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Beyond Utility: Rethinking Innovation through the Lens of Philosophy of Technology

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Article

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Abstract

This paper challenges the dominant utilitarian paradigm of innovation, which reduces technology development to measures of patentability, profitability, and efficiency. Drawing on influential figures in the field of technology philosophy, including Heidegger, Ellul, Feenberg, Ihde, and Stiegler, it makes the case that innovation needs to be reinterpreted as an ethical and ontological endeavour rather than just a technical or financial one. By closely examining seminal patent decisions like Chakrabarty, Myriad, and Mayo, the paper demonstrates how legal regimes actively define the metaphysical parameters of what constitutes invention, frequently omitting moral, cultural, and ecological factors. In the name of legal uniformity, it further criticises the TRIPS Agreement as a global epistemic framework that marginalises non-Western knowledge systems. The paper proposes a normative model for innovative governance, grounded in ontological pluralism, ethical reflexivity, and democratic accountability, to transcend instrumentalism. Participatory evaluation approaches, ethical committees, and curriculum change in scientific and engineering education are examples of practical recommendations. In an era of global crises, this interdisciplinary intervention advocates for a fundamental change in the way society, policy, and law understand and govern innovation.

Introduction: Questioning the Utility Paradigm

The 21st-century knowledge economy glorifies innovation as the cornerstone of progress, prosperity, and global influence. Governments, industries, and universities invest enormous resources in research and development, on the condition that more innovation will always yield better social outcomes. However, this technical optimism obscures deeper philosophical questions: What is innovation? Who defines their goals? What are its extensive results? Large discourses often adopt an instrumentalist attitude, portraying innovation as a morally neutral force that enhances efficiency and productivity (Feenberg, 1999, p. 5). The risk of such reductionism fails to account for the historical, cultural, and normative structures underlying technological practice (Feenberg, 1999, p. 8).

This idea challenges the instrumentalist approach by drawing on the philosophy of technology, which suggests that innovation is not merely a technical or financial effort but a profound philosophical and political action (Feenberg, 1999, p.14). Thinkers such as Martin Heidegger, Jacques Ellul, Andrew Feenberg, Don Ihde, and Bernard Stiegler's analyses demonstrate how innovation shapes human existence, social structures, and ecological systems. The paper argues for a paradigm shift that reorients innovation toward moral accountability, inclusivity, and long-term social value.

From Instrumentality to Meaning: Rethinking Innovation through the Philosophy of Technology

The philosophy of technology forces a rethinking of innovation as a deeply ingrained ontological and ethical practice, rather than just as the pursuit of efficiency, productivity, or market value (Feenberg, 1999, pp.14–16). Heidegger's criticism of contemporary technology highlights the peril of viewing the world as

a calculable "standing reserve," (Heidegger, 1977, p.17) and he instead calls for meditative thinking (Heidegger, 1966, pp.46–47). That recovers technology's capacity to reveal meaning rather than subjugate nature. Jacques Ellul expands on this by recognizing the autonomous momentum of technological systems that follow their internal logic, depriving innovation of moral consideration and making it seem inevitable. By way of inclusive, participatory processes that prioritize justice and human agency, Andrew Feenberg's concept of democratic rationalization maintains that technological advancement is socially constructed and can be redirected. By emphasizing how technologies actively mediate human-world relations, Don Ihde's post-phenomenological approach (Ihde, 1990, pp.72–75) calls for design practices that are sensitive to the experience, variability, and interpretive aspects of technology use. In contrast, Bernard Stiegler highlights the psychological effects of innovation under algorithmic capitalism, identifying a crisis of symbolic misery and advocating for an economy of contribution that promotes care, creativity, and collective memory (Stiegler, 2014, pp.11–15). Together, these viewpoints oppose the dominant utilitarian culture of innovation and present a philosophical framework that holds the development and application of technology to more general concerns about justice, meaning, agency, and human flourishing. Therefore, rethinking innovation from the perspective of technology philosophy places it in a broader context where what counts is not just what technology can do, but where what matters is not only what technology does, but what kind of world it makes possible.

