On Digital Colonialism

Data, algorithms and technological coloniality of power in the global south

Sobre el colonialismo digital

Datos, algoritmos y colonialidad tecnológica del poder en el sur global[1]

Sobre o colonialismo digital

Dados, algoritmos e colonialidade tecnológica do poder no sul global

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ABSTRACT

During the last decade, a series of structural transformations of capitalism converged in the accelerated expansion of digital technologies and have revealed a reconfiguration of different colonial dimensions that operate at a global level, both inside and outside virtual spaces. The article delves into some of the main characteristics of this new technological disposition of colonial power at a planetary level. First of all, we examine the central role of the extractivism of massive data (Big Data) and the increasing development of markets for artificial intelligence in the Big Tech driven regime of capitalist accumulation. Secondly, we identify the central elements that cross the discussion around the so-called *digital colonialism* and we analyze the *coloniality of power* expressed in the technological assemblies of informational capitalism. Finally, we will review some of the main critical strategies that recover the gaze of decolonial thought to face the capitalist regime of data accumulation and its applications based on artificial intelligence. We will conclude that the critical analysis of digital colonialism does not point to a simple rejection of new technologies, but rather to a decolonization of the knowledge economy and the scientific development implemented by Big Tech.

KEYWORDS: *digital colonialism, algorithms, artificial intelligence, coloniality of power.*

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RESUMEN

Durante la última década, varias transformaciones estructurales del capitalismo convergen en la acelerada expansión de las tecnologías digitales y han puesto de manifiesto una reconfiguración de diferentes dimensiones coloniales que operan a nivel global, tanto dentro como fuera de los espacios virtuales. El artículo profundiza en algunas de las principales características de esta nueva disposición tecnológica del poder colonial a nivel planetario. En primer lugar, examinamos la función central del extractivismo de datos masivos (*Big Data*) y el creciente desarrollo de mercados para la inteligencia artificial en el régimen de acumulación capitalista impulsado por las *Big Tech*. En segundo lugar, identificamos los elementos centrales que atraviesan la discusión en torno al llamado *colonialismo digital* y analizamos la *colonialidad del poder* expresada en los ensamblajes tecnológicos del capitalismo informacional. Finalmente, revisaremos algunas de las principales estrategias críticas que recuperan la mirada del pensamiento decolonial para hacer frente al régimen capitalista de acumulación de datos y sus aplicaciones basadas en inteligencia artificial. Concluiremos que el análisis crítico del colonialismo digital no apunta a un simple rechazo de las nuevas tecnologías, sino más bien a una descolonización de la economía del conocimiento y el desarrollo científico implantada por las *Big Tech*.

PALABRAS CLAVE: *colonialismo digital, algoritmos, inteligencia artificial, colonialidad del poder.*

RESUMO

Durante a última década, uma série de transformações estruturais do capitalismo convergem na expansão acelerada das tecnologias digitais e têm revelado uma reconfiguração de diferentes dimensões coloniais que operam a nível global, tanto dentro quanto fora dos espaços virtuais. O artigo aprofunda algumas das principais características desta nova disposição tecnológica do poder colonial a nível planetário. Em primeiro lugar, examinamos o papel central do extrativismo de dados massivos (*Big Data*) e o crescente desenvolvimento de mercados para a inteligência artificial no regime de acumulação capitalista impulsionado pelas *Big Tech*. Em segundo lugar, identificamos os elementos centrais que atravessam a discussão em torno do chamado *colonialismo digital* e analisamos a *colonialidade do poder* expressa nas montagens tecnológicas do capitalismo informacional. Por fim, revisaremos algumas das principais estratégias críticas que recuperam o olhar do pensamento decolonial para enfrentar o regime capitalista de acumulação de dados e suas aplicações baseadas em inteligência artificial. Concluiremos que a análise crítica do colonialismo digital não aponta para uma simples rejeição às novas tecnologias, mas sim para uma descolonização da economia do conhecimento e desenvolvimento científico implementada pelas *Big Tech*.

PALAVRAS-CHAVE: *colonialismo digital, algoritmos, inteligência artificial, colonialidade do poder.*

1. INTRODUCTION

Colonialism has always had a fundamental technological dimension since, in order for the former imperial powers of the West to expand around the world, they needed to resort to various types of technological innovations – especially the development of lethal weapons to consolidate their dominance in conquered territories, and the development of modern maritime and land transport systems to capitalize on the extraction and transfer of natural resources (Headrik, 1989)–. At the beginning of the XXI century, when certain currents of critical thought presumed that colonialism would be a question of the past or without relevance to understanding our present (Dirlik, 2005; Sousa Santos, 2018), the vertiginous expansion of the digital technologies designed, monopolized and promoted by large American corporations (among them, Alphabet or Google, Apple, Meta, Amazon, IBM and Microsoft), and by Chinese companies (Baidu, Alibaba & Tencent), seem to have inaugurated a new type of world economic order that extends without major counterweights over the different regions of the planet, outlining new colonial forms.

