital technologies, although capable of fostering alienation, also have the potential to open up new possibilities for authentic forms of being (Koskinen, 2024). Online spaces can nurture communities of shared meaning, support creative collaborations, and provide platforms for existential disclosure that transcend geographic or social limitations. Through digital art, activism, and discourse, individuals can enact modes of presence that reveal truth and foster genuine connection. However, according to Heidegger, such authenticity can only arise through vigilant reflection upon the ontological structures that technology both reveals and conceals. Without such critical awareness, the promise of connectedness risks devolving into conformity, and the opportunity for self-realisation becomes another mechanism of technological determinism (Wrathall, 2025; Mulhall, 2013). True digital authenticity must, therefore, be intentional, grounded in a deliberate practice of self-understanding and a recognition of technology's ontological claim on human existence.

In this context, the 4IR radicalises Heidegger's analysis of alienation and reawakens the philosophical need to question what it means to live authentically in a networked and automated world (Ndubisi, 2025; Kruger-Ross, 2015). The digital epoch expands both the reach and the complexity of inauthentic existence, as human life becomes increasingly entangled with artificial intelligence, data analytics, and cybernetic systems of control. However, it simultaneously generates the conditions for renewed ethical and existential responsibility. To live authentically today may involve cultivating practices of digital mindfulness, critical self-reflection, and care for the self that resist the impersonal logic of technological automation. Heidegger's existential analytic thereby invites a reconsideration of freedom in the 4IR—not as liberation from technology, but as the capacity to inhabit it responsibly, reflectively, and with an awareness of being's finitude. The task of authenticity in our time, therefore, lies in reclaiming a sense of presence and meaning amid the accelerating abstractions of the digital age, asserting the primacy of existence over efficiency, and reawakening the human capacity to dwell poetically within the technological world.

5. Digital Subjectivity and the Status of Dasein in the 4IR

At the heart of Heidegger's philosophical inquiry into the question of Being lies the distinctive role of human beings—Dasein—as the "there" (Da) in which Being reveals and unveils itself (Heidegger, 1962). This conception situates Dasein not as a detached or passive observer but as an active participant in the disclosure and interpretation of existence. In the unfolding context of the 4IR, Dasein continues to serve as the pivot around which the understanding of Being turns, even as technological systems increasingly mediate and reconfigure the lived conditions of human existence (Wrathall, 2025). While the digital age introduces unprecedented forms of mediation and transformation, Heidegger's ontological emphasis reminds us that the human remains the essential clearing within which meaning, truth, and significance emerge.

The digitalisation of subjectivity within the 4IR is marked by a radical intensification of technological inscription upon consciousness, identity, and social interaction. Processes such as continuous identity formation, psychoinformatic profiling, and algorithmic mediation have become defining features of contemporary digital life (Koskinas, 2024; Verbeek, 2011). These mechanisms do more than reshape communication patterns; they actively reconfigure how individuals understand themselves and are understood by others. The emergence of digital subjectivity challenges the metaphysical boundaries of selfhood by fusing the existential sense of self with the computational logic of data and code. In such an environment, Dasein risks being reduced to a digital artefact, its being quantified and monitored through metrics of optimisation, performance, and predictive analytics. The depth and singularity of human existence thus encounter the flattening forces of technocratic rationality, where authentic modes of Being are supplanted by algorithmically mediated frameworks of existence (Heikkinen & Huttunen, 2017).

Yet, even as digital technologies proliferate and transform the texture of everyday experience, Heidegger's notion of thrownness and projection preserves the essential finitude and openness of Dasein (Mulhall, 2013; Wrathall, 2025). Human beings are always already situated within historical, cultural, and technological contexts, thrown into worlds not of their own making, yet capable of reinterpreting and projecting new possibilities of Being. The challenge posed by the 4IR, therefore, is not simply one of technological adaptation but of philosophical renewal. Rather than abandoning the question of Being amid accelerating digital transformations, there is a need to return to it with renewed urgency—to interrogate how digital infrastructures mediate, constrain, or expand existential possibilities (Verbeek, 2011). This requires cultivating critical awareness of the contingent nature of digital subjectivity, acknowledging how technological mediation both reveals and conceals aspects of human existence, and resisting attempts to reduce the complexity of Dasein to programmable, informational substrates.

In Heidegger's later work, particularly his reflections on language and poiesis, he advances the idea that technology, though enframing (Gestell), also opens spaces for new forms of world-disclosure (Heidegger, 1977). Poiesis—the bringing-forth of Being into presence—suggests that even within technologically saturated contexts, creative possibilities remain available to Dasein. The challenge lies in recovering an attunement to world-forming practices that resist total instrumentalisation. Within the 4IR, this insight carries profound implications: human beings are not merely passengers in a technologically determined trajectory but remain capable of shaping how Being is disclosed through ethical, aesthetic, and existential engagement with digital artefacts and systems (Ndubisi, 2025). The ontological status of Dasein, therefore, cannot be equated with its digital traces; it continues to signify a site of contestation where freedom, authenticity, and responsibility intersect within the dynamic interplay of human and machine (Horrigan-Kelly et al., 2016).