Patent Law, Instrumentalism, and the Innovation Paradigm: A Critical Reappraisal

Modern patent law is based on the principle that innovation must be new, practical, and useful in industry (World Intellectual Property Organization, 2020, p.12). The primary purpose of this system is to encourage inventors by granting them exclusive rights in exchange for publicly disclosing their inventions. While this approach appears fair, it rests on underlying assumptions about the nature and purpose of technology that permit further analysis (Feenberg, 1999, pp.1–4). The prevailing perception, which emphasizes practical outcomes, views patents as tools to promote economic growth, scientific progress, and national competitiveness. This perspective aligns with philosopher Martin Heidegger’s concept of technology, natural resources, and even human labor as resources to be exploited (Heidegger, 1977, pp.14–18). Under this context, the law reduces innovation to a set of quantifiable criteria, excluding ethical, environmental, and social concerns. If an invention is new, useful, and manufacturable, it receives legal protection regardless of its ethical, environmental, or social implications (World Intellectual Property Organization, 2020, p.12). This approach often obscures deeper questions about the true nature of innovation and its political dimensions. As Langdon Winner famously asserted, politics is inherently characterized by power relations and social structures in its design and use. However, patent law overlooks these normative concerns by reducing innovation to quantifiable and technical criteria, focusing on questions such as whether the invention is new. Is it useful? It neglects more profound issues, such as who benefits from the invention and what kind of world it helps create. Consequently, patent law treats innovation as if it has no ethical or social context, concentrating mainly

on helping corporations and industries, rather than promoting social justice or serving the public good (Drahos, 1996, pp. 202–204).

Andrew Feenberg and other scholars argue that technologies are shaped by society and should be guided by democratic principles. This means that laws governing technology should not only prioritize economic efficiency but also reflect public accountability, social justice, and environmental well-being. However, current patent systems largely overlook these broader concerns, focusing instead on technical details and economic efficiency alone. The emphasis on whether an invention can be commercialized highlights this narrow perspective, implying that innovations only matter if they can be transformed into high-demand products. This approach marginalizes valuable, non-commercial forms of innovation, such as traditional knowledge, open-source software, or local environmental solutions, which may not fit standard patent criteria but offer significant social and environmental benefits (Shiva, 2001, pp. 62–70). Moreover, this industrial mindset reinforces the notion that technology dictates our lives and concentrates innovation within corporate laboratories and universities, often neglecting community-based efforts and collaborative knowledge-sharing. Bernard Stiegler's concept of "technogenesis" (Stiegler, 1998, pp. 1–5). Reminds us of the concept that technology and human society are continuously shaping each other.

From this perspective, patent law actively shapes the normative and epistemic boundaries of what constitutes innovation, and which knowledge is valued, rather than merely regulating innovation. A notable illustration of this instrumentalist viewpoint is the landmark case (Diamond v. Chakrabarty (1980) 447 U.S. 303). Diamond v. Chakrabarty, 447 U.S. 303. In this case, Ananda Mohan Chakrabarty, a scientist at General Electric, developed a genetically modified bacterium capable of breaking down crude oil. His initial patent application was denied because living organisms were not considered patentable subject matter. However, the U.S. Supreme Court ultimately ruled in a narrow 5–4 decision that a living, artificially created microorganism meets the criteria for a "manufacture" or "composition of matter" under 35 U.S.C. § 101 and is therefore patentable. This decision reflects a legal perspective that regards living entities as mere technical objects, valued not for their intrinsic qualities but only if they are novel, useful, and industrially applicable. Diamond v. Chakrabarty, 447 U.S. 303. The Court's assertion that "anything under the sun that is made by man" can be patented strongly echoes Heidegger's concept of the "standing reserve," (Heidegger, 1977, p.17) wherein things, including life, are treated as resources awaiting utilization.

Although the ruling distinguished between natural and human-made creations, it still reflected a mindset that prioritizes technical control and commercial success. DNA was regarded not as the fundamental basis of life with profound significance, but rather as a basic material that becomes patentable only when transformed into something marketable (Heidegger, 1977, pp. 19–23). From Feenberg's critical theory perspective (Jasanoff, 2005, p.108). This case illustrates how laws often lag technological advancements, seldom guiding them proactively with ethical or democratic considerations. Heidegger's concept of "enframing" (Gestell) (Feenberg, 1999, pp.14–16). It is particularly relevant here: the legal system treats genes merely as data for technological enhancement, detached from their real-life and

relational significance. The Court's reasoning neglected broader issues such as equitable access to medical tests, the concentration of genetic knowledge in the hands of a few, and the restriction of the genetic commons. These are crucial concerns when addressing justice, fairness, and individual freedom.

