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LABOR RELATIONS IN THE AGE OF ARTIFICIAL INTELLIGENCE: AUTOMATION, WORKFORCE SUBSTITUTION, AND THE SOCIAL MEDIATIONS OF THE FUTURE OF WORK

RELAÇÕES DE TRABALHO NA ERA DA INTELIGÊNCIA ARTIFICIAL: AUTOMAÇÃO, SUBSTITUIÇÃO DA FORÇA DE TRABALHO E AS MEDIAÇÕES SOCIAIS DO FUTURO DO TRABALHO

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Abstract

This article examines the transformations in labor relations driven by the proliferation of artificial intelligence (AI) and the automation of bureaucratic, repetitive, and cognitively standardizable tasks. The study aims to critically analyze the impact of AI on occupations, skill requirements, social inequalities, and institutional responses, problematizing the deterministic thesis that technological progress inherently leads to either workforce emancipation or precarization. Methodologically structured as a theoretical-critical essay, this research employs a narrative literature review approach. The corpus, sourced from prominent academic databases, spans from the late twentieth century to 2025, with a specific focus on post-2023 publications concerning generative AI. As its primary analytical contribution, this paper proposes a framework of three articulated mediations—regulatory-legal, formative-educational, and redistributive-fiscal—synthesized in a heuristic chart. This framework evaluates the conditions under which AI can function as a shared societal resource rather than a mechanism for wealth concentration. The discussion is empirically grounded in the Brazilian context, utilizing official data from the Brazilian Institute of Geography and Statistics (IBGE) to contextualize labor informality, alongside intersecting gender and racial inequalities within the labor market. Ultimately, the article argues that the socioeconomic effects of AI are not driven by the technology in isolation, but rather by the social, legal, educational, and political mediations that govern its collective appropriation, particularly within the distinct structural constraints of semi-peripheral economies.

Keywords: Artificial intelligence, Automation, Labor relations, Universal basic income, Platformization.

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Resumo

Este artigo examina as transformações nas relações de trabalho impulsionadas pela expansão da inteligência artificial (IA) e pela automação de tarefas burocráticas, repetitivas e cognitivamente padronizáveis. O estudo tem como objetivo analisar criticamente o impacto da IA nas ocupações, nas exigências de qualificação, nas desigualdades sociais e nas respostas institucionais, problematizando a tese determinista de que o progresso tecnológico conduz inerentemente à emancipação ou à precarização da força de trabalho. Estruturada metodologicamente como um ensaio teórico-crítico, esta pesquisa emprega a abordagem de revisão narrativa da literatura. O corpus, oriundo de bases de dados acadêmicas amplamente reconhecidas, abrange o período do final do século XX até 2025, com foco específico nas publicações pós-2023 referentes à IA generativa. Como sua principal contribuição analítica, este trabalho propõe um modelo de três mediações articuladas — regulatório-jurídica, formativo-educacional e redistributivo-fiscal —, sintetizadas em um quadro heurístico. Esse modelo avalia as condições sob as quais a IA pode operar como um recurso social compartilhado, em vez de um mecanismo de concentração de riqueza. A discussão é fundamentada empiricamente no contexto brasileiro, utilizando dados oficiais do Instituto Brasileiro de Geografia e Estatística (IBGE) para contextualizar a informalidade laboral e o cruzamento das desigualdades de gênero e raça no mercado de trabalho. Por fim, o artigo argumenta que os efeitos socioeconômicos da IA não derivam da tecnologia isoladamente, mas sim das mediações sociais, jurídicas, educacionais e políticas que organizam a sua apropriação coletiva, com particularidades adicionais diante das restrições estruturais das economias semiperiféricas.

Palavras-chave: Inteligência artificial, Automação, Relações de trabalho, Renda básica universal, Plataformização.

INTRODUCTION

The relationship between work and technology constitutes one of the foundational axes of modern social experience. From the generalisation of factory labour in the nineteenth century to contemporary

digitalisation, transformations in the technical means of production have continuously reconfigured occupations, qualifications, working hours, contractual ties and the very meaning attributed to labour.

The recent advance of artificial intelligence, particularly machine learning systems and generative models, fits within this trajectory, although it presents specificities that warrant careful investigation. Unlike previous waves of mechanisation, contemporary automation reaches not only physical and repetitive tasks but also cognitive, decisional, analytical and symbolic activities, previously regarded as intrinsic to human intelligence.

The expansion of artificial intelligence into administrative, financial, legal, educational, accounting, commercial and customer-service environments has produced occupational reorganisations that combine partial task substitution, productive intensification, human-machine complementarity and the displacement of intermediate functions. Recent institutional studies, such as the International Labour Organization report on generative artificial intelligence (Gmyrek; Berg; Bescond, 2023) and the World Economic Forum's Future of Jobs Report 2025 (World Economic Forum, 2025), suggest that the dominant effect of these technologies tends to be the augmentation and transformation of tasks within existing occupations, rather than the wholesale replacement of jobs, with particularly pronounced impacts on administrative activities and on women's segments of the labour force.

