BETWEEN EMPOWERMENT AND LIMITATION: HUMAN AGENCY IN THE AGE OF TECHNOLOGY

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Abstract

This study aims to explore how we can reassess human agency in a world increasingly influenced by scientific determinism and technology. The goal is to create a new framework, which protects human dignity while still welcoming innovation. We shall examine how people have understood agency throughout history and in modern times, paying special attention to the ethical and existential questions that come up with technological progress. The goal is to create a new framework which protects man while still welcoming innovation. . To achieve this, the paper uses philosophical inquiry, blending conceptual analysis with insights from existentialist, phenomenological, and post-humanist viewpoints, as well as theories from thinkers like Martins Heidegger, Jacques Ellul, Jurgen Habermas, and Albert Borgmann. The findings show that while technology can sometimes limit our autonomy through control, dependency, and alienation, it also has the potential to enhance our abilities and open up new avenues for self-discovery. This ongoing tension between empowerment and limitation highlights the intricate nature of agency in our scientific era. Ultimately, this study aims to enrich our understanding of agency as a dynamic relationship between freedom, responsibility, and the influence of technology. It emphasizes that a balanced ethical

approach, rooted in responsibility and the protection of human dignity, is crucial for ensuring that technological advancements, rather than harm the human experience.

Keywords: Human agency, Human condition, Philosophy, Science, Technology, Empowerment

Introduction

The twenty-first century has brought about remarkable changes in science and technology, from artificial intelligence and biotechnology to digital communication and space exploration. These advancements have transformed the social, political, and cultural aspects of our lives, prompting deep philosophical questions about freedom, responsibility, and what it truly means to be human (Floridi, 2014). philosophy anchors human agency in our ability to make rational choices, bear moral responsibility, and act autonomously. Thinkers like Aristotle, Kant, and Sartre have all underscored the importance of human freedom in defining our existence (Aristotle, 2009; Kant, 1996; Sartre, 2007). Yet, as technology keeps advancing, we must reconsider whether these classic ideas of agency still hold up in today's world.

The challenge we face is that scientific determinism and technological mediation are increasingly blurring the lines of human autonomy. Artificial intelligence complicates our decision-making processes, biotechnology alters the very essence of life, and digital technologies redefine our identities and social connections

(Haraway, 1991; Braidotti, 2013). These realities raise ethical questions: Are we losing our agency by depending on technology? Does the rationality of technology endanger our authentic existence? Can we still be responsible moral agents in a world where machines predict, influence, and sometimes even take over our choices (Heidegger, 1977; Ellul, 1964)? These urgent issues call for a thorough philosophical exploration of what human agency looks like today.

This study has three main objectives. First, it aims to critically examine both historical and modern views of human agency, pointing out both the continuities and the breaks. Second, it seeks to assess the ethical and existential consequences of technological and scientific advancements on our freedom, autonomy, and dignity. Finally, it proposes a new framework to understand these complex dynamics. This paper takes a philosophical approach, delving into conceptual analysis and engaging critically with both classical and modern philosophical traditions. It pulls from existentialist thoughts on freedom and responsibility (Sartre, 2007; Camus, 1991), phenomenological insights about how we experience our bodies and perceptions (Merleau-Ponty, 1962), and post-humanist discussions that challenge the idea of a centered human subject (Haraway, 1991; Braidotti, 2013). The study also tackles key theories of technology put forth by thinkers like Heidegger (1977), Ellul (1964), Habermas (1984), and Borgmann (1984), whose views on technology as a framing device, autonomy, and the mediation of our lifeworld shed

light on the challenges we face.

What makes this study significant is its effort to rethink human agency in a way that embraces scientific and technological advancements without compromising our freedom and dignity. By placing the human experience within the ongoing tension between empowerment and limitation, the paper advocates for a balanced ethical stance, one that acknowledges both the liberating and constraining aspects of technology (Marcuse, 1964). This perspective not only enriches current philosophical discussions but also offers practical insights into how societies can tackle the ethical dilemmas of a tech-heavy world.Human agency is essentially about our ability to act with intention, make choices, and take control of our lives. In Aristotelian philosophy, this idea is rooted in practical reason (phronesis), which is our rational ability to think through what is good (Aristotle, 2009). Kant took this further by defining autonomy as the essence of moral agency, where true freedom is found in following the moral laws that reason dictates (Kant, 1996). Existentialist philosophers like Sartre (2007) and Camus (1991) pushed this concept even further, arguing that we are "condemned to be free," thrown into existence without a predetermined purpose, yet tasked with creating meaning through our choices.