Although these issues were publicly debated, judicial reasoning ultimately took precedence. Consequently, Myriad Genetics continues to commodify life through synthetic abstraction, illustrating how procedural and functional standards have supplanted ethical considerations in patent law. Collectively, these cases reveal how patent law endorses a deeply instrumentalist and technocratic perspective on innovation by emphasizing novelty, utility, and industrial applicability. Myriad Genetics provides a limited concern by preserving naturally occurring genes while permitting synthetic variants (Association for Molecular Pathology v. Myriad Genetics, Inc. (2013) 569 U.S. 576). Whereas Chakrabarty exemplifies the unqualified commodification of genetically modified organisms Diamond v. Chakrabarty (1980*)* 447 U.S. 303. Regardless of the ethical or ontological implications, the law affirms that human intervention legitimizes ownership in both rulings. These decisions underscore the urgent need to reconceptualize legal frameworks not merely as facilitators of economic growth but as restructured to incorporate moral reasoning, ecological concerns, and principles of distributive justice.

To move beyond viewing patents merely as tools to drive the market, patent law requires a more comprehensive and thoughtful approach. It should begin to consider ethics, environmental impact, and the equitable sharing of benefits (Australian Law Reform Commission, 2004, paras 7.59–7.61). This might involve introducing safeguards, such as ethical impact assessments, for technologies with the potential to significantly transform society, such as artificial intelligence or gene editing. Additionally, we must recognize the rights of communities to innovation, protect the public domain from appropriation by private interests, and reconsider the definition of how innovations contribute to the well-being of both humanity and the planet (Dutfield, 2000, pp. 26–28). This shift would transform patent law from a mere gatekeeper of new, marketable ideas into a responsible steward of innovation that prioritizes not only profit but also the future of people and the world.

Beyond U.S. Patent Law: TRIPS, Epistemic Pluralism, and the Global Politics of Innovation

Although landmark U.S. cases such as Chakrabarty, Myriad, and Mayo illustrate how patent law delineates the philosophical boundaries of innovation, these decisions reflect a narrow, technologically oriented legal theory that is not always applicable to the broader legal milieu of innovation. The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), Centre for Internet and Society, 2023 administered by the World Trade Organization (WTO) WTO (1994, Arts 27, 33; Part III), significantly influences the international framework of intellectual property law. By introducing the instrumentalist principles of Western intellectual property systems, particularly those of the United States and the European Union, into the normative frameworks of the Global South, TRIPS functions as a legal standardizer, often producing asymmetrical outcomes. TRIPS' mandatory requirements for

patentability, duration, and enforcement effectively standardize a concept of innovation firmly rooted in market utility and individual inventorship. This exclusive, often privatized structure leaves little room for alternative worldviews or knowledge shared collectively within communities. In doing so, it causes profound harm to traditional and indigenous knowledge systems, which typically emphasize relationships, environmental responsibility, and knowledge co-creation (Shiva, 2000, pp. 235, 255). This global harmonization of laws has been criticized by scholars such as Chidi Oguamanam, Ruth Okediji, and Peter Drahos, who argue that the TRIPS agreement, by setting international intellectual property rules, engenders a form of “legal epistemicide,” Oguamanam (2008), effectively erasing non-Western ways of knowing (Okediji, 2003), under the pretext of standardization. The emphasis on documentation, technical terminology, and recognition of individual inventors’ privileges formal scientific knowledge over oral traditions, practical skills, and community-preserved practices (International Journal for the Semiotics of Law, 2023, pp.3–5). This suggests that much of the innovation occurring in the Global South is not recognized as legitimate. Moreover, national systems designed to promote innovation in many formerly colonized countries often face two major challenges: fostering local innovation while complying with TRIPS regulations (Mani and Nelson, 2013, pp. 89–96). These policy tensions are evident in the difficulties nations encounter when integrating biocultural heritage or Traditional Knowledge Digital Libraries (TKDLs).