These developments raise substantive debates about technological unemployment, professional requalification, work precarisation, algorithmic surveillance and the need for new forms of social protection, among which feature working-time reduction and universal basic income. In Brazil, these debates intersect with a labour market marked by structural informality, which in 2025 reached an annual rate of 38.1% (Instituto Brasileiro de Geografia e Estatística, 2026), and persistent gender and racial inequalities, dimensions that significantly alter the terms of the international discussion.

Against this background, the following research question is formulated: in what ways is the expansion of artificial intelligence and the automation of bureaucratic, repetitive and cognitive processes reconfiguring labour relations, and which social, educational, economic and political responses may be

necessary to confront the risks of workforce substitution, precarisation and widening inequalities? The aim of the article is to critically analyse these transformations, drawing on contributions from the sociology of labour, political economy and studies of technology and society. As an original analytical contribution, a scheme of three articulated mediations is proposed to understand the conditions under which technology may be appropriated as a shared resource or, conversely, operate as a factor of concentration and exclusion.

The discussion is organised in eleven sections. Following this introduction, the methodological path of the essay is presented. Subsequent sections address, in turn, the historical foundations of the relationship between labour, technology and capitalism; contemporary automation of cognitive processes; occupational reconfiguration; professional requalification; precarisation, platformisation and algorithmic surveillance; social and educational inequalities in the Brazilian context; universal basic income; and the three mediations that articulate an analytical model for the future of work. The final remarks restate the thesis that this future will depend less on technology itself than on the political, legal, economic and educational choices that organise its social appropriation.

METHODOLOGY

This study takes the form of a theoretical-critical essay developed as a narrative review of the literature, within the tradition of qualitative research in the applied social sciences. The choice of a narrative review, rather than a strict systematic review, is justified by the interdisciplinary nature of the problem, which articulates the sociology of labour, political economy, science and technology studies, public policy and contemporary social theory, dimensions whose synthesis requires critical interpretation and dialogue between theoretical traditions rather than bibliometric cataloguing alone.

The construction of the corpus followed three articulated selection criteria. The first is theoretical relevance, with priority given to seminal works recognised in the field, capable of providing historical and conceptual density to the analysis. The second is empirical timeliness, with the inclusion of contemporary

studies on generative artificial intelligence, cognitive automation and platform work published over the last fifteen years. The third is thematic pertinence, including works that directly address the dimensions examined here, namely task substitution, professional requalification, precarisation, algorithmic surveillance, social inequalities and basic income.

Data collection was conducted in the SciELO database, the Periódicos CAPES portal, Scopus and Google Scholar, complemented by direct consultation of the institutional websites of the International Labour Organization, the World Economic Forum, the Organisation for Economic Co-operation and Development, the Brazilian Institute of Geography and Statistics and the official portal of the European Union (EUR-Lex). Descriptors in Portuguese, English and Spanish were employed, combining terms related to artificial intelligence and work, automation and the labour market, platformisation, platform capitalism, algorithmic management, universal basic income, future of work and uberisation.

For the purposes of methodological transparency, the principal Boolean search strings employed in the international databases were the following:

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("artificial intelligence" OR "AI") AND ("labour" OR "labor" OR "work"
OR "employment")
("generative AI" OR "large language models") AND ("jobs" OR
"occupations" OR "automation")
("platform capitalism" OR "platform work" OR "gig economy") AND
("workers" OR "labour")
("algorithmic management" OR "algorithmic surveillance") AND ("work" OR
"platforms")
("universal basic income" OR "UBI") AND ("automation" OR "artificial
intelligence")
("future of work") AND ("technology" OR "artificial intelligence" OR
"automation")
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Equivalent strings in Portuguese and Spanish were applied in regional databases, combining terms such as inteligência artificial AND trabalho, automação AND emprego, uberização AND plataforma, and inteligencia artificial AND trabajo.

The temporal scope covers twentieth-century classics, indispensable for the historical-theoretical foundation, and post-2010 production, with particular attention to studies published from 2017 onwards, when the debate on occupational exposure to computerisation intensified (Frey; Osborne, 2017), and to institutional literature published after 2023, marked by the diffusion of large-scale generative models

(Gmyrek; Berg; Bescond, 2023; World Economic Forum, 2025). Relevant regulatory milestones were also incorporated, such as Directive (EU) 2024/2831 on digital platform work (União Europeia, 2024).

Inclusion criteria privileged publications in indexed journals, books by recognised academic publishers, technical reports by international organisations and official normative documents. Exclusion criteria removed materials without peer review, opinion pieces lacking theoretical grounding and sources whose reliability could not be verified. Approximately fifty publications were examined in preliminary reading, of which twenty-two were incorporated as central references following triage guided by the criteria described above.