In today's world, we need to rethink agency in light of how technology mediates our actions. We must ask ourselves whether our choices are truly autonomous when they are influenced, predicted, or

even replaced by algorithms, bioengineering, or artificial intelligence (Floridi, 2014). Therefore, agency isn't a fixed concept; it's dynamic, existing within frameworks that both limit and empower us. Technological advancement goes beyond just creating new tools; it represents a whole new way of living that changes how we see, act, and connect with one another. Heidegger (1977) argued that technology isn't just a means to an end; it's a way of "revealing" that shapes our understanding of the world. He cautioned that modern technology can lead us to a narrow view of existence, potentially obscuring deeper truths about our being. Jacques Ellul (1964) pointed out that technological progress often seems to follow its own path, moving forward without much regard for ethical considerations or human oversight. Habermas (1984) warned that technology poses a threat to the communicative rationality of our everyday lives by favoring instrumental reasoning, while Borgmann (1984) examined how technology can both enhance and detract from the "focal practices" that define our human experience.

In this study, we view technological advancement as a double-edged sword: it grants us incredible new abilities but also poses a risk to our autonomy and sense of responsibility by shifting control to technological systems.The human condition encompasses the essential structures, limitations, and possibilities that define our existence. Arendt (1958) described it through the lenses of labor, work, and action, three aspects of life that connect us to nature, our creations, and our political communities. Existentialist thinkers

delve into themes of freedom, the limits of life, and the inevitability of death as core elements of the human experience (Sartre, 2007; Camus, 1991). Meanwhile, post humanist theorists like Haraway (1991) and Braidotti (2013) challenge this understanding, questioning whether the concept of "human" remains consistent in an era dominated by cyborgs, genetic engineering, and artificial intelligence. Today, the human condition is not just about biology or society; it's increasingly intertwined with technology. Our identities, relationships, and decisions are shaped by digital platforms, genetic alterations, and surveillance systems. Therefore, any exploration of human agency must take into account this technology-infused reality.

The paper is organized into four sections after this introduction the first section looks at the historical development of human agency from classical to modern thought. This is followed by the second section which analyzes human agency in the context of contemporary scientific and technological advancements. In addition to this, the section also explores the implications of these developments for the human condition before offering critical insights concerning the dialectics of empowerment and constraint in technological life. The third section moves on to proposes a re-examination of human agency, suggesting a human-centered framework for technological progress, while the fourth section, which is the last concludes the study by summarizing key insights and highlighting contributions to philosophical inquiry.

Human Agency in the Western tradition of Philosophy

In ancient philosophy, the idea of agency was closely linked to reason and virtue. Aristotle viewed humans as rational and social beings, where agency is expressed through conscious choices (prohairesis) and guided by practical wisdom (phronesis) (Aristotle, 2009). For him, agency wasn't just about the ability to act; it was about the capacity to act rightly in pursuit of a fulfilling life (eudaimonia). This teleological perspective placed human freedom within a moral context: true agency required the cultivation of virtue and aligning one's actions with reason.On the other hand, the Stoics focused on agency as a form of inner freedom, which comes from harmonizing one's will with nature and reason. While external factors might limit our actions, agency remains intact when we maintain our inner autonomy and rational agreement (Long & Sedley, 1987). Even in ancient times, there was a noticeable tension between external determinism and internal freedom, an issue that continues to be relevant in today's discussions about technological determinism.

