

AI and the Displacement of Ordinary Occupations: A Normative Analysis of Labour Alienation, Dignity, and Social Justice

Shaoxin Zheng*

School of Management, Guangzhou College of Commerce, 511363, China

*Corresponding author: Shaoxin Zheng, 18814147469@163.com

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Abstract: With the rapid development of artificial intelligence (AI) technologies, a significant trend of substitution has emerged for ordinary occupations characterised by repetitiveness, rule-based tasks, and low-to-medium skill requirements, under existing capital logics and institutional arrangements. Diverging from mainstream narratives that frame this process as a technological inevitability or an efficiency improvement, this study adopts a normative philosophical critique to analyse the deepening of labour alienation, the erosion of labour dignity, and the imbalance of social justice resulting from AI-driven occupational displacement. The article argues that AI substitution is not a neutral technological process but a socio-technical phenomenon embedded within specific industrial structures and power relations. Drawing on Marx's theory of labour alienation, existentialist philosophy of technology, and the "capabilities approach," this study critiques technological determinism and the myth of "technological neutrality," emphasising that the core issue lies not in whether technology replaces humans but in how technology is shaped by social governance and value frameworks. Based on this analysis, the article proposes a normative reconstruction centred on human dignity and social justice, aiming to provide theoretical guidance for technological ethics and institutional responses in the age of AI.

Keywords: Artificial Intelligence; Ordinary Occupations; Technological Substitution; Labor Alienation; Social Justice; Philosophical Critique

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1. Introduction

As one of the core technologies of the twenty-first century, artificial intelligence (AI) is rapidly permeating human society. AI is no longer merely a futuristic vision in science fiction narratives but a tangible force profoundly reshaping social relations of production. According to the International Data Corporation (IDC), global spending on AI solutions is projected to increase from USD 166 billion in 2023 to USD 423 billion by 2027, representing a compound annual growth rate of 26.9%^[1], while global spending on generative AI solutions is expected to reach USD 143 billion, accounting for 28.1% of total AI expenditure^[2]. This technological diffusion is accompanied by the large-scale substitution of "ordinary occupations"—positions characterised by repetitiveness, rule-based tasks, and low-to-medium skill requirements. The McKinsey Global Institute reports that approximately 50% of current work tasks worldwide are technically automatable^[3], with nearly 300 million full-time jobs at high risk of replacement^[4].

This substitution process is not merely a matter of technological efficiency in economics or management; it touches upon fundamental philosophical questions: what does it mean to be human? What is the role of labour in human existence? As machines increasingly perform cognitive and operational tasks once considered “exclusively human,” are we confronting an unprecedented crisis of labour demeaning? As Habermas (1985) warns, instrumental rationality, if unchecked by communicative rationality, leads to the “colonisation of the lifeworld,” whereby everyday life is consumed by efficiency logic^[5]. This study aims to systematically examine the multi-dimensional impacts of AI-driven substitution of ordinary occupations from a critical philosophical perspective. Unlike mainstream research, which often focuses on empirical analyses of employment rates, skill mismatches, or economic growth effects, this study emphasises the normative dilemmas underlying these changes: when labour is stripped of its creative and autonomous dimensions, reduced merely to “computable working hours,” can human dignity still be preserved? Are we moving toward a “post-labour society,” and if so, can such a society still accommodate human freedom and development? Through normative analysis rather than empirical prediction, this study seeks to explore the implications of AI substitution for labour dignity and social justice.

