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O DIGITAL E O SUL: TENSIONAMENTOS VOL. 2

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The theme of issues 28 and 29 of V!RUS journal, “The Digital and the South: Questionings,” aims to critically explore the connections between digital media and the peoples of the Global South in various dimensions in this second decade of the 21st century. While recognizing digital culture's benefits to many aspects of human life, we also seek to highlight the inherent tensions in these connections.

This theme arises from an ongoing reflection process at Nomads.usp - Center for Interactive Living Studies, which publishes V!RUS. The Center was established in 2000 amidst the remarkable optimism that followed the Internet's opening to public access in 1994. Distributed network communication – a network of networks – brought promising perspectives for horizontal communication and free access to information. This environment stimulated the development of numerous computer programs, devices, and systems that permeated all areas of knowledge and aspects of life. Over the past twenty-four years, we have focused on exploring the limits and potential of digital, particularly in how it relates to the conception, approach, and documentation of built spaces. We have broadened this concept to include the spatialities arising from the hybridization of physical and digital environments and their dynamics.

The theme proposed for these two issues of V!RUS arises from a growing concern—one that we share—about the direction in which the digitalization of life has taken society. This trend has scrambled values and beliefs, distorted public debate, and reinforced asymmetric power relations on a global scale.

The papers published in these two issues have been selected rigorously through close collaboration among the authors, reviewers, and the journal’s editorial committee. They encompass two sets of sub-themes. The first set, presented in V!28, includes papers that analyze the applications of digital technologies and their implications for urban dynamics and architectural design and production, focusing on perspectives from the Global South. The second set, featured in V!29, includes papers that discuss the conceptual, social, political, and technopolitical aspects of the spread of digital technology worldwide, particularly among the peoples of the Global South.

Issue 29 includes nine articles authored by researchers from various countries and Brazilian states and an interview with Professor Henrique Parra from the Department of Social Sciences at the Federal University of São Paulo, Brazil. At our invitation, Parra participated in an interview titled The Technocene and the Reestablishment of a Horizon of Urgency. In this conversation, he explores **the role of the digital in the socio-technical arrangements that shape and organize everyday life** on multiple scales, along with its implications.

Three papers offer **conceptual contributions to reflecting on the digital in the Global South**. *Marcos Beccari*, in his article entitled Dysphoria as the Potency of Contradictions: A Bet by Paul B. Preciado, proposes a critical reading of the uses and political implications of digital automation in the South in light of Paul B. Preciado's notion of dysphoria. *Lucca Amaral Tori* takes up the Yanomami concept of *në rope* to build an analysis of the World Wide Web in Land, Freedom, and Diversity: Metaphors to the Digital World?. *Eli Borges Junior*, *Evandro Laia*, and *Bruno Madureira* also dialogue with ancestral technologies, tensioning the concept of platformization in the South, in their article Cosmoplatformization: Digital Platforms from the Global South.

Two authors problematize **the city's physical and digital dimensions**. In his critical essay Digital Frameworks / Modern Urban Frames, *Carlos Feferman* proposes that similar tools and structures acquire different meanings in urbanism and digital technologies. *Paula Lemos Vilaça Faria*, in Between Physical and Virtual Windows: Openings of Living in the Pandemic, discusses the production of domestic space and the ambiguity of physical and digital openings during the COVID-19 pandemic.

The action of **social and political control by large international corporations** through digital platforms is examined in three works from different perspectives. In Social Robots: A Socio-technical Controversy, *Ramon Fernandes Lourenço*analyzes the concept of social robots through the lens of Latour's Actor-Network Theory. The other two works focus on the regulation of these digital platforms. In the article, Global South Adrift: Digital Regulation in the European Union and Brazil, *Magno Medeiros* provides a comparative analysis of legislation in Brazil and the European Union. Additionally, *Arnaldo de Santana Silva*, *Milena Cramar Lôndero,* and *Vitória Santos* discuss the necessity of regulation to address the needs of the LGBTQIA+ community in their article titled Digital Activism and Platform (De)Regulation in Electoral Context.

In the Project section, *Ana Cecilia Parodi Anaya* presents the Ecological Ensemble installation, which challenges **the notion of communication in both biological and digital networks**.

We are also pleased to inform you that, as of this issue, the V!RUS journal has become part of the Journal Portal of the University of Sao Paulo at www.revistas.usp.br/virus. Still, it maintains its previous website –www.nomads.usp.br/virus– as a mirror website.

We hope these two issues of V!RUS provide a qualified debate on current digital culture, especially in relation to countries in the Global South.

We wish everyone an excellent reading experience.

THE TECHNOCENE AND THE REESTABLISHMENT OF A HORIZON OF URGENCY

O TECNOCENO E O RESTABELECIMENTO DE UM HORIZONTE DE URGÊNCIA

EL TECNOCENO Y EL RESTABLECIMIENTO DE UN HORIZONTE DE URGENCIA

HENRIQUE PARRA, PEDRO TEIXEIRA, MARIO VALLEJO

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INTERVIEW HELD ON OCTOBER 7, 2024

Parra, H., Teixeira, P., & Vallejo, M. (2024). The Technocene and the Reestablishment of a Horizon of Urgency. *V!RUS, (29)*. The Digital and the South: Questionings Vol. 2. Translated from Portuguese by Marcelo Tramontano. 4-14 https://doi.org/10.11606/2175-974x.virus.v29.232114

> **Pedro Teixeira**: On behalf of the V!RUS Editorial Committee, Henrique, thank you for accepting our invitation. Before delving into the theme of this edition, “The Digital and the South: Tensionings”, we would like to know how your interest in the digital arose and how it became an area of study for you.

Henrique Parra: Your question is interesting because I am currently taking stock. I am participating in a working group on the coalition of rights on the Internet, in which we have been reflecting on the thirty years of the Internet. So, I found myself forced to reconnect with the beginning of my career. My contact with Internet activism and my experience with the digital world began in the late 1990s. We were experiencing the rise of neoliberal policies, while within the scope of social movements with a more autonomous profile, there was an articulation around the global networks of anti-capitalist movements.

In 1999, we were hit by protests against the World Trade Organization meeting in Seattle, United States, a context in which the Indymedia network emerged. I had worked occasionally in Brazil with the Brazilian branch of the network, also called the Independent Media Center. I lived in Montreal in 2000 and 2001 as an exchange student during my master's degree in Sociology at the University of Sao Paulo, researching and working with self-managed workers' companies and organizations, recovered companies, and cooperatives. The neighboring city of Quebec was an essential reference in the social and solidarity economy field. By coincidence, in April 2001, an FTAA summit meeting took place in the city, and many demonstrations and protests were organized. I participated in the protests and collaborated in the Social Forum held simultaneously in the city. It was a remarkable experience to see how the various social movements and activist collectives that came to the town to protest used the Internet to organize themselves and communicate strategically.

It was a different time for the Internet, when the network emerged as a new possibility for communication and organization, emulating the political principles of autonomy, horizontality, and decentralization practiced by these groups. The movement resulted in political action and an effectual counter-power capacity that managed to disturb those in power. I was very impressed by the organization of groups and individuals coming from different regions of the Americas to Quebec, knowing what to do, according to an organization mainly prepared through the emerging digital communication networks. These groups and individuals produced multimedia self-publishing systems in a very critical way, connected to the movements at a time when blogs, platforms, and other similar tools did not yet exist. Until then, I engaged with independent media collectives through documentary photography with analog cameras, photographing, developing, and digitizing images. We realized that independent media triggered an organizational and communicative dynamic that gave us an incredible speed of action, allowing us to do politically exciting things.

Upon returning to Brazil and obtaining my master's degree, I worked for the Municipal Government of Sao Paulo on policies for generating employment and income and the solidarity economy, aside from my activism in these networks. I left this work to pursue my doctorate at the State University of Campinas, still very inspired by how multimedia communication via the Internet would allow us to work with other regimes of sensitivity, giving rise to other imaginaries and forms of political action. So was my connection with the digital world in the early 2000s. Therefore, my interest in the area did not emerge at university but in political activism.

