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ARTIGOS

Marx's theory of value: do Artificial Intelligences reconfigure or confirm capital's contradictions?

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Abstract: Is it possible to say that human labor will no longer be necessary and a fully automated capitalism will be able to advance? In this article, we will discuss the unbridled expansion of artificial intelligences from the perspective of capital's interests, highlighting the contradictions inherent in this process. We clarify that in order to understand the contradictions inherent in artificial intelligences today, it is essential to discuss the right to technological appropriation and the fallacies of digital inclusion policies. The discussion proposed here is based on the Marxian theory of value, which allows us to understand artificial intelligences as projects in dispute within capitalist society. We defend the adoption of the term artificial intelligences (in the plural) as a political definition that refutes homogenizing and deterministic visions of technology.

Keywords: Marxism. Artificial intelligence. Labor force. Emerging technologies.

A teoria do valor de Marx: as Inteligências Artificiais reconfiguram ou confirmam as contradições do capital?

Resumo: É possível afirmar que o trabalho humano não será mais necessário e um capitalismo totalmente automatizado poderá avançar? Neste artigo, discutiremos a difusão desenfreada das inteligências artificiais sob a perspectiva dos interesses do capital, destacando as contradições inerentes a este processo. Esclarecemos que para entender as contradições inerentes às inteligências artificiais hoje, é essencial discutir o direito à apropriação tecnológica e as falácias das políticas de inclusão digital. A discussão aqui proposta toma como fundamento a teoria do valor marxiana, que permite compreender as inteligências artificiais como projetos em disputa. Defendemos a adoção do termo inteligências artificiais (no plural) como uma definição política que refuta visões homogeneizantes e deterministas da tecnologia.

Palavras-chave: Marxismo. Inteligência artificial. Força de trabalho. Tecnologias emergentes.

Introduction

The interests of capital, in the context of technological advances, catapult us from time to time into supposed "revolutionary solutions" and often "hidden harms" to life in society. From writing to the steam engine, from the dissemination of books to radio, from TV to the internet... Each historical period brings its own technological devices, heralded by some as the definitive solution to all problems and by others as the end of humanity. Many of these devices remain in use for years, decades or even centuries, constantly being adapted to different interests.

When human beings humanize themselves, they do so collectively and through work, which becomes effective when they organize themselves and create the material conditions for survival. The process of transforming nature and oneself through work is full of meanings, meanings and techniques.

The human capacity to build a collective life comes about as a result of the techniques we develop in the process of constituting culture, as opposed to what is natural. Therefore, it comes from historical learning and not from biological heredity. A technical product is therefore social, the result of a network of techniques, of varying complexity, which guarantees us a certain plasticity in everyday life.

Human action on nature and on itself takes place through techniques, which can be objectified in technologies, whether visible or invisible, based on what has been projected into consciousness. Since modernity, with the so-called "modern reason", science has developed and allowed us to systematize knowledge about natural and social phenomena. Science and technology are processes of human life in society which, over time, have enabled ideological constructions about man, the world and society, which are full of disputes in different historical periods.

Policies for the inclusion of digital technologies in Brazilian education date back to the 1980s. They are linked to a globally structured agenda, based on guidelines and incentives from multilateral organizations. Digital inclusion via the school environment in our country is centered on the inequalities created by the diffusion of digital technologies in a society centered on the com-

modification of both the processing and transmission of information (Echalar, 2015). In understanding the contradictions that have arisen over artificial intelligence in contemporary times, it is worth highlighting the right to technological appropriation and the fallacy of digital inclusion policies.

In this article, we will focus on the discussion about the technology that has been generating buzz around the world, sometimes as a panacea, sometimes as a villain — the so-called "artificial intelligence". We will explain what underlies capital's investment in the rampant and widespread propagation or diffusion of this "panacea", highlighting — through problematizations — the contradictions that make up what has been enunciated and announced as "artificial intelligence".

Work and the contradictions of reality in the age artificial intelligences

In the Marxian discussion — which goes from production-distribution to exchange- circulation, as well as in the analysis of the production of relative surplus value — we recognize fundamental elements for understanding the current configuration of artificial intelligences as a synthesis of multiple determinations. This is in order to escape the instrumental and deterministic technocentric reading of technology.