In the medieval era, the concept of agency was largely reinterpreted through a theological lens. Augustine highlighted free will as a divine gift, allowing humans to choose between good and evil, albeit influenced by original sin (Augustine, 1998). Later, Thomas Aquinas blended Aristotelian and Christian ideas, suggesting that agency is grounded in both rational thought and divine guidance (Aquinas, 2006). In this framework, human agency was never completely

independent but was exercised within the divine order. This theological aspect raised important questions about predestination, grace, and moral responsibility, hinting at later debates around determinism, whether it stems from divine will, natural laws, or even technological systems.The modern era marked a significant shift towards individual autonomy and rational self-determination. René Descartes highlighted the importance of the will in human freedom, placing agency firmly within the thinking individual (cogito) (Descartes, 1985). For John Locke, agency was tied to personal identity and accountability, as being morally responsible implies having the power to make choices (Locke, 1975).

Kant offered one of the most impactful modern perspectives by rooting agency in autonomy. According to Kant (1996), true freedom is found in self-governance through reason, where moral agents act not just based on their desires but in line with universal moral principles. This idea firmly connected agency to dignity, responsibility, and rational thought. The Enlightenment period further emphasized the importance of human autonomy, with philosophers like Jean-Jacques Rousseau and Immanuel Kant placing freedom at the core of human dignity. Rousseau (1997) highlighted the general will and moral freedom as essential for true human flourishing. Enlightenment ideals of progress and reason positioned humans as the architects of their own fate, capable of transforming society through knowledge and will. However, critics like Friedrich Nietzsche later pushed back against these rationalist

views, arguing that true agency must also consider the will to power and the creative aspects of human existence that go beyond mere rational limits (Nietzsche, 1967).The industrial revolution brought a whole new set of challenges to how we understand human agency. Marx took a deep dive into human activity, focusing on labor and alienation. He argued that capitalist systems restrict our agency by separating workers from their creative potential (Marx, 1978). This socio-economic viewpoint shed light on the structural limitations on agency, a concept that later critical theorists would also explore.

Moving into the twentieth century, existentialist thinkers like Sartre and Camus took the idea of freedom to a whole new level. Sartre (2007) famously stated that humans are "condemned to be free," meaning we bear the responsibility of defining ourselves in a world that lacks any predetermined essence. Camus (1991) also tackled the concept of agency amidst absurdity, stressing the importance of affirming our freedom through our actions.At the same time, phenomenology enriched our understanding of agency by emphasizing the role of the body. For Merleau-Ponty (1962), agency is expressed through our lived experiences, engaging with the world not just as detached thinkers but as beings who perceive and act in an embodied way.The emergence of modern science added another layer of complexity to our ideas about agency, introducing deterministic frameworks. Newtonian physics painted a picture of a mechanistic universe governed by laws, which raised important questions about how freedom fits into a deterministic world. Later,

Darwinian evolution brought in anthropocentric views of agency by placing humans within the broader context of natural processes (Darwin, 1859).The emergence of modern science added another layer of complexity to our ideas about agency, introducing deterministic frameworks. Newtonian physics painted a picture of a mechanistic universe governed by laws, which raised important questions about how freedom fits into a deterministic world. Later, Darwinian evolution shook up anthropocentric views of agency by placing humans within the broader context of natural processes (Darwin, 1859).

Human Agency and Contradictions in the Age of Science and Technology

In today's world, the rapid pace of advancements in science and technology has dramatically changed the way we live. Breakthroughs in areas like artificial intelligence, biotechnology, robotics, and digital communication are reshaping how we see ourselves and how we exercise our agency. While these innovations give individuals incredible new abilities, they also place us within technological frameworks that challenge our traditional ideas of freedom, responsibility, and moral autonomy. Therefore, exploring human agency in light of these scientific and technological developments is an urgent philosophical endeavor. Research has suggested that brain activity occurs before we consciously make decisions raises important questions about the existence of free will (Libet, 1985; Wegner, 2002). Likewise, the rise of algorithmic

systems in big data and artificial intelligence is increasingly predicting and influencing our choices, leading to a kind of predictive determinism (Zuboff, 2019). This situation raises concerns about whether our agency is being reduced to mere computational patterns that are subject to monitoring and control.