> **PT**: You mentioned self-publishing, which brings us to Pimentalab[1], the laboratory you coordinate at the Federal University of Sao Paulo, UNIFESP. Pimentalab practices a strong articulation between theory and practice through a podcast and its own magazine, in addition to extensive work in different territories with other collectives. Please tell us briefly about the lab, its creation, and its methodology.

HP: We started Pimentalab in 2010 when I became a professor at the School of Philosophy, Literature, and Human Sciences at UNIFESP in the Pimentas neighborhood of Guarulhos. One of the first things I did was develop a website: I created the name, bought a domain name, and got a server to put it online. The campus opened in 2007, so the IT infrastructure still needed to be improved. It remains fragile to this day, so I prefer to maintain my infrastructure. From the beginning, I tried to encourage collective ways of taking care of our communication infrastructure and organizing the memory of our activities, seeking to make the knowledge and documentation produced as public as possible. I uploaded the course content to WordPress websites hosted on the platform of a partner collective, Milharal.org. Still, gradually,

1 Pimentalab, the UNIFESP Technology, Policy, and Knowledge Laboratory website available at https://www.pimentalab.net.

we migrated to our infrastructure, which was provided by a research and extension project. We installed a server in the EFLCH data center and made it a prototype for hosting cloud services to demonstrate that free and sovereign alternatives were possible.

We started working with undergraduate students and gradually included postgraduate students. We wanted to raise awareness among these students in the humanities field about the importance of technical learning in the digital environments and communication technologies we were using. One of our primary requirements was the use of free software, which in the 2010s coincided with a favorable macropolitical context since public universities and federal agencies were required to use open-source computer systems. The Federal Government later weakened this requirement, but even today, university classrooms and computer labs use the Ubuntu operating system, based on Linux. Although many students have followed the path of postgraduate studies in the Humanities, it is interesting to note that, from those first generations, many went into the area of technology consulting, evidencing that experience as a training process.

Another concern of ours was teacher training. Since then, I have been teaching undergraduate courses in Sociology since the Department of Social Sciences at UNIFESP is responsible for training in Social Sciences and Sociology. The extension projects involved teachers who worked in public schools in poor peripheral areas and aimed to reflect on the teaching of Sociology in these schools as a locus where science and communication are created. Pimentalab disseminated a communication practice linked to territories with a research perspective, exploring ways to produce knowledge. Therefore, the school would not only transmit knowledge but also make a kind of amateur science, in addition to reflecting on ways of communicating this production. I have been trying to resume activities with undergraduate students because they can feed a continuous process directing them toward postgraduate studies. Extension projects have always been a bridge to connect with the outside world and, at the same time, a feedback strategy for the university. Extension has always allowed us to build another type of collective with which we conduct research.

These extension actions took shape with the Common Laboratories, which emerged as a means of carrying out research based on the premise that, to investigate what interested us, we needed to create collectives with people outside the university. We understood the need to organize a collective research path with these people, in which they participated in elaborating the questions and ways of investigation. Extension actions have sheltered this political and practical collective with which we develop research.

> **PT**: A growing and engaging body of intellectual work has been discussing issues related to climate change, which makes the notion of the Anthropocene central. In the dossier that you organized with Dr. Alana Moraes de Souza for the journal Mediações (Parra & Souza, 2024), the concept of the Technocene is combined with concepts such as the Capitalocene and the Plantationocene, helping us to reflect on the Anthropocene more comprehensively. How do you see this articulation from the Global South?

HP: I first came into contact with the notion of Technocene in the early 2000s in classes given by Professor Laymert Garcia dos Santos through a book by Hermínio Martins (2018). He is a Portuguese sociologist and philosopher dedicated to the history of Science and Technology. At Pimentalab, we began to explore this term based on a theoretical and political shift caused by the COVID-19 pandemic. Since the creation of the laboratory, especially after our inclusion in the Latin American Network for Studies on Surveillance, Technology, and Society, LAVITS, we have been developing a research agenda on the relationships between digital technologies, the dynamics of knowledge production, and new forms of power and control. In the Campos Eliseos neighborhood of Sao Paulo, in 2018 and 2019, we monitored the use of digital technologies in reconfiguring militarization processes and territorial disputes. Still, we had to suspend fieldwork in 2020 with the arrival of the pandemic.

This suspension led us to launch a public call for proposals around another research question. We sought to create a collective research path to understand how people were experiencing the pandemic, observing, in particular, the effects of digital mediation on their lives during social distancing and seclusion, their new teleworking routines, and the changes in cybermediated social life. This new situation has made us perceive the COVID-19 pandemic as the first technopolitical event of the Anthropocene, experienced synchronously on a planetary scale. The world has already experienced other pandemics, and all of them were in some way related to modes of domination and ecological simplification resulting from processes of internationalization of production chains. However, the COVID-19 pandemic was, in fact, an event that helped to make visible how global socio-technical entanglements were involved in its production.

Before the pandemic, people were already talking about the Anthropocene. This concept and its literature have circulated in academia since the early 2000s. However, in our research, the pandemic constituted a turning point for us to introduce the dimension of anthropogenic effects on the planet more immanently into our research agenda. Considering that our research interest in the humanities is to observe technological phenomena and their economic, political, and cultural aspects, we began to define more precisely what we wanted to observe and the topics we wanted to highlight in our analytical process.

We do not use the notion of Technocene to challenge the precision of other concepts, such as the Anthropocene and the Plantationocene, but to highlight the participation and agency of technological arrangements in these processes. Taking the Technocene perspective reinforces some positions. For instance, we recognize that, in contemporary societies, we are increasingly entangled in long-term socio-technical arrangements, capable of organizing and structuring our lives on a multi-scale basis. The scales intersect, from the daily production of data on intimate aspects of our existence through the smartphones in our pockets to transnational platformed systems. Our lives are increasingly technologically mediated, but we have not expanded our capacity for deliberation and democratic intervention in the design of this mediation at the same speed. We can recognize a technopolitical order of organization of the world: the more this power is concentrated, the more it acquires a technoauthoritarian contour. We are interested in problematizing this dimension of the phenomenon.

We are dependent on and involved in technological formations that produce a form of life. When we turn on the light switch in our home, we turn on the turbines of the Belo Monte hydroelectric plant; we make food choices that set transnational food production chains in motion. We took a look at these long chains based on digital technologies. Still, we also became interested in other technological expressions of the world organization, realizing how they connect to digitalization processes. However, how does the Technocene relate to capitalism or the Capitalocene? I speak of this relationship because we are interested in thinking, within the Technocene, about the relationship between technopolitics and democracy. Are the technologies we currently have at our disposal the only ones – or the best ones – we could have? Of course not. Consequently, how can we think of alternative forms of technological production that would infrastructure other forms of life that we want to persist? What other technological formations could support and produce other worlds?

The pandemic introduced this transformation into our research agenda, forcing us to incorporate the Anthropocene dimension. How can we relate Artificial Intelligence to the issue of energy consumption? Previously, we were concerned about the geolocation of data centers due to problems in the information economy, privacy, or geopolitics. But what else is involved in the geographic distribution of data centers? I am referring not only to the territorial conflicts that they engender when they are located in conflict-ridden territories, where there is, for example, a dispute over water, protected areas, or traditional populations. A more vertical cut pushes us towards another discussion, inspired by the Terran perspective, as elaborated by Bruno Latour (2020), in which we shift technopolitical conflicts to be thought according to the logic of Terran technopolitics. From this shift, what would technological sovereignty be? How can we study the problems of sovereignty in a world where climate change calls into question fundamental concepts that organized the classic definition of the Nation-State? The problem is getting more complicated. Technocene is not intended to be rigorous regarding a specific delimitation compared to other geohistorical concepts, such as the Capitalocene and the Anthropocene, but highlights the technological phenomenon within these processes.

We can also invoke a historical perspective since this is not just any technology but modern technologies that participate in the formation of colonial states. When we speak of the Technocene in our work, we refer to the emergence of the so-called technoscience of the 20th century when, with the Second World War, we began to perceive a synergy between scientific production, technological development, capitalist race, and militarization. As Hermínio Martins points out, digitalization and its articulation with the economy, politics, and culture produce a basic technomorphism that transforms other processes. This time was also when information and cybernetic theories produced an epistemic field linked to the new technological formation – a material-semiotic arrangement, as Haraway would say. With digitalization, technologies oriented toward coding, extraction, and control gained strength. Argentinean author Flávia Costa (2021) relates the beginning of the Technocene to the launch of WWII nuclear bombs, a techno-scientific artifact resulting from the convergence of science, capitalism, geopolitics, and militarization. This technology has produced and will continue to produce effects beyond human existence, such as the traces of radiation already left on Earth.