Between 2000 and 2021, most of these companies have reached the top positions in terms of stock market capitalization worldwide, displacing from that position the traditional raw materials exploitation companies (Exxon Mobil, General Electrics, among others) that propelled the "old" industrial capitalism for a good part of the XX century (Da Silva & Núñez, 2021). In this way, it could be said that large High Tech corporations, also known as Big Tech companies, have rapidly become the spearhead of the "new" capitalism of the XXI century. The accelerated growth of these transnational companies has gone hand in hand with the exponential development of digital technologies, but also with their high investment after the financial crisis of 2008 and, more recently, with the rapid advance of the digitalization of societies promoted by the COVID-19 pandemic, which meant a large increase in their market value –in 2020, Big Tech reached almost 25% of the total capitalization of the Standard & Poor's 500 index, one of the most important in the United States (Birch, Cochrane & Ward, 2021; Birch & Bronson, 2022)–. At the same time, the unchecked economic success of Big Tech has led to a stealthy increase in its dominance over contemporary societies through the formation and regulation of the various digital ecosystems on the Internet, which today encompass virtually all productive, service and telecommunications sectors in the world. The unstoppable expansion of the digital economy is manifesting itself in areas as diverse as logistics, security systems, human resource management, education, medical services, entertainment, banking services, energy use and transportation systems, among many others. In other words, these companies are the ones that today grant and control the digital infrastructure on which we develop most of our activities and social relationships, and thus carry out an unprecedented

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process of *commodification* of everyday life. In this scenario, we must ask ourselves: How can we understand the colonization of digital territories carried out by Big Tech? What kind of colonial power seems to be taking shape through the expansion of these new technological frameworks worldwide?

2. DATA EXTRACTION: THE ENGINE OF CURRENT CAPITALISM

Several recent analyses agree that we are witnessing an intensification of the capitalist accumulation and exploitation regime, now led by Big Tech, since it is precisely these companies that are the promoters and those responsible for the development of multiple devices for the extraction and profit-making of a new type of raw material: the data generated by the activity of its millions of users worldwide (Morozov, 2018; Srnicek, 2018; Couldry & Mejias, 2019; Zuboff, 2021; Durand 2021; Birch, Cochrane & Ward, 2021; Birch & Bronson 2022). In fact, every time we connect to the Internet, interact on social networks, use our mobile phones, pay for a purchase with a credit card or simply use any device with digital sensors connected to the web, we are generating information that is stored and processed by different entities and transnational companies, in real time. In this way, an increasingly important part of our daily activities is digitalized and converted into data that supplies the valorization circuits of the new mode of capitalist accumulation.

The huge amount of data generated today can be measured, to some extent, if we consider that at the beginning of 2022 there were around 4.95 billion Internet users worldwide, that is, around 62.5% of the world's population. In addition, these almost two-thirds of humanity use the various digital services of the global network for an average of approximately seven hours per day (Hall, 2022). According to estimates by the telecommunications company Cisco Systems (CISCO), while in 2000 global Internet data traffic could be measured at 100 gigabytes per second, projections for 2022 indicated an increase in this data traffic to 150,000 gigabytes per second (i.e. 150 terabytes), which would also translate into an average monthly data traffic per person of 50 gigabytes by 2022 (CISCO, 2019). This leap in scale of data actively produced by millions of users in our digital environments is known as Big Data, a concept popularized in the late 1990s and later defined in 2001 by computer analyst Doug Laney based on three fundamental dimensions, known as the 3-V: the *volume* or growing amount of data stored, the *speed* with which this data is created, processed and analyzed, and finally, the *variety* of its sources of origin, files and types of data (Caballero & Martín, 2015).

However, it should be noted that the data generated by the different activities and interactions of users with digital devices do not have value in themselves. In order to be used and made profitable, the extracted data requires a vast IT infrastructure that enables its cleaning and organization in standardized

formats that thus allow correct algorithmic processing. It is only during the last two decades that the accelerated growth of Big Data has been accompanied by the development of the technology necessary to process it at a low cost, at the same time opening up enormous extensions of potential data and exponentially expanding the number of companies that begin to use it to optimize their various production processes and, also, the number of companies that offer services for its algorithmic processing, thus marking a clear advance in the field of the so-called *data mining*. As Sandro Mezzadra and Verónica Gago (2015) have stated, it could be said that data mining offers a paradigmatic image of the extractive operations that characterize the logic of current capitalist valorization and accumulation processes, since its algorithms are not so different "from those that put together the production of profiles (of consumption, health, behavior) and those that organize financial operations in the time of *high-frequency trading*" (p. 42). The processing of massive data also becomes a key factor in capitalist extraction and accumulation because it generates a kind of virtuous circle, since the data