Considering this issue from a philosophical perspective reveals how patent law exerts a profound, almost absolute, authority in determining not only what qualifies as an innovation (Drahos, 1995, pp.529–538). But also, who is authorized to innovate and under what specific conditions? (Corrigan and Sayer, 2008, pp.357–368). When diverse epistemologies, our various ways of understanding and knowing (de Sousa Santos, 2007) are filtered through a legal system founded on the concept of property as fundamental, these alternative ways of knowing are not merely marginalized; they are effectively invalidated at their core. To counteract this, innovation laws must genuinely embrace a plurality of perspectives and epistemologies within their foundational principles. This could involve recognizing different forms of legal protection, such as specialized systems for safeguarding traditional knowledge, World Intellectual Property Organization, 2017, Registries where communities can document their innovations, (Duffield (2006) or hybrid approaches that combine open-source models with customary laws. Furthermore, it requires rethinking how we assess value, moving beyond mere practical utility to include ethical contributions, environmental responsibility, and our responsibilities to future generations.

TRIPS and the Ontological Architecture of Innovation: A Heideggerian Critique

When we examine the TRIPS Agreement through Heidegger's concept of Gestell, (Heidegger, 1977, pp. 19–23) or "enframing," it transcends being merely a trade deal. It becomes a vast global system that intertwines law and philosophy, actively shaping how we conceive of innovation itself. Heidegger cautioned us about this "enframing," where the world is reduced to a "standing reserve stockpile of resources awaiting technical use or exploitation. TRIPS globalizes this notion by transforming diverse,

context-specific ways of knowing into standardized, marketable "intellectual property." (Correa, 2006, pp. 5–7). Knowledge once deeply embedded in communities, ecosystems, and spiritual life is distilled into commodifiable assets subject to ownership. This process is not simply about establishing legal protections; it imposes a particular mode of thinking (Posey, 2002, pp. 3–12). In this framework, knowledge is valuable only if it can be industrially applied, is novel, and generates profit (Drahos and Braithwaite. 2002, pp. 49–50). By embedding this results-oriented perspective into global law, TRIPS functions as a system that shapes our understanding of reality, excluding entire epistemologies that do not conform to this extraction-based innovation model. Under this paradigm, traditional ecological knowledge, collective practices, oral traditions, and innovative approaches grounded in sustainability, reciprocity, and care become philosophically unintelligible and legally invisible. By defining the limits of acceptable innovation and enforcing a singular definition of progress that prioritizes control, ownership, and efficiency over ethical considerations, cultural diversity, and ecological sensitivity, TRIPS transcends its role as a legal instrument to operate as a world-ordering mechanism (Papageorgiadis and McDonald, 2019, as cited in *Twenty-five Years Since TRIPS*, pp. 1–2). Thus, the agreement encapsulates the central thesis of this paper: that innovation, as currently institutionalized, is a profoundly ontological and moral act determining who is permitted to create, whose knowledge is acknowledged, and which futures are conceivable. Presenting TRIPS as a global manifestation of Gestell highlights the urgent need to rethink innovation policy from an ontologically pluralistic and ethically reflective perspective rather than solely through the lens of efficiency or economic gain. Only by doing so can we foster an innovation paradigm that is not only powerful but also inclusive, equitable, and attuned to the full spectrum of human and planetary existence.

Applied Philosophical Analysis: Case Studies

This section explores three critical areas: Artificial Intelligence, Biotechnology, and platform economies, alongside innovation, to develop a theoretical understanding of morality. Each area underscores the necessity of evaluating innovation through relative, moral, and democratic perspectives (Feenberg, 2002, pp. 6–10; Jasanoff, 2005, pp. 19–25; Winner, 1986, pp. 19–39).

Often, key issues such as bias, accountability, and distributive justice are overlooked, as the primary focus in artificial intelligence tends to be on adaptation and automation. Post-phenomenology offers a valuable framework for understanding how AI technologies mediate human perception and knowledge construction, suggesting that AI functions as an active agent rather than a neutral tool that merely alters reality. (Ihde, 1990, pp. 72–107; Verbeek, 2005, pp. 113–138). Andrew Feenberg’s hypothesis of Democratic Rationalization calls for more inclusive design methodologies that integrate public values and social responsibility into the technical architecture of AI systems to enhance their ethical alignment.

The application of gene-editing tools, especially CRISPR, challenges the fundamental boundary between nature and culture in biotechnology. Knorr-Cetina, as cited in (*Palgrave Communications*, 2019, p. 5). Often, these technologies transform life into a commodified and manipulative resource. This illustrates how contemporary technology reduces people to a mere "standing reserve of their intrinsic value.”