> **PT**: You study the effects of the pandemic up to the present day, beyond the period between 2020 and 2022, and you approach it not only as an ecological crisis but as a "technopolitical laboratory of cybernetic-extractive capitalism." In an article about Google Suite for Education, you analyze the effects of introducing corporate technologies into the university environment, with connections

to a particular legacy of the pandemic. Could you discuss this issue, especially regarding the three pillars on which the university is based – research, teaching, and extension – and consider the inequalities, asymmetries, and specificities between the Global North and the Global South?

HP: I will start at the end, addressing geopolitical asymmetries and how this scenario we have entered in recent years has updated our vocabulary. We go back to using big words, like colonialism and coloniality. Around 2016, we were already globally recognizing the rise of the far right and, more broadly, a conservative rise in global politics, which continues to occur and gain consistency. In addition to the 2016 coup d'état, Brazil was surprised by the result of the 2018 presidential election, and since then, we have not stopped being surprised. We return to talk, for example, about neoliberalism, a term quite common in the late 1990s and early 2000s but which left-wing parties and some movements curiously stopped talking about directly during that Latin American cycle of so-called progressive governments in the next two decades. Those governments maintained a series of structural conditions for the continuity and expansion of many elements characteristic of neoliberal policies, both from the point of view of macroeconomic policies and the reorganization of labor, as well as an extractive relationship with nature. It seems that only at the end of the second decade did we once again encounter the rise of the conservative movement, and, from a critical point of view, we began to enunciate it as a broader political formation. Why did we return to using these big words? Perhaps this arrangement of forces has become more visible and enunciable due to the current international conflicts, the geopolitical redesign, and the pandemic.

Let us consider the pandemic as a time of ecological crisis produced by our civilizational model. The book *Big Farms Make Big Flu: Dispatches on Influenza, Agribusiness, and the Nature of Science* by Rob Wallace (2015) is crucial to understanding this notion because it deals specifically with the capitalist mode of production of epidemics, allowing us to see how techno-scientific production also participates in this model of technological development and, therefore, in the capitalist model of food production. At the beginning of the pandemic, there was a hypothesis that it would slow down capitalism and make its mode of functioning and its limits visible. But the opposite happened. In urban societies, the logistics systems for supply, delivery, and remote work were quickly reorganized, demonstrating that the machinery of work and the production and circulation of goods, merchandise, and services had already worked very well with digital technology. The pandemic also represents what Naomi Klein (2020) calls the Screen New Deal[2], a model of opportunity for big techs that have been providing infrastructure for universities and education departments in Latin America since the 2010s. These corporations found a considerable window of opportunity to advance quickly, delivering technologies that responded to the institutions' needs. They had already done it before, but the pandemic made this machinery more interconnected and adjusted.

In the field of Education, the expansion of teleworking did something that no conservative or technocratic reform had managed to do: it introduced a set of management devices – of measurement and organization – in the pedagogical relationship between student and teacher in the previously protected space of the classroom, now virtualized. If we had – and still have – in the physical space of the classroom a certain autonomy in the teacher-student relationship and the activities developed there, escaping from the powers of management, a new organization of these activities was created when they started being mediated by digital-cybernetic technologies, in an environment that instituted new forms of measurement and quantification and, therefore, new indicators that codify and colonize the pedagogical relationship. From this perspective, the pandemic accelerated and intensified a metamorphosis of the world of work and affective relationships, which began to be developed, above all, through infrastructures, technologies, environments, and corporate applications in their almost entirety.

Most of the tools we use in digital environments are corporate. It is no small matter that we are using North Atlantic infrastructures – from submarine cables to satellite networks, servers, operating systems, and corporate applications – that bring specific inscriptions, rationalities, normativity, and sensitivity regimes. All dimensions of our constitution as humans are now composed of these environments, and given that they are conceived and managed by these sociotechnical dispositions, they produce and strengthen specific configurations of the world. The pandemic has, therefore, intensified this precedent process. The platformization, the forms of deregulation, and the disintermediation of work are brutal transformations accelerated by the pandemic.

In the Brazilian case, big tech tools and communication infrastructures were first adopted at the state universities of Sao Paulo and were later introduced at federal universities. This happened for various reasons. One of them is the growing underfunding of universities'

2 See the full Screen New Deal repport, available at https://theintercept.com/2020/05/08/andrew-cuomo-eric-schmidt-coronavirus-tech-shock-doctrine/

technological infrastructures. At federal universities, this underfunding was brutal in the period after the coup against President Dilma Rousseff. The technological park of these institutions is now completely disinvested, making it very difficult to maintain the functioning of technological infrastructures. Another reason is that many of the employees in university IT departments often have degrees in courses that encourage the adoption of corporate technological solutions. And it is these people who, to a large extent, decide on the institutions' infrastructures.

Whenever maintaining these infrastructures becomes difficult, the demand for corporate systems grows, both by IT managers and teachers and students, who have already been educated and trained in their everyday lives in using proprietary software. Teachers and students use Gmail and other applications daily without question due to a widespread, uncritical technical culture in which the difference between individual (private) use and institutional (public) adoption is not perceived. This form of domination spreads through reticulation, offering us practical solutions that operate in tune with the economy and the mode of political subjectivation promoted by these technologies. Everything that appears more helpful or efficient in such systems embodies functional coupling to the dominant rationality. Frictionlessness means precisely that. The gradual offering of quickly adopted infrastructures, which simultaneously smuggle in other rationalities and normativity, strengthens the hegemonic mode of social organization.

Since information and communication technologies are technologies of thought, knowledge, memory, and culture, when almost all Brazilian and Latin American public universities hand over their communication infrastructures to transnational corporations, the already existing asymmetry of epistemic and geopolitical power between the North and the South widens. Therefore, it is no exaggeration to say this is a new colonization. In addition to the coloniality of knowledge, there are new dynamics of cognitive extraction – digital colonialism – of material and energy resources and asymmetric production of economic and political value. Under these conditions, talking about creating Innovation, Science, and Technology policies guided by the intellectual property model and generating patents in Brazilian universities is a joke. How can we develop and compete with patents, such as pharmaceuticals or petroleum engineering, when big techs manage the university communications infrastructure? Snowden's[3] revelations in 2014 – which led to the approval of the Brazilian Internet Civil Rights Framework – were nothing new to those who were already critically involved with issues of surveillance, data collection, and the like.

Yet, Snowden's revelations were crucial in making visible worldwide how technology companies and nation-states cooperate in the production, analysis, and collection of data. Supposing the university is where science and technology are produced, the lack of capacity for self-government over our communication infrastructures presupposes delegating this production to third parties. This risk does not only concern research activities but also the technological environments we use for teaching and outreach activities. The current system of organizing our work is stretching into a condition of increasingly subordinate dependence, in which asymmetries become more radical. Regarding information technologies, we need to observe how this dependence translates into a regime of knowledge, an epistemic regime. We are using not only the categories and words of the other but their form of organizing knowledge, memory, and a specific regime of the sensitive.

These infrastructures involve an informational economy, an epistemic regime, and a regime of sensitivity, placing us under subordination, dependence, and exploitation. This is why the notions of techno-scientific monoculture, which we discussed in a 2021 text (Parra & Moraes, 2021), and of global synchronization, discussed by Stiegler (2006), can be articulated. We have two proprietary operating systems installed on the smartphones of almost the entire global population. There has never been a cognitive infrastructure in history that has been shared so homogeneously. Again, this is not trivial. How can we discuss technological and scientific autonomy if we already participate in specific arrangements by depending on these technologies? How can we discuss the possibility of developing alternative artificial intelligence models in our public universities? Do we have the computational capacity to train new artificial intelligence models that constitute alternatives to the available Long Language Models? And why do we need these models? Which models do we desire? These are some of the questions we have been asking ourselves.