> educate and give competitive advantage to algorithms; enable coordination and offshoring of workers; allow optimization and flexibility of production processes; make possible the transformation of low-margin products into high-margin services; and data analysis is itself a data generator. (Srnicek, 2018, p. 44)

Along these lines, the recent emergence and expansion of the business model of digital platforms, expressed in giants such as Google, META and Amazon; but also in emerging companies such as Uber, Netflix and Airbnb, has been interpreted by Nick Srnicek (2018) not only as a business strategy to obtain greater benefits from the decreasing prices of data registration and its algorithmic processing, but also imposes one of the characteristics that symptomatically defines *contemporary platform capitalism*: the generation of a more efficient apparatus for the extraction and monopolistic exploitation of data. That is to say, in platform capitalism, data must not only be extracted, it must also become the exclusive property of each company that stores and processes it.

For this reason, it could be said that the logic of expansion of Big Tech, beyond its different areas or types of platforms (search engines, digital commerce, social networks, streaming, transportation, etc.), is based mainly on the conquest of new digital territories and their sources to extract and make their use profitable. To turn data into exploitable assets or raw materials, the various user records must be standardized and statistically measured, for example, by creating profiles that bring together similar behaviors among users who operate in specific digital ecosystems. The –*machine learning*– algorithms used for these operations personalize their calculations about different users based on their past record of activities, classifying them and comparing them

ORT
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with those of other users grouped into similar profiles, an operation that allows these companies to target individualized advertising or generate personalized recommendation systems (Cardon 2018; Birch, Cochrane & Ward, 2021). In other words, the conversion of an individual piece of data into a commodity ultimately depends on the link established between the said data and that of many other users –produced in different spaces and times– to effectively identify individuals and behaviors, specify customer segmentation, improve the relevance of personalized advertising and develop attitudinal forecasting capabilities (Tatcher, O'Sullivan & Mahmoudi, 2016). In this way, the digitalization of user experiences gives rise to constant monitoring and commercialization of all the activities carried out in virtual environments, and their behavioral data becomes input for the creation of artificial intelligence systems that not only know our behavior, but also aspire to predict and modulate our future behaviors. The above, of course, implies a whole new regime of relations between capital and users individualized by digital systems.

The development of different types of predictive algorithms, generally based on the violation of privacy and the extraction of personal data, is the real business of Big Tech companies. As Soshana Zuboff's (2021) research has shown, only a small fraction of the data stored by large digital economy companies is used to improve the products or services they offer to their users, while most of the information collected is considered *privative behavioral surplus*, that is, the exclusive property of these companies, and is used as input for advanced processes for producing predictive artificial intelligence systems that are very profitably marketed to other companies (advertising, financial, etc.). This creates a new *market for behavioral futures*, which would be the pillar of what Zuboff calls *surveillance capitalism* (Zuboff, 2021). In other words, corporate technological advances and innovations in the field of Big Data processing that underpin the expansion of the digital economy, go hand in hand with the rise of a new type of capitalist regime that operates by constantly monitoring, calculating and modelling our lives through all the devices that make up our virtual environments.

Thus, while it is true that Big Data has the potential to provide benefits to our societies, especially if it is used in different areas of scientific and technological development linked to the public good, such as "tackling climate change" or "eradicating diseases" (Mayer-Schonberger & Cukier, 2013, p. 31). The truth is that their current uses by Big Tech are far from these purposes, since they primarily privilege incessant economic profitability and, therefore, as Zuboff (2015) rightly points out, "they do not erase their origins in an extractive project founded on the formal indifference of the populations that understand both its data sources and its final objectives" (p. 76). Returning to David Harvey's (2007) analysis of the prolongation of the process of *primitive accumulation* of capitalism described by Marx, we can argue that the Big Data market represents the consolidation of a new variant of the mode of *accumulation by dispossession*

that has driven capitalism since its origins and that would now be expressed at the heart of the digital economy as an *accumulation by dispossession of massive data* (Harvey, 2007; Tatcher, O'Sullivan & Mahmoudi, 2016). This incipient variant of the capitalist regime of accumulation by dispossession establishes new forms of social subjugation and technologies of power that have not yet been sufficiently studied and that operate on the heterogeneous set of records made in digital ecosystems by their millions of users.