(Heidegger, 1977, p. 17), a concern highlighted by Martin Heidegger's critique of this trend. Heidegger's idea of standing reserve describes how, in contemporary technological thought, things, including people and nature, are not seen for who they are, but rather as resources that can be effectively utilised, stored, or optimized, always available for manipulation or control. Bernard Stiegler's theory of pharmacology (Stiegler, 2010, p.4) further develops this argument by emphasizing the dual nature of innovation: genetic tools can both restore and control (Jasanoff, Hurlbut, and Saha, 2015, pp. 25–32). Accordingly, ethical engagement with biotechnology should actively participate in this struggle, embracing the ambitions at the core of invention.

Finally, platform capitalism, exemplified by companies such as Uber and Amazon, represents a utilitarian innovation model driven by user convenience, profitability, and efficiency (Srnicek, 2017, pp. 40–63). However, these platforms have also exacerbated labor insecurity, intensified monitoring practices, and reinforced algorithmic governance. By revealing the ideological foundations of capitalism, such as the naturalization of labor and the idolization of data, this platform model necessitates a critical theoretical framework. It raises important questions about hegemonic extraction and control mechanisms while advocating for solutions grounded in collaborative, decentralized, and commons-based innovation paradigms (Bauwens, Kostakis and Pazaitis, 2019). Collectively, these case studies demonstrate how philosophical and critical approaches can transform our understanding of innovation from a purely technical endeavor into a profound moral and political process.

The instrumentalist approach in contemporary patent law becomes particularly evident when examined through landmark biotechnology cases in the United States, which collectively define the metaphysical and legal status of life and knowledge. These rulings, Diamond v. Chakrabarty (1980), Mayo Collaborative Services v. Prometheus Laboratories, Inc. (2012), and Association for Molecular Pathology v. Myriad Genetics, Inc. (2013), do not merely resolve disputes over subject matter eligibility. Instead, they actively construct ontological narratives about the nature of life (Parthasarathy, 2017, pp. 3–5) the criteria for invention (Jasanoff, 2005, pp. 126–130) and the entities that may shape the future of biological sciences (Franklin, 2007, pp. 23–27). In the Chakrabarty case, the majority opinion of the U.S. Supreme Court determined that a genetically modified bacterium capable of degrading crude oil was patentable because it represented “a product of human ingenuity.” (Diamond v. Chakrabarty, 1980, p. 310). This conclusion was supported by a broad interpretation of 35 U.S.C. § 101: “anything under the sun that is made by man.” (Diamond v. Chakrabarty, 1980, p. 309). From a Heideggerian perspective, this judgment exemplifies the reduction of life from an inherently meaningful existence to a mere technical object for manipulation. The value of the bacterium lies not in its mere existence but in its novelty and industrial applicability. Consequently, the Court positioned life as a standing reserve, ready for commodification. The Myriad Genetics decision appeared to limit this rationale by determining that naturally occurring DNA sequences could not be patented, while complementary DNA (cDNA), created in a laboratory setting, could be. Association for Molecular Pathology v. Myriad Genetics, Inc., (2013, p. 580). Although this ruling was hailed as a partial concession, it nonetheless reaffirmed the notion that human intervention, rather than ethical considerations or social utility, serves as the pivotal factor for legal protection. Interpreted through Andrew Feenberg’s framework of technical codes, the ruling

underscores the ongoing preference for “constructed” knowledge over “discovered” knowledge, thereby perpetuating the neoliberal ideology that only modified nature is subject to ownership (Feenberg, 2005, pp. 48–49).