> **Mario Vallejo**[4]: You spoke about the neoliberal reorganization of the social structure based on technology, which presupposes a great demand for natural and mineral resources, in addition to converting subjectivity into a commodity, transforming human

3 Editor's note.: Edward Joseph Snowden is a former employee of the United States National Security Agency (NSA).
4 PhD candidate at IAU-USP and researcher at Nomads.usp.

> experience into something to be exploited economically. Your work demonstrates that techno-extractivism has environmental and social effects in several human and non-human senses. Furthermore, in work with Alana Moraes, you introduced the idea of technologies of incompleteness, which refer to modes of social organization and knowledge production that challenge dominant structures. Could you explain how you see these technologies of incompleteness in the context of platforms, infrastructures, projects, and other initiatives linked to digital and collective media in the Global South? What would be the potential and limitations of these applications, bearing in mind the notion of incompleteness?

HP: You touched on two points that I consider necessary to mention again to understand how the multi-scalar dimension of the digital world introduces a problematic field that calls into question modern legal and political frameworks that organize our society. We used the idea of technologies of incompleteness in the text you cited, borrowed from Moten and Harney (2023), to refer to what escapes the code, what is not guided by the logic of codification, which is a condition for capture, extraction, and control. But we can also approach this problem in terms of technologies of interdependence or technologies of the Commons. Techno-extractivism presupposes the existence of new techno-mediated forms of codification and production of subjectivity. This is another dimension that involves the intensification and continuity processes of the exploitation of nature and the production of energy. Although challenging, it is essential to connect these dimensions.

Resuming the idea of a non-subordinate development of the Global South requires formulating policies that do not intensify models of extraction and domination concerning nature, allowing us to imagine other technological scenarios. It isn't easy, but we need to trigger this movement of research and political imagination. We need to approach the digital from an environmental perspective. Not just in the well-known sense of the environment but of an ambiance that connects everything, from production regimes of modes of subjectivation to their relationship with the production of ore, energy, and agriculture. Understanding the issues of the digital as an ambiance means recognizing that digital mediation has become ubiquitous in our lives. Few activities in our daily lives are not mediated by some digital technology in cybernetic networks. Indeed, increasing digitalization produces an ambiance that constitutes a different nature.

Reflecting on this ambiance from a regulatory perspective requires us to consider that what were once attributes of ownership, accountability, or motivation of the agent have become more complex, bringing us closer to a discussion in the field of Law about diffuse or related rights. How can we discuss environmental pollution or the border issue? How can we discuss these issues regarding the capacity for deliberation and political community? And what about the notion of the subject of rights? The problem of privacy, for example, in the context of individual rights, is part of a discussion about the capacity to regulate the boundaries between the intimate, the private, and the public. Privacy, in liberal Law, is considered an attribute of the individual. The personal data protection legislation that we have today in Brazil works very well to provide legal security to the economic model according to which large corporations operate. These same corporations continue to swim hard in extracting economic, political, and cognitive value, exploring the relational layer of metadata. In other words, a pre-individual and transindividual dimension becomes codifiable by the digital, and the modern conception of the individual does not cover that.

Reflecting on this digital ambiance requires us to include new elements in the legal and political order because the idea of incompleteness is also related to the discussion on the technopolitics of the common. Thinking about the technopolitics of incompleteness and the technopolitics of the common requires moving from the idea of sovereignty to that of interdependence, from the individual scale to the transindividual dimension. It is crucial to understand that we are not dealing with constituted entities – individual, nation, property – as they have an unfinished dimension. From this point of view, the common is constructed in relations of complication and interdependence, and consequently, the subject is not autonomous, finished, and sovereign of itself.

An immunological perspective on health considers the individual a well-defined subject in an exclusive relationship with the other. However, from a collective health perspective or a policy of care, the subject is always incomplete, always in relation to another, always open to the other. The idea of incompleteness contains the relationship between actants, not as finished entities or closed monads, but in a permanent co-production relationship. To this end, it is essential to find ways to provide infrastructure to strengthen this relational dimension, which is precisely what is most hijacked from us today: our capacity to do common, to exist in co-dependence and co-determination, to strengthen the bond that sustains our ways of life.

We have difficulty working with the political dimension of these concepts. How does this idea of incompleteness, interdependence, and the Commons call into question the modern notion of sovereignty? How can we deliberate sovereignly on climate change? We have to accept

and give political consistency to the fact that our destinies are tightly entangled with the destinies of other entities, other human and non-human beings. For example, discussing the subject's agency at a time when life is increasingly algorithmic – and discussing what algorithmic responsibility is – poses new problems for fundamental elements of modern law: questions of decision-making autonomy, free will, and the subject's responsibility.

> **PT**: We have noticed in universities that a movement resulting from public policies and civil society organizations is seeking to connect with traditional knowledge and ancestral wisdom. In digital media studies, we have understood the importance of dialoguing with this knowledge and wisdom, not only aiming to articulate them but also to contribute to the construction of new ways of knowing-how. What are your perceptions? Is the university more open to this dialogue?

HP: Most of the faculty at Brazilian federal universities comprises professors who graduated in the mid-1990s when science and technology policies and the Brazilian postgraduate system were undergoing restructuring. It is enough to remember that the Lattes Curriculum digital platform dates back to 1999 and helped materialize the process of professionalization and organization of our postgraduate programs. Over time, the reorganization of postgraduate programs strongly influenced the restructuring of undergraduate programs.

UNIFESP, and more specifically the School of Philosophy, Literature, and Human Sciences, located on the Guarulhos campus, has an interesting history, as it lies at the confluence of two distinct processes that occurred within Brazilian higher education, which meet here in stark contrast, creating tensions but also new possibilities. The research paths of many professors trained during that period of restructuring of graduate studies are guided by models of specialization, internationalization, productivity, and high competitiveness. This previous process of training researcher-teachers meets with new policies for expanding and democratizing access to higher education: internalization of campuses, permanence policies, the ENEM/SISU system[5], and affirmative action policies. When this encounter occurs in colleges or universities just being created, tensions and conflicts are more visible and assertive, generating possibilities for opening up and transforming educational curricula and the university itself. This field is still under construction and disputed.

We, teachers who graduated and have worked in this field for twenty or thirty years, often tend to maintain theoretical and epistemological choices that come from our training. Our generation now finds a student body that is bringing many new things: not only a diversity of bodies and experiences now inhabiting the university, but an entire theoretical-political repertoire related to the constitution of collectives, cultural and political movements, reinforcing the need for curricular updating and transformation in the ways of teaching and producing knowledge. Much of this renewal, which includes the incorporation of new authors in our disciplines, happens thanks to the contribution of student collectives, who strain and put pressure on the repertoire of references in the human sciences, which is, to a large extent, white, European or North American, patriarchal, colonial.

This transformation occurs at different levels. At UNIFESP, a movement is still underway to open up and expand lines of research that connect with perspectives based on epistemic plurality, investigative practices, and knowledge. This process only occurs thanks to student pressure. Little by little, other gaps are emerging as professors introduce research agendas incorporating different themes, problems, and ways of doing research. In addition, UNIFESP's university outreach is robust and positively influences our teaching activities. An exciting recent initiative was the creation of an indigenous degree program. I teach a course on digital technologies and education in this degree program, working with indigenous teachers from the state of Sao Paulo who teach at indigenous schools.

I believe the university must be multiple and diverse. It does not need to have a single model of knowledge production, mainly because the institutional place it used to occupy in certifying professional knowledge and skills is undergoing a profound transformation. The correspondence between this certified knowledge and positions in the job market is also changing. And we need to add a new factor to these changes, which is the unregulated expansion of the Distance Learning modality in private universities and colleges in recent years. All these transformations create new tensions regarding the university's place in society in teaching, research, and extension.