3. THE HYPOTHESIS OF DIGITAL COLONIALISM

Criticism of the extractive and monopolistic dynamics of data deployed by Big Tech has given rise to an incipient analysis and firm denunciation of the colonial logic underlying the accelerated process of digitalization of the world (Tatcher, O'Sullivan & Mahmoudi, 2016; Ávila, 2018a, 2018b; Kwet 2019; Coleman 2019; Couldry & Mejias, 2019; Mann & Daly 2019; Mouton & Burns, 2021). Guatemalan digital rights activist Renata Ávila (2018a; 2018b) argues that large *information capitalist companies*, based mainly in both the United States and China, have extended imperial power over their millions of users in different regions of the planet, appropriating their data, violating people's privacy and imposing rules, technological designs and cultural models through their computational dominance, especially in countries of the so-called *global south* –or developing countries–. In that sense, these companies could be defined as the fundamental agents of the emergence of a new type of colonialism that operates through digital devices. Shaping this new digital colonialism, Big Tech companies are expanding their technological empires, not only to become hegemonic economic actors in the global market, but also to become true political-corporate agents on a global level, since it has an unparalleled technological capacity to monitor, process and intervene in the communications of all users connected to the Internet worldwide (more than two-thirds of the total human population), and to decisively influence the destinies of the governments and democracies of the countries to which it provides its digital infrastructure.

Taking the recent experience of South Africa as a case study, Michael Kwet (2019) has gone further by defining digital colonialism as a "structural form of domination" that "is exercised through centralized ownership and control of the three fundamental pillars of the digital ecosystem: software, hardware and network connectivity" (Kwet, 2019, p. 2). In this way, it is through the creation, promotion and implementation of various basic technological infrastructures in developing countries that the Big Tech can expand their digital territories and expand under a deep colonial logic. The personal and browsing data of citizens of these countries are collected, processed and sold by the Big Tech to advertising and consulting companies, which then use profiling systems to target different groups of users with highly personalized messages aimed at increasing

JULY - DECEMBER 2023

INMEDIACIONES

the profits of foreign companies, but also of local companies, organizations and political parties seeking to impose their different agendas in each African country (Kwet 2019; Coleman 2019). The same is true in other regions of the global south, such as India, where Facebook until a couple of years ago, had the largest number of users worldwide –270 million– a figure much higher than the total number of users that the Silicon Valley company has in the United States, where it reaches 170 million users (Hicks, 2019). In any case, as Paola Ricaurte (2019) has rightly pointed out, the truth is that governments have also become the main clients of these transnational corporations, implementing automated public decision-making systems in their different territories with corporate-owned data, contracting various artificial intelligence products (for cyber defense, surveillance, servers, Internet of Things), adopting their digital agendas (in matters of connectivity, hardware and software) and acquiring their educational or digital training programs for the workforce of each country (Ricaurte, 2019).

In accordance with the above, in order to carry out their colonial expansion strategy in the regions of the global south, the Big Tech must ensure, in the first instance, control of most of the computer architecture provided in developing countries, that is, impose the design and codes of the computer programs used as well as the intellectual property licenses linked to the software and hardware that constitutes the digital infrastructure of governments and their public services, factors that then, paradoxically, end up limiting the possibilities of digital industrial development and any long-term claim to technological sovereignty in these nations. The case of Google is paradigmatic here, as the Alphabet subsidiary controls 92% of the global market for Internet search engines, and yet twenty of its data processing centers or Data Centers are located in the United States and Europe, while only three of them are located in countries in the global south. The same is true for other companies such as META, Amazon and Microsoft, a question that reflects not only the validity of the global north-south axis in the distribution of digital infrastructure, but also the limited possibilities for innovation and technological development in those regions that constitute mere deposits for data extraction. Added to this is the sadly ironic fact that "low-cost labor and mineral extraction in Asia and Africa tacitly support the development of cheaper, faster, smaller computers that are used and sold around the world" (Irani et al., 2010, p. 1311).

The latter expresses a global inequality intensified under platform or informational capitalism and also implies a formal and real monopoly on scientific-technological knowledge associated with the ownership of data and its algorithmic processing, dramatically updating that classic key mechanism for capitalist accumulation that the Brazilian sociologist Theotônio Dos Santos (2020) called *technological dependence*. Now, as we have already pointed out, another fundamental pillar of digital colonialism is network connectivity, since it is through this that another of the new colonial strategies operates: the provision of

free Internet services among the population of users with fewer resources, with the primary objective of thus expanding the digital territory to be conquered by each large company (Kwet, 2019; Coleman 2019). An explicit example of the latter has been the controversial Facebook Zero program, announced in 2010, with which the American company sought to provide basic Internet browsing services at zero rate for mobile phone users in developing countries, mainly in Africa and India, thereby simultaneously expanding its own market, that is, its sources of data extraction and its areas of continuous surveillance.