Ultimately, to explore the status of Dasein in the 4IR is to confront the evolving boundaries between human existence and technological mediation. The question is not whether technology subsumes the human, but how Dasein can live authentically within and through digital infrastructures without succumbing to the logic of total calculability. As digital subjectivities proliferate, Heidegger's thought invites a reawakening to the ontological stakes of our time: the imperative to safeguard Being itself from displacement by data, code, and algorithmic abstraction. The future of Dasein in the digital epoch will depend on whether humanity can sustain an openness to mystery and meaning beyond technological enframing—affirming, even amidst algorithmic domination, the enduring possibility of Being as an ever-unfolding event of presence and understanding.

6. Epistemic Mediation and the Concealment of Being

A central concern in Heidegger's later philosophy revolves around the complex relationship between technology and the disclosure of Being. He contends that the essence of modern technology does not lie merely in its instrumentality but in its mode of revealing, which he terms *Gestell* or enframing. This process orders, categorises, and renders the world calculable, yet simultaneously conceals dimensions of existence that are non-measurable or beyond instrumental understanding (Heidegger, 1977; Huttunen, 2021). In other words, technological enframing not only brings phenomena to light but also withdraws or obscures other ways of encountering Being. The modern world's overreliance on calculative rationality thus risks narrowing our existential

horizons, diminishing sensitivity to other forms of knowing—whether aesthetic, ethical, poetic, or spiritual—that offer richer, more holistic insights into existence (Dreyfus, 1991). Heidegger's critique warns that when human understanding becomes subordinate to efficiency, prediction, and control, the depth of Being itself is overshadowed by the superficiality of what can be measured and optimised.

In the era of the 4IR, this concealment becomes even more insidious. The proliferation of digital technologies, artificial intelligence, and algorithmic systems intensifies the transformation of knowledge into information, rendering epistemic mediation increasingly abstract and depersonalised (Morisson, 2022). Within such a milieu, knowledge is not cultivated through contemplation or lived engagement but produced, stored, and retrieved as data. Consequently, the richness and mystery of Being that Heidegger speaks of risk being replaced by a mechanistic worldview governed by computational logic (Kruger-Ross, 2015). This reduction of knowledge to data processing results in what Heidegger calls "the oblivion of Being", where human beings relate to the world solely through quantifiable representations. The epistemic flattening that follows is not an abstract philosophical concern but has tangible implications for fields such as education, democracy, and community life (Ndubisi, 2025; Horrigan-Kelly et al., 2016). Educational systems that privilege standardised testing and algorithmic assessment over dialogical and creative inquiry mirror this technological enframing, narrowing the scope for critical, ethical, and reflective modes of learning essential for democratic engagement and communal flourishing.

Heidegger's concept of *Gelassenheit*—translated as "releasement" or "letting-be"—offers an alternative attitude towards technology and knowledge. Rather than rejecting technology outright, Heidegger calls for a posture of openness to Being that resists the reduction of all experience to the calculable (Heidegger, 1977). This openness invites human beings to engage with the world not primarily as users or manipulators but as participants in a process of mutual disclosure. Cultivating *Gelassenheit* involves practices that foster depth of understanding and authenticity, such as art, meditation, dialogue, and philosophical contemplation (Wrathall, 2025). These practices disrupt the dominance of technical reason by reawakening sensitivity to the manifold ways in which Being manifests. In doing so, they create space for meaning that transcends efficiency, allowing phenomena to reveal themselves beyond the limits of technological enframing. The ethical and pedagogical challenge, therefore, is not to abandon technology but to inhabit it thoughtfully—to use it without losing sight of the existential and spiritual dimensions of life it tends to conceal.

In the context of the 4IR, the task of education and epistemology becomes one of cultivating forms of digital literacy that are not merely operational but ontological in scope. Such literacy demands a critical awareness of how technological mediation shapes human existence, reconfigures relationships, and redefines our sense of self and community (Verbeek, 2011). It requires students, educators, and citizens alike to ask deeper questions about the world: how technologies order perception, what possibilities they open or foreclose, and which dimensions of experience they render invisible. Within multicultural and postcolonial societies, these questions take on additional urgency. The spread of digital technologies often reproduces epistemological hierarchies that privilege Western rationalities and marginalise indigenous ways of knowing (Asouzu, 2004). Thus, resisting the concealment of Being in the 4IR also entails confronting the political and cultural implications of technological colonisation. By engaging with technology reflectively and ethically, societies can begin to develop intercultural modes of knowing that affirm plurality, relationality, and the lived depth of human existence. In this sense, the struggle against technological enframing becomes inseparable from the pursuit of epistemic justice and the reawakening of Being itself.