A fundamental assumption is that — in capitalism — human workers are the only source of surplus value (Marx, 2011, 2017a). But is this assumption true for all technological configurations? What technological innovations are needed to produce machines capable of performing work from which surplus value can be extracted? Is there any argument to prove that surplus value could only be extracted from human labor, and not from the labor of machines? Could we consider a machine with exactly the same capabilities as a human being, as might be supposed when it comes to artificial intelligences, assuming that this machine is built and then employed by a capitalist? Since the machine, by definition, can do everything a human being can, why shouldn't the capitalist be able to extract the same amount of surplus labor from the machine as could be extracted from an equally talented human worker?

The questions proposed here require us to consider the particularities

of the way in which the conditions of existence are produced and reproduced in today's society. A generalized reading of society is ahistorical and tends to produce a technocentric explanation of the relationship between technology, the mode of production and education. In contrast, the so-called Marxist theory of value aims to explain the particular historical evolution of capitalism. Therefore, a starting point for this exercise is the commodity, the economic cell of capitalist society (Marx, 2011, 2017a).

The value of a commodity is the amount of direct and indirect labor needed to produce it. This value does not consider labor as a commodity in general, but as that which is at the origin of all exchange value. This is because, in order to create surplus value, a commodity must be a source of exchangeable value, a property specific to labor power. "By labor power or labor capacity we mean the complex *[Inbegriff*] of physical and mental capacities which exist in the corporeality [*Leiblichkeit*], in the living personality of a man and which he sets in motion whenever he produces use values of any kind" (Marx, 2017a, p. 242, *emphasis added*). Without capital, workers cannot produce or sell goods by their own means. Without the means of production, they are "free of everything" and are therefore forced to sell the only thing they can monetize — their labor power — in order to obtain the resources necessary for their subsistence.

Like all commodities, labor power has a value referring to the time of work socially necessary for its reproduction, a central element in understanding the value of commodities in the capitalist system, which refers to the average time required, under normal conditions of production and with the technical and productive level dominant in society, to produce a given commodity. During a certain period of his working day, the wage earner only reproduces the value of his labor power (the labor time socially necessary to reproduce it), producing the equivalent of what the capitalist paid to employ him (the price of labor). Beyond this period, the use of labor power gives rise to surplus labor. This period of unpaid activity for the employee is the source of surplus value. Surplus value arises from the consumption of labor power in the production process: the worker adds more labor in the course of the production process

than the labor embodied in the commodities needed to support that worker and his family. In other words, surplus value is what is appropriated by the capitalist, who has advanced the funds needed to set production in motion.[1]

The ratio between surplus value and the value of labor power, that is, between the value it creates and the value it costs the capitalist, is the rate of surplus value, or rate of exploitation. The rate of exploitation can be increased in two non-exclusive ways: by increasing the length of the working day, which generates absolute surplus value, or by decreasing the value of the workforce, which generates relative surplus value. In fact, if a productivity gain reduces the socially necessary working time (from eight to seven hours) to a constant real working time, then surplus value increases without any extension of the working day.

The reproduction and accumulation of capital are the pillars of capitalist society, sustained by the circulation of capital and the extraction of surplus value**.** This dynamic is marked by the incessant acceleration of business and the exploitation of the workforce**.** As capitalist accumulation depends on the realization of surplus value**,** capitalists constantly seek to maximize their profits through:

- increased exploitation by extending the working day or intensifying the pace of production; and
- technological innovation, implementing machines and methods that increase productivity and speed up the circulation of capital.

In this way, the search for greater efficiency and speed not only increases the extraction of surplus value, but also reinforces the domination of capital over labor, maintaining the logic of accumulation.

From the consideration that capitalism is a particular mode of appropriation of surplus or surplus value, it follows that only labor creates value (Antunes, 2009, 2018; Harvey, 2022, 2016). Machines and raw materials, which are themselves the product of previous work, can only transmit their value, increasing the productive power of labor.

1. If the worker produces in eight hours as much wealth (production) as he would need to live (necessary working time) and the capitalist pays him the subsistence wage by employing him for ten hours (real working time), then the worker has worked for the capitalist for two unpaid hours: this is surplus labor (or surplus value).

The productivity of technology is measured by the proportion in which it replaces labor power. "Like any other component of constant capital,[2] machinery creates no value, but transfers its own value to the product for whose production it serves" (Marx, 2017a, p. 460). For the adoption of a certain technology to be profitable, the labor objectified in/by the technology must be less than the living labor[3] that it replaces. This is because the capitalist is not simply looking for less work, but more unpaid work (surplus value). Even with the increase in productivity (which reduces the total labor required), what matters to capital is that the worker produces more value than he receives in wages**.** In other words, profit does not arise from reducing the total amount of labor used**,** but from reducing the amount of work actually paid for.