Mayo, on the other hand, raised doubts about the patentability of a diagnostic approach that relies on natural correlations between metabolite levels and drug effectiveness (Mayo Collaborative Services v. Prometheus Laboratories, Inc., 2012, p. 77). The Court negated the patent, arguing that natural laws, even if discovered through human effort, cannot be subject to monopolization (Mayo Collaborative Services v. Prometheus Laboratories, Inc., 2012, p. 77). Nevertheless, despite this seemingly critical stance, the ruling was framed in procedural terms, specifically focusing on the limits of Section 101, rather than engaging in a deeper examination of the ethical implications of enclosing essential biological relationships. Bernard Stiegler’s concept of pharmacological dualism is particularly relevant in this context: the same biotechnological capabilities that can provide healing can also undermine public knowledge when subjected to monopolization (Stiegler, 2010, pp. 4–7). Mayo highlighted how patent law, even when applied cautiously, lacks the conceptual framework necessary to address this duality. Collectively, these court rulings demonstrate that patent law is more than merely an impartial mechanism for documenting inventions (Mayo Collaborative Services v. Prometheus Laboratories, Inc., 2012, pp. 75–78). By determining what constitutes an invention, who is entitled to it, and what fields of knowledge and technology are worthwhile pursuing, it actively shapes reality. By doing so, patent law creates the environment for invention, ownership, and scientific research, thereby fulf illing a sort of world-making role. By characterizing invention as a human construct valuable only to the extent that it is commercially viable, the Court reinforces a techno-legal perspective (Jasanoff, 2005, pp. 19–23). That marginalizes epistemologies grounded in care, reciprocity, or relational ontology, such as those inherent in indigenous or ecological traditions (Jasanoff, 2005, pp. 13–19; Escobar, 2018, pp. 27–33; Oguamanam, 2006, pp. 45–50). Therefore, rather than simply interpreting statutory language, these cases examine the broader legal and philosophical dimensions.

Integrating Philosophical Perspectives into Innovation Discourse: A Holistic Framework

Integrating Philosophical Perspectives into Innovation Discourse: A Holistic Framework
Philosophical approaches are often absent from traditional policy and commercial debates, despite growing awareness of the significant social impacts of innovation, such as environmental degradation caused by algorithmic bias (Coeckelbergh, 2020). With morality frequently reduced to compliance checklists or risk assessments, innovation continues to be viewed primarily through economic and instrumentalist perspectives. This paper integrates post-phenomenology, critical theory, and hermeneutics to offer a comprehensive framework that re-centers philosophical inquiry within innovation practice (Ihde, 1990, pp. 27–29; Verbeek, 2005, pp. 121–123). Addressing this crucial gap. By emphasizing three key dimensions —ontology, politics, and systematic analysis of science —the study advocates for a more nuanced understanding of technological development as a transformative force

that shapes human existence, power structures, and lived experiences, thereby challenging reductive approaches.

Ontological Dimensions: How Technologies Shape Realities

Using post-phenomenology and Heideggerian philosophy, the ontological dimension examines how technologies actively shape our perception of what is considered "real." Technologies function as metaphysical agents that alter the very fabric of reality, rather than serving as neutral intermediaries (Verbeek, 2011, pp. 5–7). For example, machine learning algorithms determine what qualifies as knowledge by prioritizing certain patterns while rendering others undetectable, rather than merely processing data. Similarly, biomedical technologies such as CRISPR redefine fundamental categories of existence by reshaping the boundaries of "nature" and "life." (Jasanoff, Hurlbut, and Saha, 2015, pp. 25–32). From this perspective, innovators and policymakers are encouraged to confront the world-making power of technologies directly and to assess the kinds of worlds they create critically, rather than focusing solely on the problems they solve. Overlooking these ontological concerns risks normalizing technologically mediated realities that may exacerbate inequity, environmental degradation, or cognitive injustice (Shiva, 1989, pp. 22–26; Jasanoff, 2016, pp. 239–241).

Political Dimensions: Power and the Governance of Innovation

Critical theory, particularly the works of Andrew Feenberg and Langdon Winner, conceptualizes innovation as a site of political conflict, where institutional structures and design decisions embody power dynamics (Feenberg, 1999, pp. 75–82; Winner, 1980, pp. 123–126). The political dimension examines who benefits from innovation, who is excluded, and how technological systems either reinforce or challenge existing hierarchies. For example, urban "smart city" initiatives often prioritize efficiency and surveillance over community engagement, thereby disenfranchising marginalized groups. Additionally, the concentration of artificial intelligence development within military and commercial sectors raises democratic concerns about who controls the means of knowledge production. This paper advocates for democratic rationalization, a process that fosters pluralistic values and grassroots participation through mechanisms such as citizen assemblies, participatory design, and ethical impact assessments. Without these measures, innovation risks becoming a tool of hegemony rather than emancipation (Feenberg, 2002, pp. 16–18; Marcuse, 1964, pp. 158–160).