7. Ethical-Political Implications for Human Agency and Responsibility

The ethical and political implications of Heidegger's question of Being reach far beyond the bounds of ontology to encompass questions of human agency, moral responsibility, and collective destiny in the age of the 4IR. As digital technologies permeate every facet of human life—from labour and governance to self-identity and social integration—the challenge of understanding what it means to act responsibly in a world mediated by algorithmic systems becomes increasingly profound (Huttunen, 2021; Verbeek, 2011). The planetary dimension of technological transformation compels not only a reconsideration of how human beings relate to machines but also how they relate to each other and the world. In this context, ethics can no longer remain an abstract discipline detached from real technological conditions; it must instead engage the ontological foundations of existence itself, recognising that technology is not merely a set of tools but a mode of revealing that frames how truth, value, and purpose are disclosed in human life.

Heidegger's critique of technological determinism is particularly pertinent here, as it exposes the danger of surrendering human agency to the logic of systems driven by calculation, optimisation, and instrumental rationality (Heidegger, 1977; Koskinen, 2024). Within this framework, the human subject risks becoming subordinate to technical processes that define value solely in terms of efficiency and utility, rather than

authenticity and meaning. For Heidegger, this condition signals a crisis of Being—the reduction of the human to a resource (Bestand) within an apparatus of control. In confronting this crisis, ethical reflection must resist the tendency to naturalise or celebrate technological progress without question. It must instead ask toward what purpose technology serves, and for whom. The telos of technological development should not be confined to profit or productivity but to the flourishing of human existence and the sustenance of a world in which diverse forms of life and thought can coexist meaningfully (Morisson, 2022).

Such ethical vigilance requires more than moral critique; it calls for a transformation in how human beings understand their participation in the unfolding of technological modernity. This transformation involves reasserting the primacy of human agency, creativity, and responsibility against the encroaching dominance of automated decision systems and data-driven governance. It also requires attentiveness to the asymmetrical distribution of technological power across the global landscape, particularly between the Global North and South. The digital revolution does not unfold in a vacuum; it intersects with pre-existing cultural, ecological, and social realities, often amplifying inequalities and undermining local forms of knowledge and being (Ndubisi, 2025; Onyeocha, 2006). For regions in the Global South, the uncritical importation of technological infrastructures frequently entails the adoption of Eurocentric ontologies and epistemologies that marginalise indigenous worldviews and relational philosophies of life. Heidegger's thought, though emerging from a Western philosophical lineage, offers interpretive tools for critically examining these dynamics by exposing the metaphysical assumptions underlying technological enframing and revealing the concealed possibilities of alternative modes of dwelling and world-making (Polt, 1999; Kruger-Ross, 2015).

Therefore, engaging Heidegger's question of Being within the 4IR context is not a nostalgic retreat from modernity but an ethical-political invitation to rethink the meaning of progress and the conditions for justice in a technologically mediated world. It encourages an existential form of responsibility grounded not in control but in care—care for the Earth, for future generations, and for the manifold ways in which Being manifests in cultural and natural forms. By restoring the human as a being-capable-of-responsibility rather than a mere user or consumer of technology, Heideggerian ethics opens a space for reflecting on the moral and political horizons of innovation. Ultimately, the question of Being in the 4IR space converges with the perennial question of the good life: how to live well together within a shared and fragile world. This demands philosophical depth, existential courage, and the cultivation of solidarity that transcends instrumental rationality (Heidegger, 1977; Verbeek, 2011). In recognising that technology shapes our understanding of what it means to be human, Heidegger's inquiry becomes not only an ontological challenge but also an ethical summons—to act with integrity, mindfulness, and humility in shaping the future of human and planetary existence.

8. Concluding Remarks

The confrontation between Heidegger's question of Being and the challenges posed by the 4IR is profoundly marked by both peril and promise. On one level, the 4IR threatens to deepen the oblivion of Being through its relentless prioritisation of rationalisation, calculative reasoning, and technological control. The proliferation of algorithms, automation, and artificial intelligence risks reducing existence to measurable data and efficiency metrics, thereby eroding the contemplative openness that Heidegger regarded as essential for authentic dwelling. Yet, conversely, Heidegger's ontology offers a crucial philosophical resource for recovering existential clarity, critical self-awareness, and our capacity for meaning-making amidst the complexities of digital transformation. His questioning of Being resists the drift toward technological determinism by calling attention to the deeper structures of understanding that shape how humans inhabit and interpret their worlds.

The enduring relevance of Heidegger's analysis resides in its insistence on the irreducibility of human Being—its refusal to be subsumed under technical processes or computational logic. For educators, policymakers, and technologists, this philosophical stance translates into the necessity of envisioning digital futures that remain grounded in existential authenticity, moral discernment, and ontological attentiveness. Heidegger's reflections compel us to inquire into the kind of beings we are becoming through our technological creations, recognising the ethical and existential obligations such transformations entail. By keeping the question of Being central to engagements with the 4IR, we sustain the creativity, vulnerability, and freedom that define the human condition and resist the totalising tendencies of technological enframing.

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