2.Theoretical Foundations and Literature Review

2.1 Theoretical Foundations of the Relationship between Artificial Intelligence and Employment

Research on the relationship between technological progress and employment can be traced back to classical theoretical frameworks, among which Marx’s theory of labour alienation demonstrates renewed explanatory power in the context of artificial intelligence. Marx argued that labour alienation is a central issue of the capitalist mode of production, wherein workers become estranged from their labour products, labour processes, and species-being, resulting in the loss of subjectivity^[6]. In the era of artificial intelligence, this theory acquires new significance: intelligent technologies, as extensions of capital logic, further reinforce the separation between workers and the means of production. AI systems replace a substantial number of repetitive labour positions through automation and intelligence, gradually marginalising workers from the core of the production process and rendering them subservient to technology^[7]. Moreover, the development of AI has given rise to a phenomenon of “technological fetishism,” whereby humans exhibit excessive reliance on and reverence for intelligent technologies, leading to an increasingly hollowed spiritual world—an emergent form of labour alienation^[6]. Therefore, Marx’s theory of labour alienation provides a crucial theoretical lens for understanding the impact of AI on employment, while also revealing the underlying power and capital relations embedded in technological advancement.

2.2 The Technological Lineage and Development Stages of Artificial Intelligence

Artificial intelligence is not a single technology but a cluster of technologies encompassing machine learning, deep neural networks, reinforcement learning, natural language processing, and robotic process automation (RPA)^[8]. Its development can be broadly divided into three stages: (1) Symbolic AI (1950s–1980s), relying on rule engines and logical reasoning; (2) Connectionist AI (1980s–2010s), centered on artificial neural networks; and (3) Deep Learning and Generative AI Era (2010s–present), achieving leaps in perception and generative capabilities through big data, high computational power, and Transformer architectures^[9].

2.3 The Current State of AI Substitutability for Ordinary Occupations

Currently, AI systems have demonstrated performance surpassing human capabilities in multiple domains: in image recognition tasks, convolutional neural networks (CNNs) have achieved accuracies exceeding 95%^[10]; in customer service dialogues, chatbots based on large language models (LLMs) can handle over 80% of routine inquiries^[11]; in logistics scheduling, reinforcement learning algorithms optimize warehouse picking paths, improving efficiency by more than 30%^[12]. These technological advancements indicate that AI is no longer confined to the substitution of “manual labour” but is increasingly penetrating “cognitive ordinary occupations,” such as data entry, basic accounting, junior legal document processing, and customer service roles.

2.3.1 Types of Ordinary Occupations Vulnerable to Replacement

The rapid development of AI technologies has significantly enhanced the substitutability of low-skilled and routine jobs, particularly in ordinary occupations within manufacturing, logistics, and retail sectors. In manufacturing, for example, routine positions with fixed processes—such as filling, sealing, packaging, and loading/unloading—are increasingly being replaced

by intelligent robots. Due to their highly procedural nature, these jobs are particularly susceptible to AI technologies, leading to a substantial reduction in labour demand in the relevant fields ^[13]. In the logistics sector, positions such as sorting clerks are also at risk of replacement due to the widespread adoption of automated sorting robots. By integrating computer vision and machine learning algorithms, these robots efficiently perform parcel classification tasks, significantly reducing the need for manual operations ^[14]. Similarly, in the retail sector, fully automated vending machines and intelligent customer service systems have gradually replaced traditional retail service roles. These changes not only reflect the powerful substitutive capacity of AI for ordinary occupations but also highlight the vulnerability of low-skilled workers in the context of technological transformation.

2.3.2 Technical Approaches to Substitution

The substitution of ordinary occupations by AI primarily relies on the application of robotic technologies and intelligent programs, which simulate human thinking and behaviour patterns to efficiently replace specific job functions. First, robotic technology, as a key carrier of AI, has demonstrated strong substitutive capabilities across multiple industries. For instance, specialised industrial robots in manufacturing can precisely execute complex operations such as welding, assembly, and painting through built-in sensors and actuators. These robots not only exhibit a high degree of automation but also optimise operational processes through machine learning algorithms, thereby further enhancing production efficiency ^[13]. Second, the application of intelligent programs has also transformed the work modes of many occupations. In logistics sorting, for example, automated sorting robots integrate computer vision and deep learning technologies to quickly identify package information and complete classification tasks, greatly reducing the need for human intervention ^[15]. Additionally, the proliferation of intelligent customer service systems represents another important manifestation of AI substituting human labour. These systems leverage natural language processing to interact with users in real time and respond to common inquiries, thereby reducing reliance on human agents. Taken together, robotic and intelligent program-based approaches constitute the core drivers of AI substitution for ordinary occupations.