The claim that machinery is a source of value and even surplus value is based on an acceptance of the appearances, or "facts", of the capitalist economy. The first of these is the obvious point that machines create additional use values and increase labor productivity. But the claim that this gives rise to surplus value is based on a confusion between use value and exchange value. The production of material wealth and the production of surplus value and profit are not the same thing. If it is possible to produce more in a given period of time, the use values, the material wealth, will have increased, but the exchange value of each commodity will have decreased, because it now incorporates less labor time (Antunes, 2009, 2018).

Another source of illusions is that, for the company, the introduction of new machinery actually generates higher profits. If a company introduces new machinery that eliminates labor from the production process, increases labor productivity and therefore reduces production costs, it can increase its individual profit. One of the main arguments for this defense is that it is not possible for labor to be the only source of surplus value and profit, when clearly machines, which replace labor, have produced additional profits (Negri, Hardt, 2021; Rifkin, 2021).

2. Constant capital is "[...] that part of capital which is converted into means of production, i.e. raw materials, auxiliary materials and means of labor, and does not change its magnitude of value in the process of production" (Marx, 2017a, p. 286).

3. Living labor refers to labor power in productive exercise, as opposed to dead labor or objectified labor, crystallized in machines, tools and raw materials). It is from living labor that capital extracts surplus value. Through dead labor, capital cannot expand (Marx, 2011; Marx, 2017a).

Marx does not start from a concept or category, but from an objective social process, the exchange of commodities. "If, then, we disregard the use value of commodities, they have only one common property, that of being products of labor" (Marx, 2017a, p. 45). What manifests itself in the social process of exchange is the value of the commodity as a product, not of the specific type of labor that was used in its production but the amount of human labor in the abstract, general human labor, that it embodies. The magnitude of this value is measured by the quantity of the value-creating substance, labor, measured by time. While general labor is expressed in exchange value, concrete labor affects the qualities of the commodity, i.e. its use value.

The capitalist must be able to find a commodity in the sphere of circulation whose use value, realized in the process of consumption, is such that it has the property of being a source of value. This commodity is labor power, the ability to work, which the worker sells to the capitalist. Its use value is realized in the production process itself. During part of the working day, the worker reproduces the value of his labor power. For the rest of the working day, he adds additional value, or surplus value, which belongs to the capitalist as the buyer of the commodity labor power.

Consumption of the commodity labor power takes place in the production process where labor works on machines and transforms the raw material (means of production) that has been bought by the capitalist. The value embodied in these means of production is preserved in the final commodity.

To understand what is happening, it is necessary to go beyond the immediate forms of appearance and see what is happening behind the scenes of the capitalist enterprise. The introduction of machinery can lead to an increase in the accumulation of surplus value, but it doesn't produce value. The machine itself does not add any new value, it passes on the value embodied in it. We are thus underlining the fact that machinery does not add any additional value to the commodity.

The introduction of the machine will lead to an increase in the rate of extraction of surplus value, insofar as it increases productivity and reduces the time it takes the worker to reproduce the value of his own labor power, thus

increasing the time he spends doing unpaid work for the capitalist. It is this process that gives rise to the illusion that the machine is the source of additional surplus value!

More productive machines make it possible to manufacture more products in the same amount of time, but their value (production cost) is diluted among a greater number of items. So, although the machine as a whole has a fixed value, each unit produced incorporates a smaller fraction of that value. So, the higher the productivity of a technology, the less value it transfers individually to each good produced:

> [...] the development of mechanized production fixes an ever-increasing share of capital in a form in which it, on the one hand, can be continuously valorized and, on the other, loses use-value and exchange-value as soon as its contact with living labor is interrupted (Marx, 2017a, p. 478).

We can understand the double effect of the appropriation of technologies by the production process on the generation of relative surplus value: (i) a reduction in the cost of reproducing the workforce, because by making basic consumer goods cheaper, it reduces the value needed to produce and reproduce the worker's conditions of existence. By depreciating the cost of wages, paying less for labor power, it increases the unpaid portion of the working day and, consequently, the surplus value; (ii) increasing productivity and reducing the individual value of goods.