The analysis proceeded through comparative and critical reading of the sources, identifying convergent and divergent analytical axes, articulating distinct theoretical traditions and putting competing theses into productive tension. The procedure prioritised interpretive paraphrase and dialogue between authors over descriptive juxtaposition.

Three principal limitations of the research design are acknowledged. First, because this is a narrative review rather than a systematic one, the study does not claim bibliometric exhaustiveness and may not have incorporated relevant works that a more formalised Boolean search in indexed databases would capture. Second, because this is a theoretical-critical essay, the article does not undertake primary empirical data collection or test hypotheses by statistical or fieldwork methods, restricting itself to conceptual analysis and interpretive articulation, with secondary use of official data. Third, the broad interdisciplinary focus entails a trade-off between analytical breadth and sectoral depth, such that each axis addressed comprises denser research agendas that exceed the scope of this article.

LABOUR, TECHNOLOGY AND CAPITALISM: HISTORICAL HORIZONS

Understanding contemporary transformations requires situating the relationship between labour and technology in its historical density. Marx (2013), in his analysis of machinery and large-scale industry, demonstrated that the introduction of machines into the production process did not merely alter

the technical form of labour but reorganised the social relations sustaining it, displacing workers, intensifying production, lengthening working hours and subordinating the labour force to the logic of capital valorisation. The question of technology, thus formulated, cannot be reduced to an instrumental dimension, since it is inscribed in arrangements of power, property and social conflict.

Polanyi's (2000) analysis, in turn, showed how the generalisation of the self-regulating market in the course of industrialisation required the treatment of human labour as a fictitious commodity, with disruptive social effects that triggered defensive institutional reactions. The history of modern societies is, in part, the history of the tension between the expansion of economic forces and the efforts to protect social life from that expansion. This reference remains useful for understanding why each technological wave generates demands for regulation, labour guarantees and collective mechanisms of protection.

Castel (1998), in the tradition of French sociology of labour, examined the constitution of wage labour as a structuring social condition and the metamorphoses of the social question associated with its destabilisation. The consolidation of typical salaried employment, with formal contractual ties, associated rights and predictable biographical horizons, made specific forms of protection and belonging possible. Its erosion, perceptible since the last quarter of the twentieth century through outsourcing, flexibilisation and new forms of contracting, created zones of vulnerability that predate the diffusion of artificial intelligence and that may be aggravated by it.

Arendt (2007), in a different register, distinguished labour, work and action as dimensions of the human condition, warning of the risks of a society organised around consumption and incessant labouring. Her discussion invites us to ask not only whether work will be available in the face of automation, but what meaning we attribute to free time, creation, political action and public coexistence in a society capable of releasing part of its labour force from repetitive tasks.

Harvey (1992) described the transition from Fordist accumulation to regimes of flexible accumulation, marked by productive decentralisation, outsourcing, technological intensification, capital mobility and the fragmentation of the working class. This background is decisive for understanding that

contemporary digital platforms and algorithmic systems do not represent an absolute rupture, but rather the radicalisation of trends already in motion.

Gorz (2003), finally, in examining the metamorphoses of labour, argued that the reduction of socially necessary labour time, resulting from gains in technical productivity, would open the possibility of reorganising collective life around other dimensions of existence. For the author, however, this possibility would depend on political choices and collective compacts capable of redistributing productivity gains, lest technology produce not emancipation but concentration and unemployment.

This body of contributions provides a conceptual backdrop for examining artificial intelligence without falling into determinisms. Technologies do not, by themselves, produce better or worse societies. Their effects depend on the social relations in which they are embedded, on the legal arrangements that frame them and on the political disputes that determine the distribution of their gains.

ARTIFICIAL INTELLIGENCE AND THE AUTOMATION OF COGNITIVE PROCESSES

Brynjolfsson and McAfee (2014) proposed the notion of a second machine age to characterise the historical moment in which digitalisation, networked computing and machine learning would considerably expand available technical capacities. Unlike previous waves, centred on mechanical force and speed, contemporary automation advances on analytical, classificatory, predictive and generative tasks involving text, image and code. This qualitative difference helps to explain why occupations once considered sheltered, by virtue of their intellectual content, have come to inhabit the horizon of potential automation.

Frey and Osborne (2017), in a widely discussed study, proposed a methodology to estimate the susceptibility of occupations to computerisation and suggested that a significant share of the United States labour market would be exposed to some degree of automation within two decades. Although the specific numerical estimates of the study have been questioned in later work, the methodological argument

concerning the importance of examining tasks rather than entire occupations has consolidated itself as a relevant analytical reference.