However, in this process of restructuring scientific and technological policy guided by models of techno-scientific innovation, it is also necessary to understand that some forms of scientific knowledge production in universities are currently co-participants in the production of

5 Translator’s note: SISU is a Brazilian online system through which public universities offer places to candidates participating in the ENEM or National High School Exam.

the social and climate collapse we are experiencing. When we critically discuss strategic choices about lines of research in certain given scientific areas, it isn't easy to debate other models of technological development that could place us on other paths of societal transition. The hegemonic techno-scientific production model, increasingly intertwined with the dynamics of intercapitalist competition and geopolitical dispute, strongly influences the structuring of the university. In order to imagine other models that can coexist in the university, we must face the urgent issue of the university's place in society, given the crisis of the Anthropocene. That is an uncomfortable question. Will we continue to train people to keep the hegemonic gears turning? How can we create lines of technological bifurcation? Bifurcation is an interesting term because it refers to something that cannot be described before it occurs, that is, it cannot be projected with precision. It is only possible to recognize a bifurcation a posteriori as the emergence of a new constellation of factors that acquires a structuring property. Nevertheless, we can think of more open and indeterminate environments where emergent processes can grow together with other properties, relationships, and knowledge.

Mario asked me what these alternative technologies would be and how to strengthen them. I see at least two dimensions here. On the one hand, it is a process of desertion and subtraction from these agencies' dominant modes of operation. On the other hand, it is a process that concerns how we gradually build infrastructure and strengthen another ecosystem. I am referring here to technodiversity, or cosmotechnical diversity, which means recognizing that all technological development is situated and contextual, has the inscription of specific cultures, and is traversed by values and worldviews. In this crisis of the Anthropocene, we are being challenged to dialogue more symmetrically with other worldviews, capable of relating differently to technology, constituting other cosmotechnics. However, we are in a war of worlds at different speeds and must do everything simultaneously. We have to be able to disarm at least and slow down this efficient death machine in operation while simultaneously building and defending other worlds. Dialoguing with other knowledge, which is gradually being introduced into the university and questioning specific established models of authority, is essential to challenge the dominant scientific fields. But it is not enough. We have to strengthen scientific reflexivity, introduce other ethical and political references beyond anthropocentric perspectives, and act against the damaging effects that certain scientific practices produce in the world.

We are at a crossroads. Our technopolitical practices are somewhat exhausted, and we have difficulty imagining other technological formations. It is urgent to activate our imagination and think about what these experimental laboratories that give rise to other sociotechnical arrangements could be. The university can be an essential meeting place for communities of practice and new epistemopolitical actors that stimulate the creative and experimental dimension of knowledge and forms of political life. We talk about anti-racist technopolitics, anti-colonial technopolitics, and anti-colonial artificial intelligence, but what would this mean in practice? At Pimentalab, we are revisiting the idea of fostering a new community of practices to welcome these questions and find people with whom we can ask them. I feel that the concept of a research group or a laboratory involves how we constitute a collective capable of sustaining an investigative practice, affective bonds, and mutual support based on ethical-political and poetic principles.

We are constantly on the edge of the abyss. At each Brazilian election, we think: "It can't be just that". In the last twenty-odd years, we have experienced a profound metamorphosis in our knowledge production and communication ecosystem. In the early 2000s, our biggest problem was the oligopoly of communication systems, and suddenly, anyone could produce content online and disseminate it widely. What happened to make us switch from that system of self-publishing to the erosion of regimes of truth, the post-truth crisis, and the fake news industry? Perhaps the most significant underlying phenomenon is the digitalization of our lives, a process decided by large corporations. We are facing a new epistemic regime, a new regime of truth, a different sensitivity.

It turns out that our institutions have a different time. I have insisted that we are facing a triple crisis: the crisis of our democratic institutions, the crisis of our epistemic regimes – or the erosion of the principle of the real and true – and the so-called socio-environmental crisis. Returning to the idea of the Technocene, we are dealing with a phenomenon, which is the following: we have produced a world whose direction and modes of functioning escape our capacity for collective deliberation. This world is the megamachine to which Lewis Mumford (1967; 1970) refers, and we have no capacity for a democratic collective government over it. The Technocene is also a way of re-establishing a horizon of urgency, seeking ways to democratize these processes and forms of deliberation on the design of future technologies that will profoundly affect our lives – and that today arrive without asking permission. The university can be a place of creation, experimentation, and formation of other worlds to come, and its defense is a critical field of political action. It requires re-establishing another state of presence, another time, another sensitivity, and other affects in tension with the hegemonic mode of formation.

PT: To conclude, Henrique, does the future seem promising to you?

HP: We may be the first generation – and here I dialogue with Franco Berardi Bifo – collectively experiencing the idea that the future will not be better and that we will have challenging and uncertain times ahead. The COVID-19 pandemic was a defining moment in my personal and teaching experience. It was a turning point in my perception of the Anthropocene, introducing new understandings about the present and the future. However, in recent months, I have sought to connect with another kind of affection, seeking to resume the production of life and joy and collectively stimulate an affection that increases our power to act, think, and imagine.

My short answer to your question, therefore, would be: despite the perception that we are facing very unstable future scenarios, which pose challenges on an unimaginable and often incomprehensible scale – such as the images of the dry rivers of the Amazon or the fires of recent months in our country –, I feel called to reposition myself, to seek other ways of continuing to inhabit this world, to reflect on the possibility of producing other worlds to come, on the alliances that I want and need to establish to do this. This is an existential condition, and as the father of a child, I have no other choice. If we want to believe in other possible worlds again, we need a creative and imaginative disposition.

Even within the left-wing camp – with many quotation marks – there seems to be a greater understanding of the Anthropocene crisis and a clearer perception of the limits of our civilizational model. Yet, there remains a strong belief that developmental and extractive projects are inexorable. This understanding has been accompanied by an apocalyptic stance, which generates a lack of involvement with the world. Some versions of the end of the world are being disseminated in such a way as to produce a lack of responsibility, a cynical and uninvolved attitude toward the world.

Affirming the notion of Terran technologies is insisting on co-implication with the world. Gilles Deleuze (1994), in an interview with Antonio Negri, said that our ability to believe in the world has been hijacked. We need to believe in the world again from an inhabitation perspective, as Amador Fernandez-Savater suggested (2017). An interesting political shift is moving from the governing paradigm to the inhabiting paradigm. In other words, consider the situation's potential and what we can boost. Instead of starting from a preconceived project of the future that we seek to achieve, trying to shape reality to the project, we need to experiment with acting through the middle, a mesopolitics, an action of mutual contagion that engenders new multiplications and structurings.

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DYSPHORIA AS THE POTENCY OF CONTRADICTIONS: A BET BY PAUL B. PRECIADO

DA DISFORIA COMO POTÊNCIA DAS CONTRADIÇÕES: UMA APOSTA DE PAUL B. PRECIADO

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Abstract

This study aims to foster a critical reading of some aspects of digital culture in the Global South – understood here as more than a geopolitical category – but as a postcolonial condition of specific perspectives, practices, and counter-hegemonic strategies in the global context. In particular, it focuses on the uses and political implications of digital automation that govern many online platforms and interactive devices. More precisely, I propose a theoretical review of some implications of the notion of "dysphoria" that Paul B. Preciado develops in his latest book, situating it as an onto-fictional potency of the constitutive contradictions of digital life in the Global South. I begin by contextualizing the Foucauldian tools Preciado largely relies on and then position the notion of "dysphoria" within the post-pandemic landscape of digital and algorithmic automation. Finally, I outline some existing paths for recognizing the dysphoria of the world as an ongoing effect of digital technologies shaping contemporary life.

Keywords: Dysphoria, Digital Technologies, Paul B. Preciado

1 Introduction

> We are witnessing, live, the insertion of electronic or contactless skin onto our bodies. A couple of years of successive lockdowns, social distancing, and remote work were enough to initiate this mutation of the body and subjectivity. (Preciado, 2023, p. 324, our translation)

Among the many tensions traversing digital culture in the Global South, the technopolitical asymmetry of precarious ways of life (Lazzarato, 2014; Alves, 2011) is renewed by a dispersed set of digital dynamics, such as algorithmic automation and data extractivism. Anchored in the thought of Paul B. Preciado, this study aims to position some lines of critical interpretation of this emerging scenario, emphasizing the processes of subjectivity production in light of the dilemmas posed by digital automation. This scope, moreover, is delimited by the reading of *Dysphoria mundi*, recently published by Preciado (2023), and still largely unexplored in discussions about the Global South. Therefore, this study does not aim to deepen the topic within the scope of this debate but to suggest a reading that, it is hoped, might engage with authors from the Global South.