Phenomenological Dimensions: Lived Experience and Ethical Engagement

Particularly, Ihde's post-phenomenology redirects attention to how technologies shape human perception, embodiment, and meaning-making. Ihde contends that technology mediates our "meaning making," or how we perceive and understand reality, in addition to what we see and do.

The mobile phone, for example, functions as a prosthetic that alters social interaction, memory, and attention, rather than serving merely as a means of communication. The phenomenological perspective reveals the affective and existential repercussions of invention, which are often overlooked in cost-benefit analyses. Consider how social media's alterity interactions, that is, treating algorithms as quasi-others, promote new forms of solitude or political polarization, or how workplace automation silently erodes job satisfaction. Centring lived experience, this framework demands that subjective well-being, cultural resonance, and the preservation of human agency be included among the innovation systems of measurement.

Methodology: Bridging Theory and Practice

This research employs a dual-methodological approach: it combines a philosophically grounded uplift approach with the study of empirical cases (Jasanoff, 2004, pp. 2–5) (e.g., AI, biotechnology, platform work). This dual strategy suggests that philosophical ideas can provide solutions to issues that remain unclear under traditional analysis, such as "symbolic misery" (Stiegler, 2014, pp. 10–14). Heidegger's concept of meditative thinking (Heidegger, 1966, pp. 46–50) is also a viable option. For example, the hermeneutic analysis of AI morality standards often highlights their superficial engagement with power, while post-phenomenological evaluations of user experience may guide human-centered design. This paper proposes a comprehensive framework for institutionalizing moral reflexes within an innovation regime through four main channels: First, an interdisciplinary morality panel, comprising philosophers, social scientists, and community representatives, will address ontological and political concerns, ensuring that the technology of technology (Stiegler, 2011, pp. 3–5; Jasanoff, 2016, pp. 236–241; Verbeek, 2011, pp. 118–122) aligns with the technology of technologies. Second, by employing post-phenomenological (Ihde, 1990, pp. 72–80; Verbeek, 2005, pp. 121–126) analysis of avatar relationships, hermeneutic interpretation, and background effects, a mandatory phenomenon impact assessment will systematically evaluate how ideas mediate the experience of mediation. Third, a public co-creation system, such as citizens' assemblies and open innovation architectures, will democratize technological development to counter corporate monopolies through data segmentation (Ihde, 1990, pp. 72–80; Verbeek, 2005, pp. 121–126). Finally, educational reforms will integrate the philosophy of technology into STEM curricula and establish "technical humanities" programs that combine moral training with technical expertise (Mitcham, 1994, pp. 39–45; Winner, 1986, pp. 53–58; Vallor, 2016, pp. 137–143).

Ranging from market-driven to philosophically grounded approaches, these interventions transform the innovation regime and enable ongoing democratic scrutiny of ontological beliefs, robust outcomes, and the experienced effects of technologies. This framework actively promotes moral engagement beyond mere reactive compliance, which neither restricts technology and innovation nor impedes progress toward more equitable and meaningful socio-technical futures. Instead, it intentionally shapes technological growth through pluralistic deliberations and critical technical exercises that consistently acknowledge and respect both innovation and the socio-technical futures. This framework conceptualizes value-laden technology by viewing invention as a socio-technical-regional complex rather than a linear process (Jasanoff, 2004, pp. 19–25); (Bijker, Hughes and Pinch, 2012, pp. 3–5; Feenberg,

1999, pp. 76–80). It posits that every new idea constitutes a foundational theoretical work about our people, societies, and environment. The further challenge lies not only in inventing but also in consciously innovating the world we are shaping, often subconsciously.

Innovation and developmental organizations facilitate the integration of philosophical thinking into innovation policy by establishing multidisciplinary ethics panels and philosophical advisory groups, thereby redefining innovation beyond its practical challenges. These organizations ensure thorough oversight and guarantee that technological development aligns with fundamental human values. Promoting human-centered and relational design approaches, focusing not only on efficiency but also on care and intellectual rigor, can help steer innovation toward socially responsible outcomes. Incorporating the philosophy of technology into STEM curricula can cultivate sensitivity and ethical awareness among future innovators, making educational reform equally crucial. Furthermore, fostering participation in innovation ecosystems through public forums, intensive innovation workshops, and civic assemblies can significantly engage diverse stakeholders in the innovation process, thereby advancing the democratization of the technological future.