2.3.3 Geographic and Industry Differences in the Degree of Substitution

The extent of AI substitution for ordinary occupations varies significantly across regions and industries, influenced by factors such as economic development levels, technological adoption, and industry characteristics. From a geographic perspective, developed regions with strong technological foundations and economic capabilities exhibit broader applications of AI technologies and, consequently, higher degrees of occupational substitution. For example, in China's eastern coastal cities, the penetration of intelligent robots in manufacturing is significantly higher than in central and western regions, resulting in a marked increase in unemployment risk for low-skilled workers ^[16]. In contrast, traditional industries in less developed areas remain largely labour-intensive, with slower AI adoption. From an industry perspective, manufacturing and logistics exhibit the most pronounced substitution effects, whereas service and agricultural sectors are relatively less affected. Research indicates that approximately 20% of manufacturing jobs could be replaced by AI and related technologies within the next 20 years, while the agricultural sector is less affected due to natural constraints and technological adaptability issues ^[17]. Moreover, industry-specific acceptance of AI technologies varies: labour-intensive industries such as manufacturing and logistics are more amenable to automation, whereas knowledge-intensive sectors like education and healthcare, which involve complex interpersonal interactions and creative labour, are less susceptible to full replacement. These differences indicate that AI substitution is unevenly distributed and shaped by multiple interrelated factors ^{[16][17]}.

In summary, research suggests that AI substitution does not occur uniformly; its diffusion is governed by three main mechanisms: (1) Industrial logic: capital-intensive sectors (e.g., manufacturing, logistics) are prioritized, followed by service industries; (2) Institutional environment: countries with weaker labor protections and diminished union power experience faster substitution ^[18]; (3) Technological infrastructure: the widespread availability of cloud services and API interfaces enables small and medium-sized enterprises to rapidly deploy AI systems ^[19].

2.4 Classification of Substitutability: From Task-Level to Occupation-Level

Acemoglu and Restrepo proposed the "Task Model," which decomposes jobs into discrete tasks to identify which tasks can be automated ^[20]. They define "automatable tasks" as those that follow explicit rules, with structured inputs and predictable

outputs. Research indicates that approximately 30% of tasks in about 45% of U.S. jobs have high automation potential ^[21]. Building on this framework, this study classifies substitutability into four types: (1) Fully substitutable: highly repetitive tasks such as assembly line operations, barcode scanning, and basic quality inspection, which have been widely replaced by industrial robots and visual inspection systems ^[22]; (2) Partially substitutable: positions such as bank tellers and administrative assistants, where AI handles information queries and form processing while humans manage emotional interactions and exception handling; (3) Augmented substitution: professional roles such as doctors and lawyers, where AI provides diagnostic suggestions or case retrieval, but ultimate decision-making authority remains with humans; (4) Potentially substitutable: tasks such as entry-level programming, content moderation, and translation, which are being rapidly encroached upon by generative AI ^[23].

It is noteworthy that the logic of AI substitution has shifted from functional equivalence to cost prioritisation. Companies adopt AI not because it is “smarter,” but because it is “cheaper, more controllable, and never fatigued” ^[24]. Importantly, the “substitution trends” described in this study do not constitute a normative acknowledgment of technological inevitability; rather, they provide an empirical depiction of the current capital-driven trajectory of technological diffusion.

3. Labour Alienation and the Philosophical Crisis: From Marx to Posthumanism

3.1 Contemporary Resonances of Marx’s Theory of Alienation

In the Economic and Philosophic Manuscripts of 1844, Marx proposed four dimensions of labour alienation: alienation of the worker from the product, the labour process, species-being, and other humans ^[25]. In the context of AI-driven substitution, this theory gains renewed explanatory power.