> The machine produces relative surplus value not only by directly devaluing labor power and indirectly cheapening the latter through the cheapening of the commodities that enter into its reproduction, but also because, in its first sporadic application, it transforms the labor employed by the owner of the machines into potentiated labor, raises the social value of the machine's product above its individual value and thus enables the capitalist to replace the daily value of labor power with a smaller share of the daily product value (Marx, 2017a, p. 479).

This leads to the intensification of the exploitation of labor and the constant devaluation of the workforce. This dynamic shows that, under capitalism, technical progress deepens the subsumption of labor to capital. This

dynamic, however, has its limits. When the machine becomes dominant, the social value of the commodity falls because the socially necessary working time decreases. This reduces surplus value, which pushes capital to intensify exploitation by extending the working day or pace of work or laying off workers, generating crises of overproduction and unemployment. This leads to the contradiction inherent in the process of using technology to produce surplus value:

> If, therefore, the capitalist use of machinery creates, on the one hand, new and powerful motives for the unbridled extension of the working day, revolutionizing both the mode of work and the character of the social body of work and thus breaking down resistance to this tendency, it produces, on the other hand, partly by recruiting to capital layers of the working class that were previously inaccessible to it, partly by releasing the workers replaced by the machine, a redundant working population, forced to accept the law dictated by capital. Hence this remarkable phenomenon in the history of modern industry, namely that the machine breaks down all moral and natural barriers to the working day. Hence the economic paradox that the most powerful means of shortening the working day becomes the infallible means of transforming the entire life of the worker and his family into working time available for the valorization of capital (Marx, 2017a, p. 480).

In other words, under capitalism, technology is not neutral; it is an instrument for extracting surplus value. The increase in productivity and the acceleration of accumulation through the expansion of surplus value represent an intensification of worker exploitation and the precariousness of work through unemployment, informality and the loss of rights. A relationship of domination is consolidated when the demands of capital appreciation transform the means of production (machines, technology, work organization) into instruments of control over the working class. In this way, capitalist development, by subjecting living labor to the rationality of capital, turns technical progress into a weapon against the working class, revealing the antagonistic nature of this mode of production.

What would be the value of human labor in a world with artificial neural networks, machine learning, service automation or artificial intelligence? For the capitalist, profit seems to derive from the growth of production and

the development of technology in general. If it is possible to produce more with a given investment than the initial value of that investment, then profit is made, confirming the simple equation of income minus expenses. The growth of productive forces and the process of capital accumulation are considered identical. Therefore, at first glance, the claim that profit comes only from human labor may seem untenable. As machines become more powerful and subtler, and now even seem to possess a spark of intelligence, capitalist society becomes more confident that they must be a much greater source of wealth and profit. Soon, capitalists and their ideologues may suppose, human labor will no longer be necessary and a fully automated capitalism can move in!

But the equation is not so simple, involving complex relationships that are established in the circuit of production and social exchange. No matter how sophisticated the algorithms that reproduce or represent the circuit of social production and exchange, capturing and manipulating sensitive social data, they don't change the fact that the capitalist who owns the so-called intelligent machines, equipment and systems does not produce use value but only exchange value. Machines, systems and algorithms can only be a source of profit insofar as they produce exchange value and, in this sense, can be treated as constant capital, since they are themselves commodities subject to competitive markets.

It is therefore necessary to clarify the role of human beings in capitalist production and the objective origins of profit. There is a fundamental difference between profit and productivity. An increase in the productivity of a section of capital can be accompanied by a decrease in profit, for example, if it coincides with an increase in wages. The basic question is what determines the share of the social product that is appropriated as profit. There is no way to determine this by treating production as a fixed amount — as if each capitalist were trying to get more output from fewer inputs, regardless of the rest of the market — but only by considering the entire circuit of capital. Value is a social relation that originates from the process of commodity exchange (Marx, 2017a).

The development of the productive forces through technical innovation is mainly due to the application of science outside the production process itself, and not by the workers. Thus, it is not human labor in general that is the

source of profit; the source of profit in capitalism is wage labor. The interest is not in tracing the total amount of use values that can be produced over time, but in explaining the social forces that drive the historical development of capitalism as a mode of production. The driving force of capitalism is not the production of wealth in general, but of private profit, not the production of use values (the value of a commodity for a user), but of exchange values (how much it is worth on the market in terms of other commodities).

Therefore, technologies, no matter how advanced, cannot be a source of profit, not because they lack power, but because they themselves are commodities on the capitalist market.