The expansion of digital colonialism has also been facilitated by international agents promoting the neoliberal economy such as the World Trade Organization (WTO) through the sustained push for its so-called *e-commerce agenda*, which does not only refer to buying and selling relationships on the Internet, but seeks to regulate broader and key aspects such as, for example, the global transfer of data (especially from the South to the Global North), strict respect for intellectual property (mainly that of transnational companies), the prohibition of the disclosure of the source codes of business algorithms or the prohibition of requirements for localization and data processing in national territories; and all this, by the way, privileging the interests of the large Big Tech companies over the States and their claims to technological sovereignty and industrial development (Scasserra, 2021). Some regions in the global north, such as the European Union, have become somewhat aware of this situation and have attempted to mitigate the violation of their citizens' privacy and the abusive extraction of data in their own territories by foreign companies by implementing, in 2018, the General Data Protection Regulation (GDPR). However, while the European Union is trying to protect itself from the imperial ambitions of the Big Tech, it is also seeking to improve the positioning of its own technology corporations in the dispute for global hegemony of the digital economy, deploying a colonialist strategy towards developing countries by imposing clauses in its trade agreements that hinder the digital industrialization of these countries, restrict state supervision of companies, and undermine the digital rights of their citizens (Scasserra & Martínez, 2021).

In accordance with the above, it is necessary to underline at least two fundamental differences between *historical colonialism* and *digital neocolonialism*. First of all, unlike historical Western colonialism, which was implemented mainly through military invasion campaigns and the physical installation of a colonial power in a given geographic territory, the new digital colonialism does not require the presence of colonial powers in the conquered lands, as it is characterized by expanding mainly through computer infrastructures that allow the transfer of data from South to North and the dissemination of sophisticated surveillance devices from remote destinations to perpetuate power relations and colonial discourses under new forms of dispossession and global capitalist accumulation (Mann & Daly, 2019). Secondly, another important

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difference between the new digital colonialism and the historical one is that, at the beginning of the XXI century, the primary agents of the colonization of peoples are no longer the imperial States, but rather the large technological corporations that seek to digitalize the territories of social life throughout the world in order to appropriate and exploit them. In light of these differences, it is worth asking in what sense digital colonialism constitutes an extension of historical colonialism, that is, in what specific way the relationship between colonization and capitalism is articulated under the unrestrained deployment of the digital economy of the Big Tech.

In relation to the diagnosis of the current role of this type of company in a complex web of global power and domination relations, the French economist Cédric Durand (2021) has suggested that the digital territories conquered by these companies constitute a historical anomaly, since they actually function as a new type of fiefdom for the feudal domain, where the serfs of the glebe would now be the millions of users of their programs and platforms. According to this approach, since the beginning of the XXI century, the corporate digitalization of the economy has transformed the systemic logic of capitalism, so that we would be facing a profound restructuring of the capitalist production regime that, instead of leading us towards the progress envisioned by its apologists in Silicon Valley, would have rather led us towards an alarming civilizational regression. This would be the paradoxical resurgence of aspects of medieval social organization, since we have become *servants* who develop a relationship of economic dependence with digital platforms that is reinforced by algorithmic loops that personalize their services, tightening the bond between digital territories and human existence like never before. We would then be experiencing the emergence of a new *technofeudalism* (Durand, 2021).

A similar reading has been previously proposed by Evgeny Morozov (2018) when he stated that "*Big Tech companies* play the role of new feudal lords that control almost every aspect of our existence while setting the terms of political and social debate" (p. 36). With the latter, the Belarusian researcher emphasizes the fact that the Big Tech not only seize the massive data of the population and the inventive potential of its users to develop technologies based on artificial intelligence, but also infiltrates these technologies into the rest of the possible markets (from education, through surveillance and health systems, to banking services), and they do so, of course, under the conditions and terms that these same companies establish as appropriate.

However, like the diagnosis of surveillance capitalism (Zuboff, 2021), the hypothesis of technofeudalism (Durand, 2021) recognizes that the growth of *the Big Tech* is based on a dynamic of colonization of all dimensions of human life through the expansion of new digital territories whose lucrative exploitation reconfigures the logic of accumulation and the power devices of capitalism itself. However, the influential readings of Zuboff (2021) and Durand (2021)

do not dwell on the process of colonization that they themselves describe, that is, on the intrinsic colonial aspect of data extractivism, since they ultimately consider it to be merely an accessory feature compared to other general transformations of capitalism. In some way, the identification of colonial characteristics in the logic of capitalist accumulation inevitably strains any analysis that points towards a total novelty of contemporary capitalism brought about by the advance of information technologies, thus establishing a discontinuity with its historical forms of exploitation that would be intimately linked to colonialism. Therefore, unlike these positions, it can be said that the different analyses of digital colonialism coincide in their insistence on highlighting the prolongation and reinforcement of colonial forms of exploitation as a main –not secondary– element to understand the current reconfigurations of capitalism. Hence the urgency to critically analyze the forms of domination intensified in digital colonialism, assuming that these cannot be reduced solely to the geopolitical and economic dimensions that we have described so far.