On the otherside, technology boosts our capabilities. Digital tools make global communication easier, medical advancements help us live longer, and automation takes over repetitive tasks. In this way, technology broadens our agency by allowing us to act beyond our natural limits (Clark, 2003). Innovations like prosthetics, genetic engineering, and human-computer interfaces illustrate how our agency can be enhanced through technology, blurring the lines between what is natural and what is artificial. Yet, technological systems can also limit our agency by placing our actions within predefined environments. Heidegger's concept of “enframing” serves as a reminder that while technology can empower us, it can also confine us within certain structures that dictate how we interact with the world. For example, social media platforms shape how we interact with each other through algorithms, which can limit our freedom to just programmed preferences (Beer, 2017). In a similar vein, Ellul (1964) warned that technology often evolves on its own, resisting ethical oversight and placing humans under its efficiency-driven logic.

The way science and technology reshape our sense of agency brings

up significant ethical dilemmas. Who is accountable for autonomous weapons, biased algorithms, or genetic alterations? Jonas (1984) suggested an "ethics of responsibility" that fits our technological era, emphasizing that human agency should consider not just immediate outcomes but also long-term impacts on the planet. Likewise, Habermas (2003) raised concerns about biotechnological interventions that could turn human life into a mere tool, jeopardizing dignity and autonomy. Posthumanist thinkers propose that we need to rethink human agency as something relational rather than purely individual. Haraway's (1991) "cyborg" metaphor highlights hybrid forms of existence where agency arises from the connections between humans, machines, and the environment. Similarly, Braidotti (2013) advocates for a non-anthropocentric view of subjectivity, where humans, technologies, and ecosystems work together to shape actions. This perspective challenges Enlightenment ideas of the self-sufficient individual, suggesting that in our scientific and technological age, agency is more about networks and shared experiences.

In summary, in the realm of science and technology, human agency is filled with contradictions. On one side, these advancements empower us with new abilities, opening doors to fresh knowledge, communication, and creativity. On the other side, technological systems can limit our agency, prompting concerns about determinism, surveillance, and feelings of alienation. The philosophical challenge lies in finding a way to navigate this tension,

crafting a view of agency that harmonizes technological potential with ethical responsibility and the safeguarding of human dignity. The way we understand human agency has shifted dramatically in this age of science and technology, and these changes carry significant implications for what it means to be human. While technological advancements open up new possibilities for us, they also challenge our long-standing beliefs about freedom, dignity, morality, and identity. So, it's essential to take a fresh look at what it truly means to be human in this context.

One of the key implications here is the impact on human autonomy. As algorithms increasingly guide our decision-making and neuro-scientific insights shape our understanding of behavior, the idea of free will starts to feel a bit shaky (Roskies, 2006). We might find ourselves becoming more like passive consumers of pre-packaged choices instead of active shapers of our own lives. This shift threatens the Enlightenment vision of the autonomous individual and raises important questions about moral responsibility.

Technological advancements also pose challenges to our sense of dignity. With genetic engineering, artificial intelligence, and bio-enhancement technologies blurring the lines between what is natural and what is artificial, we face a real risk. Habermas (2003) warns that these biotechnological interventions could reduce us to mere objects that can be manipulated, undermining our inherent worth. The real danger lies in viewing human life as just another resource to be

optimized, rather than recognizing it as something valuable in its own right. Another significant concern is the potential for existential alienation. Marx's insights on alienation in industrial capitalism resonate strongly today, especially in our digital world, where technology can disconnect us from meaningful work (Fuchs, 2014). Similarly, Heidegger's (1977) idea of enframing suggests that our technological systems might obscure more authentic ways of living, trapping us in a cycle of instrumental thinking. As a result, our quest for meaning becomes intertwined with the very technologies we create. With the rapid advancements in artificial intelligence and human enhancement technologies, we must also reconsider our notions of identity and personhood.

If machines can handle cognitive tasks, create art, or mimic emotional interactions, what really sets human agency apart from artificial systems (Floridi & Sanders, 2004)? Post humanist thinkers suggest that subjectivity is more fluid, but critics warn that this perspective might overlook what makes human personhood so special. Redefining agency means we also need to rethink responsibility. Jonas (1984) points out that as creators of powerful technologies; humans are accountable not just for the immediate effects but also for the long-term survival of both humanity and the biosphere. This adds a global and intergenerational aspect to ethics, where we must view the human experience through the lens of stewardship as well as freedom. The impact of science and technology on the human experience brings both opportunities and

challenges. Our autonomy is at risk from algorithmic determinism, our dignity from biotechnological manipulation, and our sense of meaning from technological alienation. Yet, these same forces also open doors to enhancing human abilities and rethinking community, responsibility, and identity. The role of philosophy is to ensure that technological advancements enrich rather than diminish the human condition, anchoring agency in dignity, responsibility, and ethical contemplation.