The capitalist, by his control of the means of production, appropriates the profits and the working class, meanwhile, lives on wages that are brought down to subsistence levels by the market; therefore, no matter how much technology advances, no matter how much wealth humanity accumulates, the working class does not share in the profits. Instead, they are increasingly sidelined and subordinated to a growing mass of machines and a prominent database of data, algorithms, intelligences or neural networks. The further the capitalist system advances, the more obvious the contradiction becomes between the enormous surplus that can be produced on the one hand and the inability to satisfy human needs on the other. This will be evident to the working class and will become more evident as the process of developing digital technologies gains speed.

For these reasons, financial resources have been invested in implementing artificial intelligence in practically every sector of the economy. Capitalists are betting big that these technologies will allow them to drastically cut costs by replacing jobs or laying off workers (Antunes; Filgueiras, 2020; Morozov, 2018; Rocha Filho; Silveira, 2024; Zuboff, 2020). This results in both the precariousness of work and the radicalization of workers with a view to intensifying the class struggle).

The widespread automation of the economy undermines the very foundations of the system. For when production almost completely does without human labor — the exclusive source of surplus value — the rate of profit

collapses, showing the historical limit of the capitalist mode of production. In this way, artificial intelligences, far from being a solution, are the ultimate expression of the internal contradictions that are leading the system to yet another structural crisis.[4]

> A development of the productive forces that reduced the absolute number of workers, i.e. that, in fact, enabled the entire nation to carry out its total production in a shorter period of time, would provoke a revolution, because it would put most of the population out of work. In this is manifested once again the specific limitation of capitalist production and the fact that it is by no means an absolute form for the development of the productive forces and the generation of wealth, but a form which, on the contrary, as soon as it reaches a certain point, comes into collision with this development (Marx, 2017b, p. 303).

To overcome capitalism in crisis and technological slavery, the working class will have to wrest automated industry from the hands of capital and put it to work as the collective property of humanity, to be democratically owned and managed. We'll discuss the concept a little more below.

Artificial intelligences: the plural as a critical weapon?

Artificial intelligences are used for different purposes in our daily lives:

- The so-called recommendation algorithms, such as Meta (formerly Facebook), Instagram or TikTok, are used for entertainment and sales. Apparently, they "guess" the user's taste in order to keep them browsing the networks. They are programmed to check the number of likes and viewing time in order to make a prediction about what will "hook" them most on the digital networks. In this way, they induce which videos, posts and ads will be shown to each user on the networks, maximizing their time on the platform and selling ads.

- The so-called generative chatbots, such as ChatGPT, Gemini, Copilot or DeepSeek, prioritize forms of communication. They appear to "imitate" human conversations, writing texts and answering questions. They are programmed to respond to commands proposed by the user (summarizing a text, answer-

4. The crises of overproduction, already addressed by Marx (2017a, 2017b) are confirmed in structural crises of capitalism. This theme can be further explored in Antunes (2011), Harvey (2011, 2016), Hobsbawm (2017), among others.

ing questions, accessing information, presenting recipes, for example) based on access to gigantic databases, from which they identify patterns.

- Industrial automation systems, such as robots in car factories or temperature control systems (which adjust the temperature in ovens or cold rooms, for example). They are proposed as systems that replace manual labor with programmed machines. They use sensors and programming to assemble cars or package products, controlling machines to perform repetitive tasks. This makes it possible to increase speed and reduce costs in production.

We have listed particular formal conditions that aim to be operationalized in terms of apparatuses, forms, products and processes within the repertoire of artificial intelligences. They would be like fractions that, taken as isolated parts of a whole, induce a Manichean categorization that labels them as good or bad for humanity, as positive or negative for the economy and education....

In line with this perspective, there are products such as educational platforms and tools for writing academic and literary texts, producing images or applications for correcting tests. This offer is augmented in due course by training in the extraction of patterns for scientific or marketing research, plagiarism detection, automatic discourse analysis or the coding of interviews in qualitative data, for example.

Some subterfuges may give the impression that there are initiatives that look at the phenomenon in greater depth and breadth, such as those that discuss ethics, surveillance and data control. Although these aspects add up to a broader understanding of artificial intelligences, in order to approach a totality, they need to be articulated with the more apparent data and the set of determinations identified needs to be considered in the contradictory context of contemporary capitalism in its material and objective conditions.

As a conjunctural aspect that determines and conditions the appropriation of artificial intelligences, we must also consider the thousands of Brazilians and citizens of the world who are totally cut off from the daily life of this technology, due to complete social and geographical exclusion. There are places on the planet that do not have access to digital technologies and a large

part of the population whose economic and intellectual conditions hinder their appropriation.