This perspective was developed by Autor (2015), who emphasised the need to distinguish routine tasks, susceptible to algorithmic codification, from non-routine tasks, which involve judgement, creativity, interpersonal interaction and adaptation to variable contexts. For the author, automation would tend to substitute tasks rather than whole occupations, recomposing the content of human work around activities less amenable to codification. This formulation helps to avoid catastrophist predictions while simultaneously alerting us to the magnitude of the ongoing reorganisation.

The recent emergence of generative models broadens this picture. Systems capable of producing extensive texts, translating documents, synthesising reports, drafting preliminary contracts, generating code, summarising literature and producing structured responses now reach cognitive activities that, only a few years ago, required specialised training. A study by the International Labour Organization (Gmyrek; Berg; Bescond, 2023) examined the global exposure of occupations to generative artificial intelligence, identifying clerical work as the group with the largest share of tasks highly exposed to the technology, with effects potentially concentrated in high- and upper-middle-income countries owing to the sectoral composition of employment. The authors caution, however, that the predominant effect tends to be the augmentation and transformation of tasks rather than the full automation of occupations, with a strong gender component given the weight of administrative work in women's employment.

The Future of Jobs Report 2025, published by the World Economic Forum on the basis of consultation with more than one thousand employers across 55 economies, points to a scenario of simultaneous reconfiguration: significant creation of new functions associated with emerging technologies, displacement of traditional functions and a sharp increase in demand for digital, analytical and socio-emotional competencies (World Economic Forum, 2025). The projected outlook mixes disruption and opportunity, with differentiated effects across sectors, regions and qualification levels.

Caution is nonetheless required to avoid premature conclusions. Cognitive automation is subject to technical, legal, ethical and reliability limits. Artificial intelligence systems can produce plausible but mistaken outputs in sensitive domains. Their application in fields such as health, justice, education and public administration depends on human mediations that ensure accountability, transparency and adequacy to the concrete case. Rather than linear substitution, one frequently observes a recomposition of workflows, with humans acting in the supervision, curation, correction and final decision regarding outputs generated by machines.

SUBSTITUTION, COMPLEMENTARITY AND OCCUPATIONAL RECONFIGURATION

Public discussion frequently frames the question of artificial intelligence in terms of the direct substitution of workers. The specialised literature, however, suggests a more complex picture. Acemoglu and Restrepo (2020), in a study of industrial robotisation in the United States, identified negative effects on employment and wages in regions more exposed to the introduction of robots, with magnitudes that varied and were mediated by sectoral characteristics. The result matters not only for its numerical findings but because it indicates that technology may operate unequally, affecting certain localities and occupations more intensely.

The reconfiguration observed cannot be reduced to the elimination of jobs. At least five analytically distinct movements deserve consideration. The first is partial task substitution within occupations that persist, with the redistribution of the content of human labour. The second is the creation of new functions linked to the operation, supervision and maintenance of the automated systems themselves, a trend highlighted by the World Economic Forum's projections for the period up to 2030 (World Economic Forum, 2025). The third is the disappearance of intermediate functions, particularly those of medium qualification that historically concentrated codifiable administrative and bureaucratic tasks. The fourth is the intensification of the pace of work for those who remain, often accompanied by

new cognitive demands. The fifth is occupational displacement, with workers migrating to less automated sectors, often under more precarious conditions.

These movements compose what part of the literature designates as labour market polarisation. Sectors and occupations at the upper end, marked by high qualifications, analytical capacity, creativity and people management, tend to benefit from productivity gains associated with artificial intelligence. At the lower end, occupations involving non-routine manual skills, direct contact with people, physical mobility and adaptation to variable environments also remain relatively sheltered, although frequently under low pay. Mid-spectrum occupations, sustained by codifiable and standardised tasks, are among the most exposed, with relevant consequences for workers who have historically accessed intermediate living conditions.

Given this picture, it is hazardous to assert categorically that artificial intelligence will cause mass unemployment or net job creation. Trajectories vary according to sectoral characteristics, firms' innovation capacity, regulatory choices, the formation of the labour force and macroeconomic dynamics. The sociologically decisive point is less the aggregate count of jobs than the redistribution of opportunities, risks and earnings, with differentiated impacts across territories, social groups and generations.

PROFESSIONAL REQUALIFICATION, ADAPTATION AND LIFELONG LEARNING

The response most frequently associated with the challenges of automation is professional requalification. It is reasonably argued that maintaining employability increasingly depends on the continuous updating of competencies, particularly in digital, analytical and relational domains. The notion of lifelong learning, consolidated in the international education and labour agenda, gains additional pertinence in a context of accelerated technological transformation. The Future of Jobs Report 2025 indicates, for instance, that the perception of skill gaps is identified by a large share of consulted

employers as the principal obstacle to organisational transformation in the coming decade (World Economic Forum, 2025).

A critical reading of this orientation is nonetheless necessary. The exclusive transfer of responsibility for adaptation to the individual worker ignores structural inequalities that constrain access to training. Available time, financial conditions, family support, digital infrastructure, the quality of previously received basic education, information networks and income security are factors that vary considerably across social groups. In societies marked by historical inequalities, such as Brazil, to assume that all displaced workers will be able to rebuild their trajectories through individual effort constitutes a socially unjust and analytically fragile expectation.