Re-examining Human Agency: Towards a Human-Centered Framework for Technological Progress.

In our modern world, where science and technology reign, human agency finds itself in a bit of a tug-of-war. On one side, we have the incredible power that technological advancements give us, new ways to learn, connect, and express ourselves. But on the other side, these very innovations can limit our freedom, creating systems that control, alienate, and make us dependent. To truly grasp what it means to be human in this tech-driven age, we need to take a hard look at this duality. Technology boosts our human capabilities, enhancing our cognitive, physical, and social skills. Clark (2003) famously described us as "natural-born cyborgs," emphasizing how our tools become part of our thinking, opening up new avenues for action. From life-saving medical breakthroughs to vast global information networks, technology helps us break through biological and geographical barriers (Floridi, 2014). These innovations have made knowledge more accessible, sparked activism, and given rise

to fresh cultural expressions.

Yet, living in a technological world also comes with its own set of dangers. Thinkers like Ellul (1964) and Heidegger (1977) cautioned us that technology can evolve on its own, often prioritizing efficiency and control over human values. In today's digital landscape, surveillance capitalism turns our attention and behaviors into commodities (Zuboff, 2019). Instead of empowering us, technology can sometimes reduce us to mere data points, stripping away our autonomy and fostering a sense of dependency. So, while we gain power, it often comes with unexpected costs.

Critical theorists like Marcuse (1964) have pointed out that technology can lead to the creation of "one-dimensional" individuals who adopt a purely instrumental way of thinking. Social media is a prime example of this, where carefully curated identities and algorithm-driven feedback loops influence how we see ourselves and interact with others (Turkle, 2011). This situation raises important questions about what it means to be authentic and whether genuine connections are still possible in this mediated world.

In light of these tensions, navigating the human experience in our tech-driven world calls for critical agency, a thoughtful ability to engage with technology without letting it take control us. Jonas's (1984) plea for responsibility still rings true today, reminding us that we need to guide technological advancements toward ethical and

sustainable goals. This means we must develop not just technical skills but also a strong sense of morality, ensuring that our empowerment doesn't turn into a form of constraint. The complexities of living in a technological age present a real paradox: the very tools that can enhance our freedom might also restrict it. Empowerment and limitation are not opposites; they are intertwined aspects of our technological reality. The philosophical challenge lies in providing humanity with the tools to engage critically with technology, celebrating its possibilities while also pushing back against its isolating and controlling effects.

As we look back at the historical evolution of agency, especially in our scientific and technological era, it becomes clear that we need to rethink what it truly means to act freely, responsibly, and with purpose. Simply embracing technology with open arms or completely rejecting it isn't the answer. What we really need is a human-centered approach that protects our dignity, autonomy, and sense of responsibility while also harnessing the transformative power of technology. One of our main goals should be to reclaim human autonomy in a world increasingly influenced by algorithms, automation, and surveillance. Thinkers like Kant remind us that true agency is about self-governance and rational accountability. Even in a tech-driven landscape, we must maintain our ability for critical self-reflection, pushing back against the tendency to reduce our choices to what algorithms present us (Danaher, 2019). So, we need to redefine autonomy, not as a way to isolate ourselves from

technology, but as the capacity to engage with it without losing our moral responsibility.

To truly re-examine agency, we also have to recognize its embodied and relational nature. Merleau-Ponty's phenomenology shows us that agency arises from our physical interactions with the world, a perspective that's supported by modern theories of distributed cognition. Thinkers like Haraway and Braidotti expand on this idea, suggesting that today's agency is shaped by the interactions between humans, machines, and our environments. Therefore, a human-centered framework must acknowledge that agency isn't just an individual trait; it's inherently relational and interconnected. If machines can handle cognitive tasks, create art, or mimic emotional interactions, what really sets human agency apart from artificial systems (Floridi & Sanders, 2004)? Posthumanist thinkers suggest that subjectivity is more fluid, but critics warn that this perspective might overlook what makes human personhood so special.