4. THE COLONIALITY OF POWER AS A TECHNOLOGICAL PATTERN

The notion of *digital colonialism*, in principle, aims at the elaboration of a critique of the power relations expressed in the expansionist and neo-extractivist dynamics of the main *High Tech* companies in the countries of the global south. In this sense, digital colonialism can be linked to the related concept of *neocolonialism* (Nkrumah, 1966; Spivak, 2010; Mouton & Burns, 2021), generally used to describe new forms of domination deployed by Western powers over those regions and peoples of the world that had previously been under their colonial administration. The concept of *neocolonialism* was coined by Kwame Nkrumah, a pan-Africanist philosopher and the first president of Ghana, to define the situation of those nascent independent states that in the mid XX century presented themselves as sovereign but that, however, developed under the indirect economic and political dependence of a foreign system, thus constituting a final phase of imperialism (Nkrumah, 1966). Along similar lines, Indian theorist Gayatri Spivak (2010) defines neocolonialism as the set of "dominant economic, political and cultural maneuvers that have emerged in our century after the unequal dissolution of territorial empires" (p. 172) that characterized historical colonialism, and adds that the notion of *postcoloniality* then refers to the transition from colonialism to neocolonialism. In a similar way to the concept of neocolonialism, it should be said then that the notion of digital colonialism underlines the continuities of colonial forms of domination in the present, although it does so by emphasizing the primacy of digital devices and infrastructures for neocolonial powers. In this sense, the concept of digital colonialism updates the ideas of the term neocolonialism, as it alludes to the technological assemblies and operations through which the

ORT
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new imperial-corporate powers materialize the reconfiguration of the capitalist mode of accumulation, namely: the extractivism of massive data and the expansion of markets through artificial intelligence.

Precisely to specify this inherent continuity of colonialism in the configuration of current capitalism –now promoted especially by the *datafication* of the various activities, interactions and human relationships mediated by digital devices– researchers Nick Couldry and Ulyses Mejias (2019) have proposed using the concept of *data colonialism*. Of course, this notion had been previously coined to refer to the reverse of the utopian promises of Big Data, highlighting the power asymmetries that are constitutive of the process of data commodification in the deployment of the digital economy (Tatcher, O'Sullivan & Mahmoudi, 2016). But as Couldry and Mejias (2019) argue, this previous use of the concept had been only metaphorical, while in the analysis of their work *The Costs of Connection*, data colonialism refers specifically to the contemporary extension of a global process of extraction and exploitation of resources that began with colonialism and continued later with industrial capitalism. Of course, while historical colonialism operated by annexing vast territories, natural resources, and enslaved bodies, data colonialism now operates by capturing and controlling human life itself by appropriating and monetizing all possible information that can be extracted from it. What underlies these different moments is a fundamental function that, both yesterday and today, links colonialism and capitalism: the large-scale appropriation of resources from which economic value can be extracted. Thus, it could be argued that "colonialism, in its old and new forms, operates through the dispossession of resources. This dispossession occurs through the appropriation of things that belong to others and through the extraction of value from the appropriated resources" (Couldry & Mejias, 2019, p. 88). In this sense, the massive accumulation of data and the extractive use of current developments in digital technologies must be interpreted as something more than a historical novelty that breaks with all previous political, economic and cultural characteristics, since it constitutes the contemporary evolution of the variable, yet sustained, relations between colonialism and capitalism. The data colonialism thesis therefore points to the continuation and deepening of the process of extracting economic value from human life, which takes us from the oil fields and plantations of the XVI century to the data centers of the XXI century.

However, the perspective opened by the concept of data colonialism has been challenged for focusing too much on the process of datafication –as resource extraction– and paying much less attention to the aspects of an epistemic critique that were raised as central by decolonial thought, whose emphasis is placed on highlighting the *coloniality of power*, knowledge and being as the reverse of the expansive dynamics of Western modernity (Mignolo, 2007; Castro-Gómez & Grosfoguel, 2007; Quijano, 2014a, 2014c, 2014d.). As Densua

Mumford (2022) has rightly argued, unlike the data colonialism approach of Mejias and Couldry (2019), the perspective on modernity/coloniality does not start from a questioning only of the colonial extraction of resources, but rather from a critique of the self-deception of Western thought regarding its own epistemic objectivity, which would lead it to consider all other knowledge and ways of being as dispensable or exploitable; thus, this colonial matrix would also be at the base of informational capitalism (Mumford, 2022). In this sense, the critique of digital colonialism should be able to question the epistemic matrices of the forms of production, use and legitimation of knowledge generated from mass data recording devices, as well as the colonial remnants that can be identified in the functioning of technological innovations based on artificial intelligence.