There are, moreover, limits proper to the supply of training itself. Adult formation in advanced technical areas requires time, resources and adequate pedagogical environments, and the cycles of competence obsolescence may be shorter than the time required for substantive requalification. There is also the question of actual employability. It is not enough to train workers if the occupations available in their region, age range or sector cannot absorb that new qualification at a compatible scale.

The incorporation of artificial intelligence systems into teaching and professional formation processes is itself an object of debate. A recent systematic review of the literature on artificial intelligence and the personalisation of teaching (Paixão, 2025) identifies relevant potentialities for the adaptation of training paths to individual needs, while also warning of ethical risks linked to data privacy, algorithmic transparency and the deepening of automated discrimination. The pertinent observation here is that the same technology that reorganises work also mediates the processes through which workers prepare to face its transformations, which makes the ethical regulation of educational artificial intelligence inseparable from the discussion of the future of work.

The discussion of requalification, therefore, needs to be shifted from the plane of individual responsibility to the plane of institutional arrangements. The state, firms, educational institutions and civil society organisations share responsibilities in the construction of training paths connected to

transformations in the world of work. Public financing policies, professional education models articulated with productive sectors, occupational transition programmes, mechanisms of income protection during training and regulation that prevents the use of requalification as a pretext for precarisation constitute complementary and inseparable dimensions of this agenda.

PRECARISATION, PLATFORMISATION AND ALGORITHMIC SURVEILLANCE

The analysis of labour relations in the age of artificial intelligence cannot be dissociated from the examination of digital platforms and algorithmic management systems. Srnicek (2017) characterised platform capitalism as a business model centred on the extraction, processing and monetisation of data, organised around digital infrastructures that connect users, workers, consumers and advertisers. This model produced relevant reorganisations in labour relations, particularly in transport, delivery, domestic services, digital freelancing and customer service.

Antunes (2018) examined what he calls the new service proletariat, marked by the combination of intensive use of digital technologies, fragile contractual ties, long working hours and variable earnings. The analysis sustains that digitalisation has not eliminated precarised wage labour but has reorganised it in forms that partly escape traditional regulatory frameworks. Workers formally classified as self-employed come to perform functions subordinated to algorithms, with time control, reputational assessment, automated sanctions and a narrow margin for collective bargaining.

In the Brazilian context, Abílio (2020) synthesised this process under the notion of uberização (uberisation), defined as a broader tendency towards the consolidation of a subordinated, available worker, deprived of rights, designated by the author as a just-in-time worker. The formulation has the merit of inscribing the phenomenon of platformisation within a longer trajectory of informalisation of Brazilian labour, avoiding its reduction to technological novelty and locating it in continuity with historical forms of national precarisation.

Zuboff (2020) offered a complementary key by discussing surveillance capitalism, in which the systematic collection of behavioural data feeds predictive models that both orient consumption and discipline labour. Algorithmic management, under this perspective, is not limited to operational efficiency but constitutes a form of informational power operating with structural asymmetries between those who collect, process and interpret data and those who are submitted to that processing. In the world of work, this translates into systems of permanent monitoring, opaque metrics, automated decisions on career and remuneration, and the weakening of traditional spaces of trade-union mediation.

Standing (2017) coined the notion of the precariat to describe a heterogeneous set of workers marked by contractual insecurity, by the absence of protections typical of salaried employment and by the loss of stable occupational identity. Without reducing the diversity of this group to a homogeneous class, the category offers a useful key for understanding contemporary displacements in modes of labour insertion, especially among young, urban and digitally connected segments.

Regulatory responses to these processes are beginning to take shape in specific jurisdictions. Directive (EU) 2024/2831, of the European Parliament and the Council, on improving working conditions in platform work, introduces a rebuttable legal presumption of an employment relationship when elements of direction and control are present, requires human oversight over algorithmic decisions relevant to workers, provides for rights of information, contestation and review of those decisions, and establishes specific obligations regarding the protection of workers' personal data on platforms (União Europeia, 2024). Although the Directive has restricted territorial scope and depends on transposition by Member States by December 2026, it documents the technical and legal feasibility of regulating dimensions that remain undefined in other jurisdictions and constitutes a reference for the Brazilian debate on the regulation of platform-mediated work.

These processes call into question the notion of autonomy frequently invoked to legitimise platformised arrangements. The formal autonomy of those who choose their hours, locations and rhythms of activity coexists with strong informational asymmetries, dependence on the platform for access to

demand and unilateral rules on disconnection or suspension. The distinction between substantive autonomy, grounded in economic, legal and organisational resources, and merely discursive autonomy is decisive for a critical analysis of current models.