First, workers are increasingly alienated from the products of their labour. When AI generates reports, design blueprints, or writes code, human workers are reduced to roles of “review” or “fine-tuning,” while their creative outputs are absorbed as “training data,” blurring personal authorship and ownership ^[26]. Öztaş and Arda (2025) ^[27], through in-depth interviews with 14 creative professionals—including visual artists, social media managers, and music producers—documented how these workers perceive AI’s impact. Their findings indicate that while creative professionals view AI as an opportunity in their creative process, they also see it as a necessary condition for active participation in market survival under technological bureaucratic governance.

Second, the labour process is colonised by algorithms. Platform-based workers such as couriers, customer service agents, and content moderators operate under “algorithmic management,” where work pace, routes, and scripts are dynamically regulated by systems, rendering humans as “biological execution terminals” ^{[28][29]}. This control is more precise and covert than Taylorist management. Marx emphasised that labour constitutes the “species-life” (*Gattungslieben*), a free and conscious activity. When labour is reduced to “monitorable, optimizable, and substitutable data points,” human essential capacities are compressed into mere “productivity variables,” and the self-actualising function of labour is entirely hollowed out ^[30].

3.2 The “Useless Person” Dilemma from an Existentialist Perspective

Heidegger warned that the essence of technology is not merely a “tool” but a *Gestell*, a framework that forcibly subsumes the world and humans into a state of “standing-reserve” (*Bestand*) ^[31]. In the AI era, ordinary workers are being redefined as “resources to be optimised” or “redundancies to be eliminated.”

Byung-Chul Han further conceptualised the “achievement society,” arguing that contemporary individuals are no longer oppressed “Others” but self-exploiting “subjects” ^[32]. Under the pressures of AI substitution, workers face an unending responsibility to “constantly learn, adapt, and transform,” with failure attributed not to structural constraints but to “individual insufficiency.” This “tyranny of positive freedom” has contributed to widespread anxiety, depression, and existential nihilism ^[33]. When AI can perform most “ordinary labour,” do humans retain intrinsic value? If labour no longer constitutes a confirmation of human essence, how can we define what it means to be human? This reflects a modern version of Heideggerian “forgetfulness of being” ^[34].

3.3 Challenges to the Capability Approach: Responses by Sen and Nussbaum

Amartya Sen proposed the capability approach, emphasising that development is essentially the expansion of substantive freedoms that allow individuals “to lead lives they have reason to value” ^[35]. Martha Nussbaum further enumerated core

human capabilities, including “practical reason,” “emotional affiliation,” and “work dignity”^[36].

AI substitution of ordinary occupations directly threatens the core capability of “work dignity.” When an individual cannot achieve social recognition, economic independence, or self-affirmation through labour, their substantive freedom is severely constrained. Even a universal basic income (UBI) can alleviate poverty, but it cannot replace the sense of meaning and social connection derived from work^[37].

4. Critical Reflections: Challenging Technological Determinism and the Myth of Technological Neutrality

4.1 The Ideological Trap of Technological Determinism

Mainstream narratives concerning AI and employment substitution often fall into a pattern of technological determinism, assuming that technological development is an irreversible natural process and that the replacement of ordinary occupations is an inevitable outcome of “efficiency gains,” leaving society with only passive adaptation. Such discourse is common in policy reports, corporate white papers, and mainstream media; for example, McKinsey & Company (2023)^[38] claims: “Automation is not a choice, it is a reality.” However, this framing obscures the social construction and political selectivity inherent in technological development.

Technology does not evolve as a self-propelled “natural force,” but rather as a social product embedded within specific production relations, power structures, and capital logic. As Winner (1986/2021)^[39] notes in *The Whale and the Reactor: A Search for Limits in an Age of High Technology*, “Artifacts have politics.” Research indicates that Nordic social-democratic welfare states tend to deploy AI to assist eldercare (e.g., nursing robot programs in Denmark), whereas liberal welfare states (such as the UK and the US) face greater pressure to use AI to replace public service positions for cost reduction^{[40][41]}. The determining factor is not technology itself, but institutional choices and value orientations.