In line with this need for a critical orientation on the epistemic-colonial foundation of knowledge based on Big Data and machine learning systems, the Mexican researcher Paola Ricaurte (2019) has proposed reading data colonialism based on the theory of coloniality of power developed by the Peruvian sociologist Aníbal Quijano. According to Ricaurte, the *data-centric epistemologies* that underlie contemporary forms of knowledge production and technological innovation amplify the effects of the coloniality of power, "manifested as a violent imposition of ways of being, thinking and feeling that leads to the expulsion of human beings from the social order, denying the existence of other worlds and alternative epistemologies" (Ricaurte, 2019, p. 351). It should be noted, however, that the concept of *coloniality* is clearly different here from the term *colonialism*, since it designates a heterogeneous power structure established since the conquest of America, but which prevails in current social relations and, therefore, extends beyond traditional colonialism. According to the theory developed by Quijano, coloniality defines a general mode of domination based, first of all, on an extended form of social classification based on the invention of the category of *race*, whose naturalization allows the historical development of various mechanisms of hierarchization of bodies, populations, social relations, practices, knowledge and cultural imaginaries (Quijano, 2014a, 2014b, 2014c, 2014d). Thus, the different racial classification devices that characterize the coloniality of power make possible an imposition of ways of being, patterns of knowledge and meaning that still operate as the cornerstone of global forms of domination. At the same time, the coloniality of power was key to the formation of the paradigm of modernity-rationality that characterizes the hegemonic perspective of Eurocentrism and its universalist claims to legitimation.

It is therefore possible to argue that the coloniality of power has intensified with the limitless expansion of new forms of machine rationality materialized in the algorithmic processing of massive data that modulates our multiple daily interactions in digital environments. A clear example of the latter is the presence of racist and sexist biases in the algorithms of search engines such as Google, as demonstrated by the research of American sociologist Safiya Umoja

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Noble (2018) when describing and analyzing numerous cases in which the automated suggestions of search engines and their classification of information on the Internet tend to exacerbate negative stereotypes about African-descendant, Asian or Latin women, and to encourage the reproduction of hegemonic norms of a supposed white and heterosexual superiority. This normalization of discriminatory biases is due, according to Noble, to the very design and computer code of search engine algorithms, thus promoting what she calls *algorithms of oppression*, which "can have devastating consequences for people who are already marginalized by institutional racism and sexism" (Noble, 2018, p. 13). Along the same lines, it has recently been proven that racial and gender biases are present in other types of algorithmic applications, such as automated facial recognition systems that are widely used in virtual environments for user identification, access to mobile devices, online payment systems, the provision of medical services, security and surveillance systems, to name a few. According to research by Joy Boulamwini and Timnit Gebru (2018), facial recognition algorithms tend to have more operating errors when used on dark-skinned women, while their error rate is minimal when applied to white-skinned men.

From this perspective, it is important to emphasize that the digitalization of the world, despite what is often believed, does not actually create new inequalities, but rather deepens the inequities historically generated and naturalized in the modern power matrix of coloniality (Stingl, 2016; Ricaurte, 2019). For the same reason, if the coloniality of power is an indispensable precondition for understanding the modern world order that dates back to the XVI century and extends to the XX century, the general transformation of the capitalist accumulation regime following the digitalization of the world at the beginning of the XXI century seems to demonstrate that the coloniality of power no longer only operates as a pattern of epistemic, economic, political and cultural power, but has also become a *pattern of technological power*. This means that the coloniality of power is now incorporated into the design of computing devices and artificial intelligence systems that process massive amounts of data extracted from all the digitalized activities of the world's population, thereby becoming a pattern of technological power with global reach. This global reorganization of the technological power pattern is what Shakir Mohamed, Marie Therese Png and William Isaac (2020) have attempted to describe under the term *algorithmic coloniality*, with the purpose of analyzing the context of new power relations that arise in the various interactions of the algorithms that permeate today's society, which has an impact on "the allocation of resources, human sociocultural and political behavior" (p. 667). However, for us, what is important is to highlight that this new pattern of technological power –of data accumulation and its algorithmic processing– is at the root of the acceleration of planetary capitalism driven by the Big Tech, although its operation goes beyond virtual environments, as it also tends to reinforce the different modes of racial, gender

and class discrimination that already exist in our societies.

The various authors linked to decolonial thought propose that the alternative to the coloniality of world power is that of an epistemological and ontological decolonization that allows for new forms of institutionality, communication and liberation of social relations and modes of existence (Mignolo, 2007; Castro-Gómez & Grosfoguel, 2007; Quijano, 2014a). However, the truth is that the set of investigations originally linked to decolonial thought does not address in detail the technological dimension of the coloniality of contemporary power. It is therefore possible to affirm that it has only recently emerged this *decolonial turn* in the field of studies on digital technologies (Coludry & Mejias, 2021). Along these lines, for example, are the proposals of Syed Mustafa Ali (2016) regarding *decolonial computing*, a classification that seeks to refer to a critical project that consists of an interrogation of the subjects who hold computational knowledge (who are those who construct it and how they do so), of the geopolitical dimension of computing (from where it is made) and what computer science means –both epistemologically (that is, in relation to knowledge) and ontologically (that is, in relation to being)–. Likewise, in recent years, critical views on artificial intelligence have emerged from the field of computer science itself, which begin to question the technical and ethical practices of *software* and *hardware* developer communities, and seek to rethink both the design and implementation of automated systems from a decolonial perspective (Mohamed, Png & Isacc, 2020).