SOCIAL, EDUCATIONAL AND TECHNOLOGICAL INEQUALITIES IN THE BRAZILIAN CONTEXT

The impacts of artificial intelligence on work do not affect all social groups in the same way. In historically unequal societies, technology tends to interact with existing stratifications, amplifying, reproducing or, in specific cases, mitigating asymmetries. In the Brazilian context, factors such as structurally elevated informality, educational inequality, regional asymmetries, low social protection in certain segments and disparities in digital access decisively condition the possibilities of absorbing technological transformations.

Data from the Continuous National Household Sample Survey, produced by the Brazilian Institute of Geography and Statistics, document the persistence of this picture. In 2025, the annual rate of informality in the Brazilian labour market was estimated at 38.1%, slightly down from the 39.0% registered in 2024 but remaining at an elevated level, with approximately 38.5 million workers in situations of informality in the quarter ending in January 2026 (Instituto Brasileiro de Geografia e Estatística, 2026). The contingent of own-account workers reached 26.1 million in the same year, configuring a heterogeneous labour market that does not fully match the assumptions of analyses elaborated in central economies.

The average schooling of the working population, although it has grown over recent decades, still presents relevant gaps in digital competencies and analytical command. Unequal basic education produces educational trajectories that limit access to occupations more resilient in the face of automation.

To this picture must be added gender and racial inequalities documented by official data. In the fourth quarter of 2024, the unemployment rate stood at 5.1% among men and 7.6% among women, and

reached 7.5% among Black people and 7.0% among mixed-race (pardos) people, against 4.9% among white people (Instituto Brasileiro de Geografia e Estatística, 2025). These asymmetries reveal that precarious insertion in the labour market is not neutrally distributed and tend to overlap with the additional pressures arising from artificial intelligence. It is worth underscoring that women's presence is concentrated in sectors with a strong bureaucratic and administrative component, precisely those identified as most exposed to generative artificial intelligence in international studies (Gmyrek; Berg; Bescond, 2023), which makes the combination of gender inequality and cognitive automation a specific point of concern for the Brazilian case.

Territorial asymmetries deserve specific attention. Regions with less diversified production, limited digital infrastructure and low density of research and technological training institutions face greater difficulties in integrating displaced workers into new activities. Paixão (2026) analysed the contemporary challenges of educational technologies in the Brazilian context through an articulation of pedagogical, political and social dimensions, demonstrating that the incorporation of digital technologies and artificial intelligence in schools and training institutions, far from producing automatic equalisation, tends to reproduce, in the absence of robust public policies, the pre-existing inequalities between networks, territories and social segments. This observation is relevant to the debate on labour relations because the educational and technological infrastructure available today conditions the possibilities of future insertion in a labour market reconfigured by artificial intelligence.

Informality, a structural feature of the Brazilian labour market, further complicates the picture. Informal and own-account workers, frequently without social-security coverage, without regular access to training programmes and without mechanisms of protection against loss of income, are among the most vulnerable to the ongoing transformations. Within this segment, ties to digital platforms and improvisation-based activities described by Abílio (2020) intertwine, in a trajectory that predates artificial intelligence and tends to be deepened by it. Public-policy responses must therefore consider not only the typical formal worker, but the effective heterogeneity of the world of work.

The combination of these dimensions suggests that artificial intelligence, in the absence of redistributive mediations, tends to operate as a mechanism of gain concentration. The benefits of technological productivity concentrate in firms with investment capacity, in highly qualified workers and in regions inserted into global innovation circuits, while the costs of adjustment fall disproportionately on already fragilised segments. Reversing this tendency requires conscious choices in education, work, taxation and social protection, with institutional translation adequate to the particularities of a semi-peripheral economy such as the Brazilian one.

UNIVERSAL BASIC INCOME AND NEW FORMS OF SOCIAL PROTECTION

In the face of the possibility of a structural reduction in the demand for human labour in certain sectors and the growth of precarised forms of labour insertion, universal basic income has gained ground in public and academic debate. Van Parijs and Vanderborght (2018) systematised the normative foundations and the possible variants of a proposal for an income paid to all individuals, on a regular basis, without conditionalities and without means testing. The defence rests on arguments of real freedom, human dignity, administrative simplicity and protection against insecurities associated with transforming labour markets.

The discussion, however, is the object of relevant controversies. There are divergences regarding the appropriate amount, the financing arrangements, the articulation with existing policies and the effects on labour supply. Critics point to the risk that basic income, if poorly calibrated, may replace public policies in education, health, housing and social security rather than complementing them.

The debate on fiscal viability is particularly relevant in semi-peripheral economies. For a genuinely universal, non-residual basic income, the budgetary challenge is considerable, and fiscal sustainability depends on tax reforms capable of progressively taxing income, wealth and inheritance, as well as of capturing part of the economic gains associated with automation and algorithmic concentration. Without such structural reforms, the proposal risks following one of two problematic trajectories: being

calibrated at levels so low that it fails to fulfil the intended redistributive function, or being financed at the expense of cuts to universalist public services, displacing the distributive conflict rather than confronting it. In either case, the material outcome for workers in the most vulnerable situations tends to be worse than the normative promise of the proposal would suggest.