Therefore, the assertion that “AI will inevitably replace ordinary occupations” is not a technological necessity but a product of capital-driven institutional arrangements. Corporate decisions to substitute labour with AI are motivated not by technological irreversibility, but by rising labour costs, weakened unions, and the pressure to maximise shareholder value^[42]. If society prioritises “decent work” and “human development,” AI could be steered toward augmenting humans rather than replacing humans.

4.2 Deconstructing the Myth of Technological Neutrality

Accompanying technological determinism is the myth of technological neutrality, which assumes that AI is inherently value-neutral and that its effects depend solely on users. This view, however, overlooks the value-laden nature of technology design. First, training data inherently carries biases. AI decision-making logic is derived from historical data, which often reflects and reinforces existing social inequalities. For example, recruitment AI systems, trained on male-dominated historical data, tend to downgrade female resumes^[43]; credit scoring models, reflecting higher default rates among low-income groups, automatically raise loan thresholds, creating a “poverty trap”^[44].

Second, algorithmic objective functions embody capital preferences. Most corporate AI systems are designed to “maximise efficiency,” “minimise cost,” or “maximise user engagement,” rather than “promote fairness” or “enhance worker well-being.” This objective-setting itself constitutes a value choice^[45]. For instance, food delivery platform algorithms optimised for “shortest delivery time” can lead to riders speeding, running red lights, and even causing traffic accidents^[46].

Finally, technology deployment is inherently exclusionary. The high costs of developing, deploying, and maintaining AI systems make them naturally oriented toward capital-intensive industries and high-income groups, while marginalising low-skilled workers and the public sector. This “technological divide” further exacerbates social fragmentation^[47].

In summary, it is crucial to recognise that technological neutrality is an illusion. AI is a socio-technical system imbued with class, gender, and power dynamics, and its substitutive effects are essentially a technical manifestation of social power relations.

4.3 From a “Logic of Substitution” to a “Logic of Co-Existence”: Reconstructing the Technological Philosophy Paradigm

The current challenges in AI governance stem from persisting within a binary framework of “humans vs. machines.” This

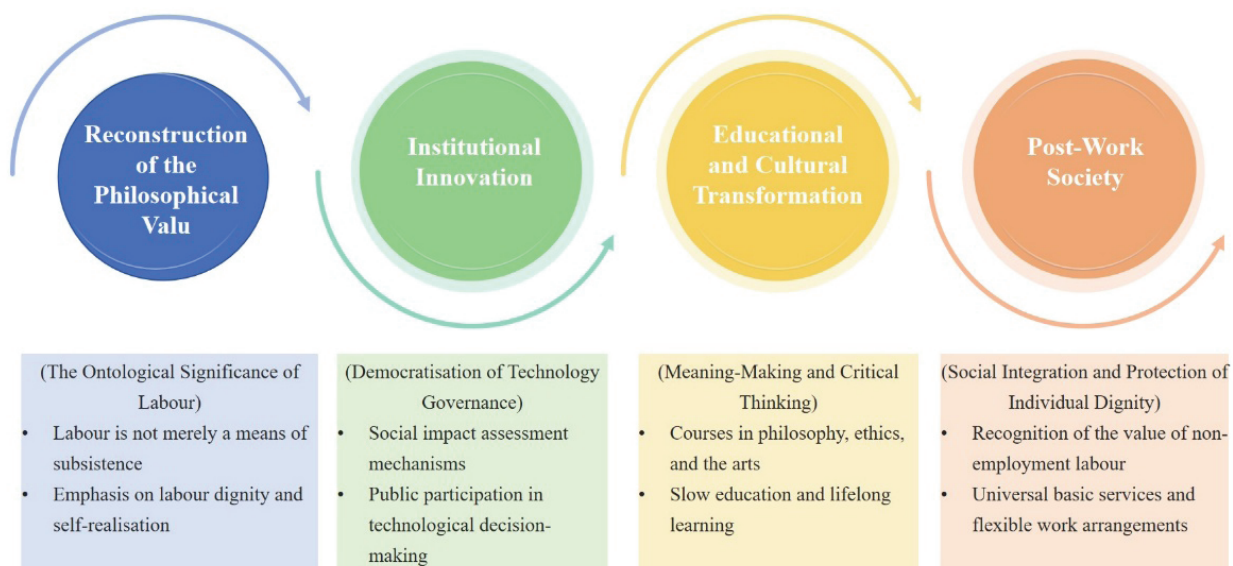
framework presupposes that substitution is the only possibility, while neglecting philosophical pathways of collaboration, symbiosis, and co-existence. In his later work, Heidegger introduced the concept of dwelling, advocating that humans should “poetically dwell on the earth” rather than dominate nature and themselves through a technological framework [48]. This idea can be extended to human-machine relations: instead of seeking to “defeat machines” or “be replaced by machines,” we should explore an ethical order of co-existing with machines.