In today's world, where biotechnology, AI, and environmental challenges are at the forefront, Jonas's (1984) call for responsibility is more crucial than ever. We need to recognize that our actions today impact future generations and the health of our planet. This means we should weave ethical considerations into how we design and govern technology. Approaches like value-sensitive design and responsible innovation (van den Hoven et al., 2015) suggest that we can create frameworks where technology enhances human and

ecological well-being instead of harming them.

We also need to rethink what we mean by progress. Rather than just linking it to efficiency, power, or newness, we should evaluate it based on how well it promotes human dignity, community, and sustainability. Habermas (2003) warns us about biotechnological advances that treat human life as a mere tool, reminding us that our technological growth must be held to ethical and democratic standards. A human-centered approach pushes back against the idea that technology is the sole driver of our future, focusing instead on the well-being of individuals and communities. Looking at human agency in our tech-driven era requires us to find a new balance between empowerment and responsibility, individuality and connection, innovation and ethics. By reclaiming our autonomy, embracing our interconnectedness, and rooting technological advancement in responsibility and human dignity, philosophy can help ensure that science and technology serve as instruments for human flourishing rather than sources of alienation or control. To truly re-examine agency, we also have to recognize its embodied and relational nature. Merleau-Ponty's phenomenology shows us that agency arises from our physical interactions with the world, a perspective that's supported by modern theories of distributed cognition. Thinkers like Haraway and Braidotti expand on this idea, suggesting that today's agency is shaped by the interactions between humans, machines, and our environments. Therefore, a human-centered framework must acknowledge that agency isn't just an

individual trait; it's inherently relational and interconnected.

The conversation around human agency in our tech-driven world highlights a constant tug-of-war between empowerment and restriction. In this work, we emphasize that while technology boosts our abilities, it also traps us within systems of algorithmic control and predictive governance. It aligns with Bates (2024), by showing that artificial intelligence isn't just some outside invention; it's actually a crafted history of our natural intelligence, a way our human reasoning has evolved through technology. This view positions technology as both a helpful extension of our minds and a key player in how we redefine what it means to have agency. Similarly, Metz's (2011) modal relationalism offers a way to see agency as something shaped by relationships rather than just a trait of the individual. Technological systems change these relationships by shifting what actions we can take, imagine, or consider morally acceptable (Samuel & Fayemi, 2020).

Yet, Gäb (2023) warns that the desire to go beyond our human limitations through technology, like the idea of uploading our consciousness, could undermine the very essence of what makes us human. His critique highlights an important ethical dilemma: while technology seems to offer greater freedom and a continuous sense of self, it also threatens to shake the foundations of our identity. In this light, the quest for technological immortality illustrates the risks of misunderstanding empowerment as a form of disembodied freedom.

When we look at Bates's insights on cognitive externalization, Metz's relational view of agency, and Gäb's existential concerns together, it becomes clear that in this technological era, we find ourselves in a relational paradox: we are both the creators and the creations of our own tools. As a result, human agency in this age of technology is a complex dance of influence and interaction.

Ian D. Thompson's (2024) take on Heidegger, offers a deep perspective for exploring what it means to be human in our tech-driven world. He taps into Heidegger's ideas of Gestell (enframing) and das Rettende (the saving power) to argue that while technology poses a threat, it also reshapes our understanding of freedom. According to Heidegger, the real danger lies in how technology can turn us into mere parts of an optimization machine, where our thoughts and actions are dictated by efficiency rather than genuine reflection or ethical considerations. In this light, our human agency gets reduced to a series of reactive choices, shaped more by technological frameworks than by authentic decision-making.

Thompson takes this Heideggerian perspective and applies it to the age of artificial intelligence, where our agency is increasingly influenced by autonomous systems, algorithms, and machine learning. These technologies create the environment in which we operate, subtly guiding our preferences, behaviors, and even how we perceive reality. As a result, we risk losing our position as the main actors in our own lives, becoming just participants in a vast network

of computational choices. In this scenario, agency becomes something shared between humans and machines, but often in ways that hide the imbalances of control and understanding. Thompson points out that this erosion of our foundational sense of being is the most significant danger posed by technology: it's not just about machines taking over, but about forgetting what it means to be human and losing our ability to reflect on our existence within these technological systems.