In the Brazilian context, the trajectory of conditional cash-transfer programmes offers relevant experience for reflection. Although distinct from a universal basic income in the strict sense, these programmes have demonstrated capacity to reach populations, impact on poverty and stabilisation of consumption, while also exposing institutional and administrative limits. The debate on how to articulate these experiences with more ambitious income-protection proposals demands analytical care to avoid both idealisation and hasty rejection, and needs to dialogue with the specificity of a labour market in which a significant share of workers does not have regular social-security coverage or effective unemployment insurance.

Universal basic income, it bears reiterating, should not be treated as a simple or consensual solution. It is one alternative among several possible ones, and in much of the serious literature it is presented as a complement to, rather than a substitute for, other public policies. Proposals that articulate basic income with the taxation of large digital platforms and with regulation of data use seek, precisely, to redistribute part of the technological productivity gains in favour of the collectivity, without displacing the discussion into an exclusionary choice between income protection and public provision of goods and services.

Other forms of social protection deserve parallel attention. Unemployment insurance extended and modulated for intermittent trajectories, lifelong learning accounts, the strengthening of public health and social-security systems, regulation of platform-mediated work along the model proposed by Directive (EU) 2024/2831 (União Europeia, 2024), and the updating of rights related to personal-data protection compose an institutional repertoire necessary to confront contemporary transformations. None of these

measures resolves the set of problems in isolation. Their articulation, however, can produce a more resilient architecture in the face of present uncertainties.

THE FUTURE OF WORK: THREE MEDIATIONS FOR THE SOCIAL APPROPRIATION OF ARTIFICIAL INTELLIGENCE

In light of the discussions that precede, and as the original analytical contribution of this article, the debate on the future of work is proposed to be organised around the notion of three articulated mediations, without which technology tends to operate as an amplifier of pre-existing asymmetries, and through which it may be appropriated as a shared resource. This is an analytical scheme, not a closed normative prescription, whose function is to situate with greater precision what is at stake when policies for artificial intelligence in the world of work are discussed. Chart 1 synthesises these mediations, the problems they address, typical instruments and the risks arising from their absence.

Chart 1

Three articulated mediations for the social appropriation of artificial intelligence in the world of work

Mediation	Problem addressed	Possible instruments	Risk if absent
Regulatory-legal	Platformisation without rights; opacity of algorithmic decisions; erosion of the employment relationship.	Legal presumption of employment; human oversight over automated decisions; algorithmic transparency; personal-data protection; rights of information and contestation; strengthening of collective bargaining.	Silent erosion of salaried work and social rights; concentration of informational power in platforms.
Formative-educational	Accelerated obsolescence of competencies; formative gaps; unequal access to training.	Professional education articulated with productive sectors; publicly funded lifelong learning; occupational-transition programmes; income protection during training; ethical regulation of educational artificial intelligence.	Unjust individual responsibilisation; deepening of formative inequalities; requalification used as pretext for precarisation.
Redistributive-fiscal	Concentration of productivity gains;	Progressive taxation of income, wealth and inheritance; taxation of	Wealth concentration; widening of structural inequalities; precariousness

Mediation	Problem addressed	Possible instruments	Risk if absent
	absence of sharing of the benefits of automation.	automation gains and digital platforms; working-time reduction with maintenance of remuneration; basic income calibrated to national fiscal viability.	amplified despite aggregate productivity gains.

Source: Elaborated by the author (2026).

The first mediation is regulatory-legal. It encompasses the recognition of employment relationships in platformised arrangements, the presumption of an employment relationship in the presence of elements of direction and control, human oversight over algorithmic decisions of relevance, transparency regarding criteria of classification and assessment, rights of contestation and review, the protection of workers' personal data and the strengthening of collective bargaining. Directive (EU) 2024/2831 offers a concrete example of the technical and legal feasibility of this mediation (União Europeia, 2024), even if its effective transposition depends on political choices in each Member State. In jurisdictions where regulation remains insufficient, the absence of this mediation tends to produce, in practice, a regime of exception in which the rights typical of salaried employment are eroded without corresponding public deliberation.

The second mediation is formative-educational. It encompasses the construction of articulated training paths, publicly financed where necessary, accompanied by mechanisms of income protection during transition, and shielded against the use of requalification as a justification for precarisation. It also includes the ethical regulation of the use of artificial intelligence in educational processes themselves, a dimension in which systematic studies have identified both potentialities for the personalisation of teaching and risks associated with data privacy, algorithmic transparency and the reproduction of bias (Paixão, 2025). Responsibility for adaptation cannot be transferred integrally to the individual, lest redoubled injustice be produced in already unequal societies.