Around a century ago, with the advancement of cinema, advertising, and media, terms like “optical unconscious,” “spectacle,” and “simulation” were disseminated in European critical literature to describe the effects of mechanical reproduction and the mass circulation of images. Today, digital and algorithmic automation in media does not merely spectacularize the world; instead, it automates a reality of its own and a mode of existence suited to that reality. Social media has become a locus of surplus-value extraction, with images now functioning as commodities and mechanisms for that extraction. Across various scales — from the individual and domestic level to the use of big data by corporations with extensive data-mining and targeting capabilities — the automation processes increasingly impact many aspects of what can be known, governed, and experienced.

In the first decade of this century, digital platforms could still be seen as a means to challenge governments and corporations, reaching the height of this utopia when social media played a crucial role in the Occupy movements and the Arab Spring. However, since 2016, when it was revealed that Cambridge Analytica intervened in the U.S. elections that brought Trump to power, we have witnessed the global rise of neo-fascist governments and movements supported by big tech companies and think tanks (Wintroub, 2020). Besides Trump, leaders like Netanyahu, Erdogan, and Bolsonaro have taken advantage of the algorithmic logic by which, as Emmelhainz (2021, p. 3) summarizes, “rage has become currency: platforms drive and monetize anger as a mode of engagement.” It is no coincidence, then, that the unprecedented expansion of digital automation has been widely associated with a neoliberal, colonial, and racist rationality that enforces an increasingly unequal and precarious way of life (Beccari, 2020).

The strategies of displacement and resistance that emerge within this regime are sometimes discussed in terms of diversion, decoding, and hacking of patterns; at other times, they are seen as radical openings of the black box aimed at removing the alienating layers that obstruct everyday experience. While the first emphasis derives from the post-structuralist tendency to scrutinize the epistemic and ontological surface

of signs (or data, codes, programs, algorithms, etc.), the second reactivate an old hermeneutics of suspicion, which denounces the deception of appearances in search of an underlying identity or material reality.

In *Dysphoria mundi*, Paul B. Preciado (2023) problematizes these strategies by showing that the effects of digital automation impact the Global North and Global South asymmetrically — understood not so much as geographic regions but as distinct conditions (which often coexist in the same place) of access and exclusion in a supposedly real-time connected world. Consequently, it is not enough to speak in terms of a post-disciplinary or control society; we must also consider how new technological devices are grounded in old extractivist and colonial values. Rather than proposing any rhetorical mitigation or Luddite retreat, Preciado wagers on the imminent subversion of this epistemic regime — which for him is not only algorithmic but, above all, petrosexoracial, that is, driven by fossil fuel combustion and the hierarchical segmentation of sex and race — through the exacerbation of its contradictions.

> While petrosexoracial power structures resort to nationalist and identity myths and embrace digital, biochemical, and military technologies as primary forms of value production and control over living bodies, these same subaltern, supposedly dysphoric bodies—bodies for which power prescribes only work, consumption, and death—are inventing dissident forms of subjectivation and new collective assemblages with other human and non-human bodies and with energetic machines: the cell phone, the computer, biomolecular technologies. (Preciado, 2023, pp. 51-52, our translation)

In this paper, I present a reflection limited to the implications of this thesis in the critique of digital media, although the book's scope is far broader. This focus seems relevant to me because it considers the entire critique of digital surveillance, which, when aimed only at control techniques, tends to overlook the dysphoric potency of the subjects over whom this control is exercised. To carry out the proposed review, it is first necessary to summarize some Foucauldian tools that Preciado largely uses, even though he also critiques and supplements them. Then, I situate the notion of dysphoria within the post-pandemic context of digital and algorithmic automation. Finally, I outline some existing paths to recognize the world's dysphoria as an ongoing effect of digital technologies shaping contemporary life.

2 Power Techniques and Digital Subjectivation

> The strength of the Foucauldian notion of technology lies in its ability to escape the reductive understanding of technique as a set of objects, instruments, machines, or other artifacts [...]. For Foucault, a technique is a complex apparatus of power and knowledge that integrates instruments and texts, discourses and bodily regimes, laws and rules for maximizing life, bodily pleasures, and the regulation of truth statements. (Preciado, 2017, p. 154, our translation)

In Foucault's later work (2009), the analytics of power no longer focused solely on discursive, punitive, and disciplinary practices but encompassed both governmental rationality and technologies of the self. In this way, he deepened the productive and strategic dimension of power by examining the various techniques (spiritual, subjective, institutional) that historically enabled certain behaviors and forms of life. In this context, the notion of technology takes on the meaning of practice and rationality that connects disparate elements — bodies, values, uses, techniques, etc. — to coordinate a field of action. This allows us to understand algorithmic automation, in Nocek's terms (2021, p. 118), as "a creative practice actualised in the techniques it uses to guide the possibilities for action towards rational ends."

This conception is productive in highlighting that digital apparatuses were designed not only with certain outcomes in mind but rather to enable certain modes of existence over others—following, in fact, Simon's (1996, p. 129) well-known proposition of design as a practice of "changing existing situations into preferred ones." This means that normative forces must be aligned to enable a particular apparatus and, consequently, to shape situations considered desirable. The misaligned, subaltern, and deviant subjects are not foreign to these forces; as Preciado (2023, p. 209, our translation) points out, on the contrary, "they are at once the material effect of these forces and of resistance to these forces." After all, all normality is defined by its margins, by what it excludes, so that racism, colonialism, sexism, etc., are "epistemologies, cognitive infrastructures, regimes of representation, bodily techniques, power technologies, discourses and verification apparatuses, narratives and images that continue to operate in the present" (Preciado, 2023, p. 42).

What is at stake in digital technologies, therefore, is not so much the constraints they impose upon us, but the ways in which it is possible to incorporate (or resist) the rationality that engenders them. This type of agency is recursive; it is not located in a particular subject, given that

the rationality implicated here does not exist independently of the mechanisms and apparatuses that enable it. The recursiveness in question is situated in the very field of action concatenated by technological devices, so that a neoliberal logic, for example, is both cause and effect, both conditioning and resulting from these devices. It was by considering this recursive dynamic that Foucault focused on the historical production/transformation of techniques and their corresponding rationalities, and that Preciado, in turn, has striven to show how current technologies succeed in ontologically redesigning the material and symbolic spaces of human life. “Politics, in this sense, is a task of ontology-fiction: the art of inventing the existence of the in-existent or of making an in-existent that was once taken as natural cease to exist” (Preciado, 2023, p. 210, our translation).

In the case of algorithmic automation, Nocek (2021, p. 129) argues that “smart systems structure the field of possible action not by putting up boundaries and erecting borders (through disciplinary techniques), but by eliminating them, […] by reducing friction and forging new possibilities for relation.” At the same time, this apparent borderless Mobility — translated into voice command, geolocation, AI assistants, etc. — is inseparable from the algorithmic flows that comprise a rationality Couldry and Mejias (2019) have termed data colonialism, in which capital accumulation arises from data extraction rather than production. Thus, old practices have not ceased to exist; they have only been redesigned, even though they remain practically invisible. Or better yet, as Beiguelman (2021, p. 63, our translation) succinctly puts it, “the big eyes that monitor us see through our eyes” — we are seen based on our own uses and interactions.