According to data from the Iberdrola Group (2025), in 2024, no continent has 100% of its population with internet access, neither North America nor Northern Europe. North Africa, for example, guarantees internet access to more than 50% of its population, while countries in South America, Oceania and Central America have more than 70% of their population with internet access. Many are excluded, even though the discourse being sold is that the internet is everywhere and available to everyone.

The vast majority of our population is excluded or precariously included. However, everyone is paying the price for the development of this logic in the world, due to speculative and international capital that places democracies and sovereignties on a dangerous threshold.

The so-called "artificial intelligences" are neither unique nor viable in themselves. They are designed and planned by human beings to be developed by machines, programmed and controlled on a daily basis by human beings in order to identify and construct patterns from a vast amount of data. Artificial intelligences aim to emulate the human capacity to identify and create patterns of similarities as well as differences. To do this, they need large amounts of data on a daily basis.

Artificial intelligence does not reduce inequalities, nor does it address the daily problems of survival faced by a large part of the world's population. They even deepen inequalities by creating the false impression that they understand us and are capable of solving social problems when, in fact, their production and appropriation guarantee the reproduction of the conditions that generate inequalities. The system of artificial intelligences is totally dependent on human beings in the process of maintaining the data centers, in the polishing of the data to be standardized, in the improvement of the data collection and processing process.

Thus, the adoption of the term artificial intelligences (in the plural) is not a mere stylistic resource, but a theoretical and political choice that refutes homogenizing and deterministic visions of technology.

We know that using the term in the plural doesn't solve the problems caused by human intentions in using AI as a standardization and control mechanism to increase consumption, and it is necessary to problematize it in order to guarantee the contradiction in reality. This is because we believe that artificial intelligences are a synthesis of multiple social determinations (Marx, 2011). Like technologies in general, they are not neutral artifacts, but a material expression of the social relations of production (Peixoto, 2022). As such, they are plural in their genesis, resulting from different projects for society, with conflicting objectives and being appropriated unequally.

For example, the development of rural extension experiences in China through mechanization and the use of artificial intelligence applied to small-scale production (MST, 2025). Or the creation, by the Movement of Homeless Workers (MST), of the platform *Contrate Quem Luta* (CQL), which registers professionals from various fields. Through this app, potential clients submit details about the service they want and are directed to a professional (Aguiar, 2023). In contrast, the rural caucus of the Brazilian National Congress used artificial intelligence to attack the autonomy of the Landless Workers' Movement (MST). They used it to access reports produced by the Brazilian Intelligence Agency (Abin) on the actions of this movement, in order to access data and seek to prove the thesis that the movement would generate legal uncertainty (Freitas, 2025).

The presentation of artificial intelligence as a unique entity (in the singular), autonomous form, as if its development were inevitable and not the result of political choices, naturalizes capitalism and reiterates the technocentric discourse (Peixoto, 2022; Vieira Pinto, 2025). Treating systems like ChatGPT or robots as part of a single, natural phenomenon hides the distinct social functions inherent to them.

Thus, the plural is a strategy to highlight the different appropriation of artificial intelligences by different social classes, serving antagonistic interests. Likewise, their meaning changes depending on who controls them and the historical context in which they are applied.

We therefore propose artificial intelligences as a provocation, with the aim of highlighting that their appropriation by different social classes allows

antagonistic interests to be achieved. Talking about artificial intelligences allows us to demystify the idea of a unified and omnipotent "artificial intelligence", politicizing the debate to show that they refer to projects in dispute, so that their direction depends on the class struggle.

In any case, you don't need to project yourself into some imaginary time in the future to see the profound influence of technologies on the development of capitalism. Instead, it's enough to examine the entire history of capitalist industrialization, which involved the continuous replacement of human beings by machines in the production process.

With the introduction of digital technologies at the heart of all production processes over the last 20 years, there has been a huge increase in labor productivity. However, this has not led to a sharp increase in profit rates. The increased exploitation of labor brought some increase in profit rates during the 1990s. But they are still well below the levels of the 1960s, in the midst of the post-war boom.

Thus, although they are determined by the mode of production, artificial intelligences express the contradiction present in reality in their production, appropriation and effects. Artificial intelligences intensify exploitation, through the platformization of education or the uberization of work in general. They can also be appropriated by social movements such as the MST and MTST, not as a source of profit, but to democratize access work and strengthen solidarity networks.

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