The third mediation is redistributive-fiscal. It comprises mechanisms of taxation of the productivity gains associated with automation, the possibility of reducing working hours while

maintaining the level of remuneration, the articulation of income-transfer programmes with universalist policies for health, education, social security and housing, and the debate on forms of basic income calibrated according to the fiscal viability and institutional context of each country (Van Parijs; Vanderborght, 2018). Without this mediation, the gains of artificial intelligence tend to concentrate in firms with investment capacity and in highly qualified workers, while the costs of adjustment fall on vulnerable segments.

These three mediations operate interdependently. Legal regulation without formative and redistributive support risks producing formal rights without material effectiveness. Training without redistributive protection and adequate regulation tends merely to reallocate the responsibility for precarious insertion. Redistribution without regulation and formation tends to lose potency over time, since it does not confront the root of the fragilisation of labour ties. The degree of effective articulation between these three mediations constitutes, on the hypothesis sustained here, the principal sociological predictor of the kind of future of work that each society will tend to produce.

In the Brazilian case, an additional dimension transverse to the three mediations deserves underscoring: the specificity of a semi-peripheral economy marked by structural informality exceeding one third of the labour force (Instituto Brasileiro de Geografia e Estatística, 2026), persistent regional inequalities and low social-security coverage in important segments of the labour market (Abílio, 2020; Antunes, 2018; Paixão, 2026). The mere transposition of models formulated in contexts of predominantly formal labour markets is insufficient. The productive appropriation of the three mediations requires, in Brazil, calibration to the labour market that actually exists, lest one produce policies that are elegant on the formal plane and inoperative on the social plane.

The discussion of the future of work thus approaches the question of new social compacts. The twentieth-century arrangements, built around stable salaried employment, the nuclear family as a unit of protection and the social state, were historically situated and partly eroded by subsequent transformations. Artificial intelligence and digitalisation amplify the urgency of reformulating these foundations, without

thereby implying the restoration of previous compacts or the abandonment of protective principles historically constructed. The task is, rather, to rethink the institutions that organise work, income and collective life in light of new technical and social conditions, sustained by the three mediations presented.

FINAL REMARKS

The analytical itinerary developed in this article has sought to sustain the position that artificial intelligence does not, by itself, determine either the emancipation or the disappearance of human labour. Its effects on labour relations depend on the social, legal, economic, educational and political mediations that organise its appropriation. In societies marked by historical inequalities, automation tends to operate as an amplifier of pre-existing asymmetries, unless confronted by conscious redistributive, regulatory and formative choices.

The reading proposed here departed from historical foundations of the relationship between labour, technology and capitalism, articulated the contemporary discussion of cognitive process automation, examined occupational reconfiguration in terms of tasks rather than entire jobs, problematised the limits of individualised requalification, analysed the processes of precarisation, platformisation and algorithmic surveillance, situated social and technological inequalities in the Brazilian context on the basis of official data, and considered universal basic income among the alternatives in dispute, with attention to the debate on fiscal viability in semi-peripheral economies.

The central analytical contribution of the article lies in the proposition of the three articulated mediations, regulatory-legal, formative-educational and redistributive-fiscal, synthesised in Chart 1. This scheme offers heuristic value in relation to the simple opposition between automation and employment, by shifting the focus to the institutional conditions that organise the social appropriation of technology. In particular, it makes explicit that each mediation in isolation is insufficient and that only their effective articulation can prevent artificial intelligence from operating as a mechanism of concentration. The application of the model to the Brazilian case highlights the need for calibration to the particularities of a

semi-peripheral economy, in which structural informality and gender and racial inequalities constitute explanatory variables that cannot be ignored.

Without claiming exhaustiveness, the argument sustained here is that the public debate on the future of work gains in analytical quality when it distances itself both from uncritical technological enthusiasm and from deterministic pessimism. Artificial intelligence raises real and relevant questions for contemporary societies, but its answers belong to the field of collective deliberation, democratic dispute and institutional elaboration. Recognising the centrality of politics is, perhaps, the necessary step for technological advance to be converted into a shared resource rather than into an additional factor of concentration and exclusion.

There are limits in the present article that point to paths for further work. Comparative empirical analyses across sectors, studies of specific regulatory experiences, qualitative investigations of the transformations in everyday work, detailed examinations of the interactions between artificial intelligence, gender, race and territory, and longitudinal assessments of the effects of recent European regulation on platform work constitute necessary agendas for a denser understanding of the phenomenon. In the Brazilian case, there is specific demand for studies that articulate the scheme of three mediations proposed here with empirical data on informality, schooling, platformisation and social-security coverage. The collaborative production of knowledge among researchers, workers, public institutions and civil-society organisations is, in this sense, an important condition for an informed intervention on a future that is still in dispute.

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