Algorithmic platforms not only translate disparate data into useful information patterns; rather, they are notably designed to predict user behavior, redirect their actions and decisions, and ultimately reduce uncertainty for the financial market, the political sphere, and subjectivities (Sadin, 2015). Consequently, we see more and more each day the consolidation of a renewed far-right as a source of personal, corporate, and political engagement, whose main strategy lies in individualizing the enunciation of what can and cannot be true (Primo, 2020). And as Dardot and Laval foresaw more than a decade ago, this evident reconfiguration of ways to participate and act politically, in which the subject is constantly compelled to reaffirm their identity against all sorts of perceived threats — often flirting with fascist rationality — constitutes a persuasive game of identification:

> Especially because this game could lead the subject to take refuge — lacking anything better — in a compensatory identity, which at least has the advantage of some stability, in contrast to the imperative of infinite self-surpassing. In fact, the fixation on identity, of whatever nature, far from threatening the neoliberal order, appears instead as a retreat for subjects weary of themselves, for all those who have abandoned the race or were excluded from it right from the start; worse, it reproduces the logic of competition at the level of relations between “small communities.” (Dardot & Laval, 2016, p. 401, our translation)

3 The Emergence of Dysphoric Disidentification

Since the construction of subjectivity is increasingly tied to the algorithmic apparatus of digital platforms, possible strategies of dissent cannot avoid engaging with the same techniques and procedures. Based on the technological recursion that Foucault’s work historically reveals, we must consider that dissent may not be external to the devices against which it rises, but rather made possible by those very devices. Both Foucault and Preciado, after all, place particular emphasis on mutations, on the breaches in normality, on the point where modes of functioning begin to shift the previously established patterns — allowing subjugated subjects not so much to break away from the techniques that subjugate them, but to use them, bending them to their limits and exposing their contradictions.

In *Dysphoria Mundi*, Preciado argues that the COVID-19 pandemic had abrupt consequences on the petrossexual-racial regime still in force, both by intensifying its practices of subjugation and by exposing and destabilizing its normative patterns, whose necropolitical dimension was laid bare on a daily basis[1]. This was thus a doubly opportune moment: on the one hand, for refining techniques of political-subjective capture, and on the other, for a potential cognitive interruption of the techno-mercantile flows of identification and normalization.

> The climate and somatopolitical crisis (of which the pandemic is a part) sharpens the “gap” (*décalage*) between “our capacity to represent and our capacity to produce,” between conventions of perception and the apparatuses of truth production (social, scientific, and media discourses, etc.), between the desire and the ability to act in the world. (Preciado, 2023, p. 258, our translation)

1 “Democratic institutions supposedly designed to protect the most vulnerable [...] reveal their complicity with the structures of petrosexoracial capitalism and behave as the State has always done in totalitarian or colonial contexts: abandoning, extorting, oppressing, lying, administering punishment and death” (Preciado, 2023, pp. 511-512, our translation).

From this diagnosis, Preciado adopts the notion of dysphoria — critically reappropriating all its historically pathologizing connotations[2] — as a conceptual key to rendering productive a certain ontological, political, and epistemic convulsion that would have emerged in the post-pandemic world. Drawing inspiration from William Burroughs' famous electronic revolution, as well as from the shamanic rituals of stopping the world described by Viveiros de Castro, Preciado contends that the mechanisms that govern and precarize digital life are also capable of producing a kind of short circuit that illuminates a horizon of saturation and disidentification with the petrosexoracial order.

It is worth briefly reviewing how this glimpse of a world dysphoria also derives from the main theses Preciado has developed previously. Since *Pornotopia*, which stems from his doctoral thesis in Architecture, Preciado (2020, p. 173, our translation) identified in the Cold War period "a transitional space in which the new prosthetic and hyperconnected subject is modeled." In his *Countersexual Manifesto*, after discussing the symbiotic hybridization that Donna Haraway interpreted from the cyborg as a political-fictional potential, Preciado (2017, p. 168, our translation) emphasized how "contemporary bio and cyber technologies are at once the result of power structures and the potential pockets of resistance to this same power." Later, in *Testo Junkie*, we see this kind of potential recursion again in what the author described, within the scope of the book, as the pharmacopornographic regime:

> In terms of political agency, subjugation or empowerment does not depend on the rejection of technologies in the name of nature but rather on the differentiated use and reappropriation of techniques for producing subjectivity. […] The pharmacopornographic emancipation of subaltern bodies can only be measured by these essential criteria: involvement and access to the production, circulation, and interpretation of somatopolitical biocodes (Preciado, 2018, p. 139, our translation).

Throughout these propositions, Preciado reaffirmed himself as the result of the reappropriation of certain gender and sexuality technologies, with the aim of unveiling new forms of subjectivation. Nonetheless, as Axt (2023) summarizes, the critical reception of his work in Latin America has not hesitated to highlight the Eurocentric and universalizing character of his concepts and, above all, the risk that his emancipatory promise might itself be assimilated and subverted by the mechanisms it intends to subvert. On this point, Axt (2023, p. 22, our translation) is assertive in understanding that "Preciado's theorizing is mobilized by practices and not the other way around";[3] that is, in his ever-moving dysphoric dissidence, Preciado's most notable effort (2023, p. 58, our translation) lies in renaming things and repositioning political-normative fictions by creating counter-fictions: "It is not enough to analyze the neoliberal condition; we must change all the names of all things" — simultaneously recognizing that

> The supporters of heterowhite supremacist ideology and conspiracy theories also enforce unauthorized knowledge, anti-scientific narratives, and local accounts to restore archaic forms of petrosexoracial sovereignty. This is the complexity in which we are entangled, the epistemic tangle […] that cannot be overcome by a simple binary opposition or inversion of power. We must open ourselves to the mutation of technologies of consciousness. (Preciado, 2023, pp. 290-291, our translation)

Among the many concepts that make up the grammar proposed in *Dysphoria mundi*, the notion of the telebody is relevant to the scope of this article: as an unexpected offspring of Haraway's cyborg, it is an entity situated at the intersection of material life and cybernetics, of carbon and silicon. Existing solely through the normative algorithms that render it visible, the telebody "is an economic datum. It is digital wealth. The telebody is at once the consumer and the producer, the client and the provider, the commodity and the buyer" (Preciado, 2023, p. 305). If, on one hand, this indistinction implies increasingly oppressive forms of exploitation — as in the classes Preciado (2023, p. 331) calls e-slaves, teleworkers, and life reproducers — on the other, it also reveals the fleeting nature of sharing a common identity amid so many techno-political fictions. Gender and race markers, for instance, no longer indicate a natural fact but rather struggles for sovereignty, which in turn come to occupy the same ground as struggles for survival[4]. And, if part of digital surplus value resides in the maintenance of seemingly stable and standardized identities, the gap opened by the telebody points toward the reinvention of identification practices.

2 If the dysphoria of disciplinary modernity was hysterical, and that of Fordism, neurotic and schizophrenic, that of cybernetic extractivism expands to all sorts of syndromes, disorders, disturbances.
3 Furthermore, as Preciado (2023, pp. 59-60, our translation) also recognizes, there remains "a cognitive gap (which sometimes manifests itself as segmentation of struggles, sometimes even as incompatibility and antagonism) between the theory and practices of the radical left and those arising from political ecology, grammar and practices of resistance and emancipation of sexual, gender and racial minorities".
4 Preciado (2023, p. 509, our translation) argues, in this regard, that, during the COVID-19 pandemic, the bodies of the global North were temporarily exposed to the same condition of vulnerability "in which the bodies of refugees, immigrants, impoverished, feminized and racialized classes of the colonized global South were and continue to be exposed".

Accordingly, it is as if the entire discussion around digital transformations, with its focus on both the automation of historical practices of oppression and the limited means of resistance, has distracted us from the crucial shift brought by this somatic-algorithmic condition: yes, the old protocols of identification and exclusion remain fully active, but they are also made explicit in their arbitrariness, artificiality, and fallibility precisely through the constant need for algorithmic learning. It is curious that, while many are concerned with the need to bring digital literacy to all layers of society, so-called artificial intelligence assimilates and reproduces the very processes that segregate this same population. What is often ignored in this gap is the continuous flow of epistemic maintenance and cognitive reconditioning that integrates us into digital networks. For Preciado, it is clear that this flow can only be understood through a relational (or symbiotic)[5] ontology rather than an essentialist one. This conception, somewhat unexpectedly, echoes Vilém Flusser's notion of the telematic society proposed in the early 1990s, particularly in its post-identity and post-humanist sense, as noted by Erick Felinto:

> Flusser not only grasped the potential of networks with remarkable clarity, but also employed an intriguing complex of poetic images to describe what he considered as the opposition between the "bundling" (*Bündelung*) model and the "networking" (*Vernetzung*) model — in other words, between mass communication and digital communication. [...] the telematic society also dissolves the illusion of the closed self, comfortably enclosed within its identity capsule. The network is made up of relations, not isolated entities. (Felinto, 2022, pp. 72-73, our translation)

In his time, Flusser recognized the utopian nature of this societal model, though he also considered it technically achievable. And what would be the way to realize such a fiction? Precisely through error, noise, dysphoria: "When Beethoven played his sonatas, people would run out. Gradually, the disturbing elements are integrated [...] and they begin to radiate in a peculiar way" (Flusser, 2014, p. 196, our translation). Envisioning a society in which everyone would be telematically connected, Flusser believed in a shared consciousness that would open unforeseen paths within the informational structure that links them: "The network vibrates, it's a *pathos*, a resonance. This is the basis of telematics, this sympathy and antipathy of closeness" (Flusser, 2014, p. 325).