Floridi et al. (2025) [49], within a digital humanism framework, proposed “vulnerability as a design ethic,” emphasising that technology should be designed in coexistence with human vulnerability rather than attempting to eliminate it. This aligns with Linda Aulbach’s (2024) [50] notion of “embedding empathy in AI ethics,” jointly emphasising that technology should respond to, rather than erase, human vulnerability. For example, nursing robots should not aim to replace caregivers but rather alleviate caregiver burden and enhance their capacity for emotional connection. This paradigm shift requires us to reconstruct technology from a “control tool” into a “medium of care.”

5. Normative Reconstruction: Towards Human-Centred Technological Ethics and Institutional Innovation

To systematically present the four-tiered normative reconstruction pathway proposed above, Figure 1 summarises the progressive relationship of “philosophical value reconstruction → institutional innovation → educational and cultural transformation → post-work society” using a flow-arrow diagram. The figure illustrates the internal logic and interconnections of each stage, directly pointing toward the overarching objective of technological ethics and institutional practices centred on human dignity and social justice.

Figure 1: Four-Level Normative Reconstruction Pathway



5.1 Reconstructing the Philosophical Value of Labour: From “Means of Livelihood” to “Mode of Being”

To address the dignity crisis brought by AI substitution, it is imperative to reestablish the philosophical status of labour. Labour is not merely a means of earning income; it is a fundamental mode through which humans realise themselves, assert their essential capacities, and participate in social co-construction [51]. Steinmetz, G. (2009) [52] distinguishes between “labour”, “work”, and “action”, noting that it is action—public speech and collective decision-making in the public sphere—that constitutes the essence of political life. However, when AI deprives ordinary workers of the opportunity to engage in work and action, society risks entering a “society of no action.”

Addressing the dignity crisis triggered by AI substitution does not merely require preserving existing jobs, but rather redefining the institutional status of labour in technological societies. The labour-value reconstruction emphasised here is not an abstract “glorification of labour,” but a response to the current governance tendency that compresses labour into a replaceable cost factor. In a context where AI extensively intervenes in production and service processes, excluding workers

from technology design and deployment decisions renders their labour devoid of subjectivity and dignity, even if employment continues. Therefore, the core of labour-value reconstruction lies in restoring workers' institutional participation as relevant stakeholders in technological change, rather than merely maintaining employment numbers.

5.2 Institutional Innovation: Democratizing Technological Governance

The erosion of dignity caused by technological substitution is not solely due to job loss, but to the highly depoliticised nature of substitution decisions. Currently, AI deployment is often decided unilaterally by corporations or technical experts, with little opportunity for ordinary workers or the public to intervene. To address this structural issue, this study advocates introducing social impact assessment mechanisms for AI deployment. The purpose is not to restrict technological development, but to reintroduce normative considerations such as employment, dignity, and fairness into the technological decision-making process. Through institutionalised evaluation and public participation, technological substitution ceases to be a "fait accompli" and becomes a social choice that can be deliberated, amended, and constrained.