Thompson (2024) points out that amidst the dangers of technology, there lay a promise. The very act of confronting technology's overwhelming influence can spark a fresh awareness of our human freedom. By acknowledging the technological frameworks that shape our thoughts and actions, we can reclaim our agency through thoughtful resistance, essentially, by engaging with technology in a mindful way instead of just going along with it. In this perspective, true agency in our tech-driven world calls for a conscious approach: using technology to uncover and enhance our human potential, without falling into its purely functional mindset. Technology, then, becomes both a challenge and an invitation—to delve deeper into what it means to have agency, responsibility, and a sense of self in a reality increasingly dominated by artificial systems.

When we look at current discussions, Thompson's insights deepen our understanding of the relationship between human agency and technology, presenting it as a dynamic interplay between

determinism and reflection. He illustrates that while technology can threaten to overshadow our agency with its mechanical processes, it also creates the very conditions for a renewed experience of human freedom. In essence, Thompson redefines agency not as mere control over technology, but as a thoughtful coexistence with it, a constant balancing act between reliance and transcendence within our technological landscape.When you look at the ideas of Thompson (2024), Bates (2024), and Metz (2011) together, they create a thoughtful philosophical framework that helps us understand human agency in our tech-driven world. Bates sees artificial intelligence as a natural evolution of human reasoning; essentially, it's like an artificial version of our own intelligence. He argues that technology doesn't exist separately from us; instead, it grows out of our cognitive efforts. Metz adds to this with his concept of modal relationalism, which frames agency as something that's shaped by social, material, and contextual factors that influence what actions we can take. Thompson, drawing from Heidegger, brings these ideas into a more personal light, showing that while technology influences and shapes our agency, it also demands a deeper self-awareness rooted in how we coexist with it.

Together, these thinkers present a view of agency that is interconnected, historical, and reflective. Human action isn't just a straightforward expression of will anymore; it's something that emerges from the complex web of technological interactions. But this doesn't take away our freedom, it actually reshapes it. As

Thompson points out, the journey to genuine agency involves engaging with technology mindfully, recognizing our dependence on it while still maintaining our ability to think critically. So, when we consider Bates's historical perspective, Metz's relational approach, and Thompson's focus on existential awareness, it becomes clear that the real challenge of our technological era isn't about trying to regain lost autonomy. Instead, it's about fostering a responsible awareness, an agency that acts thoughtfully within the systems we're part of.

Conclusion

Exploring human agency in our rapidly advancing scientific and technological landscape reveals a fascinating tug-of-war between empowerment and limitation, freedom and determinism, dignity and disconnection. The idea of agency has deep historical roots, stretching back through classical, medieval, and modern philosophy, and it has always sparked debate, mirroring the human experience across different times. In today's tech-driven world, these discussions feel more urgent than ever, as innovations reshape not just our actions but also our very understanding of what it means to be human.

This paper has illustrated that while technological advancements open up incredible opportunities for enhancing human abilities—be it through in areas like communication, healthcare, artificial intelligence, or digital networks—they technological advancements

also pose significant risks. These advancements can reduce individuals to mere data points, manipulate our choices, and threaten our autonomy and sense of responsibility. The consequences for our human experience are profound: issues of freedom, dignity, identity, and accountability are all redefined in the context of technology.

Taking a critical look at these dynamics reveals the complex nature of life in a technological age, where empowerment often comes hand-in-hand with the dangers of control and alienation. Thus, it's crucial to revisit the concept of human agency, reclaiming our autonomy while recognizing the embodied and relational aspects of our identities, and ensuring that technological progress is rooted in ethical responsibility and respect for human dignity.

This study adds to the philosophical conversation by providing a framework for understanding agenc y in our modern world neither dismissing technology as purely alienating nor celebrating it without question, but instead advocating for a human-centered approach moving forward. Future research could further enrich this dialogue by delving into emerging technologies like artificial general intelligence, biotechnology, and ecological engineering, testing the strength of human agency in an era marked by extraordinary change.

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