Conclusion

Innovation is a profound philosophical endeavor that transforms our relationship with the environment and with one another; it is not merely a mechanical process (Stiegler, 1998, pp. 1–3; Feenberg, 2002, pp. 5–9; Simondon, 2017, pp. 15–20). The prevailing instrumentalist paradigm, which drives economic development, often overlooks the moral, political, and existential benefits of technological advancement (Feenberg, 1999, pp. 3–9). This paper advocates for a re-evaluation of innovation toward more contemplative, inclusive, and sustainable pathways by engaging with the philosophy of technology. Moving beyond mere utility requires us to view technology as an intermediary of meaning, identity, and values, not solely as an end. As currently practiced, innovation is not merely a technical or financial undertaking but a deeply philosophical and political one; it is a moral and ontological activity that shapes our future, our institutions, and our lives (Stiegler, 1998, pp. 1–5; Feenberg, 2002, pp. 5–12; Jasanoff, 2004, pp. 2–4). By emphasizing the rigor of the philosophy of technology, we expose the limitations of instrumentalist models and pave the way for more ethical, inclusive, and responsible forms of technology. Such shifts in perspective are essential to fostering innovation that supports, rather than undermines, humanity and the planet.

Innovation represents a profound philosophical endeavor that transforms our relationships with both the environment and one another (Ihde, 1990, p. 100). It transcends mere mechanical actions. The dominant instrumentalist paradigm driving economic development overlooks the moral, political, and existential benefits associated with technological progress. This research advocates for a reassessment of innovation toward more reflective, inclusive, and sustainable trajectories by engaging with the philosophy of technology. Moving beyond mere utility compels us to perceive technology as a conduit for meaning, identity, and values (Feenberg, 2002, p. 9). Rather than solely as a tool (Stiegler, 1998, p. 3). As currently practiced, innovation is not merely a technical or financial pursuit; it embodies a moral and ontological

undertaking. It shapes our future, our institutions, and our lives. What distinguishes this paper is its integration of philosophical inquiry with critiques of legal and institutional frameworks, particularly its reconceptualization of patent law as not merely a regulatory tool but as a metaphysical influence that delineates the very possibilities of innovation. By incorporating perspectives from Heidegger, Ellul, Andrew Feenberg, Ihde, and Stiegler, the paper emphasizes how contemporary technological rationality constrains human experience and diminishes moral imagination. It uniquely combines insights from post-phenomenology, critical theory, and legal philosophy to formulate a comprehensive understanding of innovation as a socio-ontological phenomenon. Additionally, this paper enriches ongoing discussions by interrogating the deeply rooted utilitarian rationale of intellectual property classifications. It demonstrates that principles such as novelty and industrial applicability are fundamental to patent law, acting as proxies for commodification and control, often at the expense of ecological and epistemic justice. Through meticulous examination of landmark cases such as Chakrabarty, Myriad, and Mayo, it reveals how legal rulings extend beyond mere juridical functions; they reinforce anthropocentric and extractivist metaphysics that favor manipulation over mutuality (Parthasarathy, 2017, p. 53).

The originality of this study lies in the establishment of a normative framework aimed at re-evaluating innovation and law, grounded in ontological critique, democratic engagement, and ethical reflexivity. By advocating for instruments such as Ethical Impact Assessments, interdisciplinary morality panels, and the expansion of innovation metrics to include lived experiences, relationality, and ecological responsibility, the paper calls for a significant paradigm shift. It urges a transformation of patent law from serving as a concierge of commodified novelty to becoming a steward of pluralistic and socially responsible innovation. By integrating metaphysical understanding with institutional critique, the paper seeks to reconceptualize innovation not merely as a means of economic advancement (Jasanoff, 2005, pp. 272–275). But as a collective cultural endeavor that reflects our shared aspirations, limitations, and responsibilities (Bensaude-Vincent, 2014, pp. 15–18). It is a call to move from market-driven invention toward meaning-driven transformation, envisioning a future where technologies are not only efficient but also wise; not only powerful but also just. In this way, the paper does not merely critique the current state of affairs; it lays the foundation for a more equitable, reflective, and humane innovation paradigm that honours the full complexity of both human and planetary conditions.

Declarations

Author Contribution

H.K. wrote the main manuscript, analysed, and edited the article.

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