5.3 Educational and Cultural Transformation: From "Skills Competition" to "Meaning-Making"

In the context of AI substitution, the key function of education is no longer merely skills updating, but helping individuals maintain a sense of meaning and social connectedness under labour instability. Educational objectives should be reconstructed: shifting from "preparing for employment" to "preparing for life, emphasizing courses in philosophy, ethics, arts, and civic engagement to cultivate critical thinking and a sense of purpose. A "slow education" movement should be promoted, opposing "fast-track training" and credentialism, while advocating deep learning and lifelong growth. Public discourse should be reshaped: media should reduce alarmist narratives of "AI replacing humans" and increase coverage of human-machine collaboration and technology for good, cultivating a positive technological culture.

5.4 Exploring the Possibility of a "Post-Work Society"

The discussion of a post-work society does not negate the normative value of labour, but addresses the limitations of modern institutions that regard employment as the sole form of social participation. It explores alternative pathways to maintain individual dignity and social integration under conditions of high AI substitution. It should be clarified that the "labour" emphasised here is not equivalent to historical forms of waged employment. Rather, the critique targets the narrow understanding of labour as market exchange and efficiency metrics, while defending labour as an existential dimension of social participation, meaning-making, and self-realisation. In this sense, a post-work society does not imply the end of labour, but the need to repoliticize and expand employment-centred labour institutions.

Considering the structural unemployment potentially triggered by AI, discussions of a post-work society are not utopian, but a normative response to technological trends and their social consequences. To prevent technological substitution from further entrenching dignity in market positions, institutional arrangements must go beyond a single logic of income compensation. For example, in addition to Universal Basic Income (UBI), a social security framework centred on Universal Basic Services (UBS)—providing education, healthcare, housing, transportation, and cultural services—can reduce individuals' reliance on labour market fluctuations for survival.

At the same time, the social value of non-waged labour should be institutionally recognised and regulated. Establishing deliberable social contribution records and recognition mechanisms can render domestic care, volunteer service, and community participation publicly visible and symbolically rewarded. Moreover, the time potential released by technological advancement should be repoliticized: through reduced statutory working hours and flexible work arrangements, individuals can devote more time to education, civic affairs, cultural creation, and interpersonal connections. Thus, a post-work society does not signify the disappearance of labour, but a reconstruction of institutions oriented toward human development and communal life, aiming to create material conditions for eudaimonia—the flourishing of human life.

6. Conclusion

The substitution of ordinary occupations by artificial intelligence (AI) is often interpreted in mainstream narratives as an inevitable outcome of technological progress and efficiency gains. Through a normative philosophical analysis, this study argues that such an understanding overlooks the institutional choices and power structures underlying technological diffusion, rendering the substitution process naturalised and depoliticised. AI is not a neutral tool; its substitutive effects on ordinary

occupations are the result of socio-technical processes shaped by capital logic through specific technological designs and governance practices.

By drawing on Marx's theory of labour alienation, existentialist philosophy of technology, and the capability approach, this study reveals the multifaceted impacts of AI substitution on labour meaning, subjectivity, and social justice, highlighting that compressing labour into calculable and replaceable units constitutes one of the most significant normative risks in contemporary technological governance. Accordingly, the core issue is not whether technology replaces humans, but whether technology continues to serve human development and social connectedness.

On this basis, this study advocates for a reunderstanding of the existential value of labour centred on human dignity and social justice, and for a shift in technological governance from efficiency-driven approaches toward democratised and public-oriented practices. It should be emphasised that the institutional and ethical pathways proposed here are not ultimate solutions, but represent the minimum normative requirements for countering labour alienation and the erosion of dignity under current conditions of technological diffusion. True progress in the AI era does not lie in the scale of substitution, but in society's ability to retain collective judgment on what constitutes a dignified shared life amid ongoing technological evolution.

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