Sharing this same decolonizing orientation, although with a focus on the field of critical data studies, Stefania Milan and Emiliano Treré (2019) have proposed a research agenda called Big Data *from the South(s)* that functions simultaneously as an epistemological, ontological and ethical program for the analysis and use of massive data from a decolonial perspective. Among the contents of this agenda, they highlight, first, the challenge of overcoming the myth of *digital universalism* that makes invisible the different contextual uses and innovations developed from the subaltern peripheries; second, they raise the need to abandon a homogenizing notion of the *global south* in order to think about the multiplicity of territories and agents in resistance to digital universalism; third, they explain the importance of adopting a decolonial view of technology; fourth, they underline the need to reorient the analysis from the datafication of society towards activism and demands for data justice, which involve diverse agents and human practices; and, finally, they highlight the emergence of new forms of imagination and alternative knowledge about data (Milan & Treré, 2019).

In this way, in recent years, the absence of a critical view of digital technologies in decolonial thought has begun to be remedied from different fronts, which seems to leave us with the great task of compiling and developing concrete action strategies that allow us to dismantle the complex assemblies of the technological pattern of power that digital colonialism has established.

ORT
UNIVERSIDAD ORT
Uruguay

5. CONCLUSIONS

In this paper we attempt to describe and analyze the main dimensions of a new configuration of the capitalist regime based on the accumulation of data and the development of artificial intelligence systems, spearheaded by large technological corporations and whose underlying formula is the deployment of a new pattern of colonial power that operates today at a planetary level. We have argued that, over the last decade, the expansion of the digital economy promoted by these companies not only goes hand in hand with technological innovation, but also with an unprecedented process of datafication of everyday life through the expansion of digital territories throughout the world. The main objective of this expansionist drive is the establishment of mechanisms for the constant extraction of massive data that record the various activities of its millions of users. The capitalization of this data is carried out through algorithmic processing, so that the Big Tech become the almost exclusive facilitators of new markets for advertising services and artificial intelligence applications that simultaneously modulate our relationships and activities in virtual environments. However, all these elements are not enough to understand our current situation and, for this reason, we have stressed that the datafication of human life implies at the same time an intensification of the colonial forms of power that operate over the peoples of the global south.

The colonial logic of these large corporations is made manifest in their implementation around the world of digital infrastructures, computer programs and Internet connectivity solutions that allow them to consolidate a true empire, where the Big Tech cease to be merely economic agents and become political-corporate agents, even displacing States, and have an incomparable technical capacity to monitor, quantify and politically, economically and culturally influence the destinies of the governments and peoples of those countries to which they supply their technological services. These regions of the world thus see their legitimate aspirations for technological sovereignty and industrial development compromised, as they become directly dependent on the policies of knowledge and scientific innovation induced by the business agenda of the Big Tech.

In this sense, we have stated that informational capitalism is constitutively articulated with the deployment of digital colonialism. And we argued that the latter could not be reduced to a simple historical novelty, since it rather represents an intensification of the colonial matrix of domination that characterizes modernity: the coloniality of power. If the coloniality of power manifests itself as the imposition of an episteme, modes of existence and sensitivity that are arranged hierarchically –translating into the naturalization of racism, sexism and the exclusion of non-Western knowledge and practices– in the context of digital colonialism, the coloniality of power is reinforced by being incorporated into the same technological devices that configure the new planetary order. We are then

referring to a technological coloniality of power that is expressed in the various forms of algorithmic oppression and in the violence of data-centric epistemologies that constitute the basis of the current capitalist accumulation regime.

Precisely in light of the latter, we conclude that any strategy of transformation or resistance against Big Tech capitalism cannot be developed without a decolonial perspective that points both towards a critique of the political economy of the imperial dominance of technological corporations, as well as the epistemological, cultural and ontological power relations that digital colonialism has tended to naturalize. In any case, it is about the urgency of developing various strategies that point towards a radical decolonization of technologies to open the collective capacity for invention and technical creation to a multiplicity of possible worlds and imaginaries.

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ORT
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* Contribution: The article was written entirely by the author.
* Note: The Academic Committee of the journal approved the publication of the article.

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InMediaciones de la Comunicación 2023 - VOL. 18 / Nº 2 - ISSN 1510-5091 - ISSN 1688-8626 (ONLINE) - MONTEVIDEO (URUGUAY)

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