In a less utopian tone, Preciado recalls how, in the 1980s, Act Up and various other collectives fighting against AIDS not only gathered categories that had previously been dissonant (from sex workers to media celebrities) but also initiated an unprecedented performative reversal, aiming to disidentify and actively intervene in the fictions that connected them as mortal and vulnerable bodies. Preciado (2023, p. 526, our translation) sees that, similarly, telebodies carry within them the strategic potential for autobiohacking, that is, the capacity to decode the normative patterns that constitute them, and, as relational symbionts, to critically redirect the uses and effects of digital connectivity. In short, the dysphoric emergence that Preciado points to in the post-pandemic context does not reside precisely in the connections Flusser termed telematic, but rather erupts from the multitude of telebodies who, situated at the base of the system that connects and subjugates them, are the first to glimpse the gaps and margins of maneuver within this system.

4 Considerations on the Power of Contradictions

> I like dysphoria and its exaltation against the norm, because it is what I have known since childhood. Dysphoria is bad. It is our misery. It is painful. It destroys us. It transforms us. But it is also our truth. We need to learn to listen to it. It is our wealth, the dysphoria. It is the intuition that allows us to know what needs to change. (Preciado, 2023, p. 543, our translation)

As can be inferred from the review conducted thus far, Preciado makes use of the contradictions that traverse the digital world to propose a viewpoint in which these fissures are constitutive, rather than accidental or excessive, to the petrosocial-racial regime, betting on the onto-epistemic-fictional dysphorias that can germinate, especially in the context of the Global South, from this understanding. As a closing remark, it seems more pertinent to me, instead of pointing out any conclusive synthesis, to list some theoretical and practical initiatives that, in my view, dialogue, albeit *avant la lettre*,[6] with Preciado's perspective, in order to indicate possible paths for recognizing the dysphoria of the world as an effect already underway of the digital technologies that shape contemporary life.

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5 Inspired by the propositions of Donna Haraway and Anna Tsing, the concept of "symbiont" is adopted by Preciado as a displacement of the notion of political subject, in the wake of his previous reflections on the intersubjective and micropolitical tactics of disidentification.

6 This type of anticipation was, by the way, even performed by Trevor Paglen, one of the names mentioned below. In 2012, this photographer selected one hundred films that portray human disasters, recorded them on a disc under the inscription *The Last Pictures*, which, in turn, was launched in the form of a

Starting with the famous essay *The Wretched of the Screen* by the German media artist and theorist Hito Steyerl (2020, p. 32), which delves into the "waste that accumulates at the margins of digital economies" to make visible the multiple relationships between cybernetic processes and the expropriation of natural resources, the concentration of wealth, data mining, etc. In the critical reading of Hal Foster (2021, p. 141, our translation), "[Steyerl's] motivation is 'I do not want to resolve contradictions; I want to intensify them,' and her *modus operandi* is not so much the demystification of ideological beliefs, but the exacerbation of corporate protocols to, in theory, the point of a transformative explosion." In contrast, and through a path that Foster considers more productive, the American artist and geographer Trevor Paglen (2014) has been articulating a series of long-range photographs that depict the physical infrastructure of digital systems: satellites in orbit, submarine cables, servers on remote islands, warehouse-cities, etc. In other words, Paglen highlights the fragile and material nature of the digital and, in doing so, invites us to redefine certain notions such as cyberspace or digital clouds based on this evidence. But, unlike Steyerl,

> [Paglen] is skeptical about the value of confrontational artworks, which can "simply be incorporated into machine learning exercises." "In the long run," he concludes, "there is no technical solution" and "no evident way to intervene in machine-to-machine systems." All he can do is point us in the general direction: "We need to create deliberate inefficiencies and spheres of life removed from the predation of the market and politics — 'shelters' in the invisible digital sphere [...]". (Foster, 2021, p. 155, our translation)

Indeed, the strength of this type of artistic-documentary intervention lies less in interrupting digital processes than in critically restoring all that has been colonized from our field of vision through these processes. In this regard, among the numerous works that theorist and artist Giselle Beiguelman (2021) gathers in *Políticas da Imagem*, the project *Disruptions* (2015-2017) by Palestinian photographer Taysir Batniji stands out as emblematic. This project consists of eighty-six screenshots of video calls with his mother and family, who live in Gaza, where he was born and raised but to which he has not been able to return since 2006 due to the Israeli blockade. "Pixelated, corrupted, fragmented, these images bear all the marks of contemporary interruptions: exile, nomadism, displacement, and connection failures" (Beiguelman, 2021, pp. 160-161, our translation). The telebody, in turn, is what restores a minimal affective connection.

Each in their own way, the aforementioned artists advocate for a certain reframing of the digital world from its margins, gaps, and short circuits. If this world, on one hand, is increasingly governed by algorithmic and petrosexoracial protocols, on the other hand, the fictions that structure these mechanisms are made explicit as such, even as a result of the speed and abundance of narratives. The dysphoria of the world is nothing more than this onto-fictional eruption that traverses us as telebodies, whether for the purposes of maintaining and updating old fictions or in the sense of opening, reframing, and contesting the realities thus produced and incorporated. And if the present time, as Foster (2021, p. 183, our translation) states, "is always mortgaged as collateral for a time to come (a time that never actually arrives)," perhaps Preciado's dysphoric promise is a way of advocating, from digital contradictions and in an equally contradictory manner, for a future time that restores the present to us.

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satellite into outer space. For Paglen (*apud* Foster, 2021, p. 157, note 30, our translation), these photographs are future artifacts "from aliens from the past (ourselves)", artifacts that suggest that "the future already exists, even if we have not yet managed to reach it".

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DIGITAL FRAMEWORKS / MODERN URBAN FRAMES

ESTRUTURAS DIGITAIS / VISÕES DO URBANISMO MODERNO

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Abstract

This critical essay investigates the interaction between digital landscapes and inherited urban morphologies. Digital technologies have impacted our cities as much as the changes brought about by modern planning. Like modernism, streamlined strategies are propagated globally under the discourse of efficiency through technology. Their seemingly technical neutrality hides their capacity to function as dominant frameworks, which are infrastructural in nature and comparable to modernism's structuring urban frames. Through a discussion of recent authors, the essay explores the main spatial characteristics of the digital landscape, examining urban morphological and infrastructural heritage as a preexisting ground for overlaying technological frameworks. Conflicting and common concepts with contemporary urbanism are subsequently analyzed. The discussion proposes that similar tools and frameworks acquire different meanings between urbanism and digital technologies. The Rio de Janeiro, Brazil case study further examines the complexity of contemporary digital-urban interactions within a layered fabric. It exemplifies the tensions in translating globalized frameworks to prominent cities in the Global South. Results point to the limitations of the spatial framework within the digital debate and underscore the need for cross-referencing with contemporary urban strategies and specific urban contexts.

Keywords: Digital pervasiveness, Brazilian modern urbanism, Urban isotropy, Contemporary urbanism

1 Introduction

This critical essay investigates the intersection between urban frameworks and digital landscapes. While these two domains have become increasingly interwoven, conceptual discussions represent them as distinct layers. Digital platforms are described mainly by the objects they influence directly and the actions they are intended to mobilize. Their urban impact, however, extends beyond their intended functionalities. Thus, the mechanics of this interaction should take into account cities' spatial and structural complexity.

The proposed methodology involves a literature review to establish conceptual intersections between urbanism and the digital realm. Of particular interest are concepts of the digital that carry a robust spatial component and are operative in determining spatial and hierarchical order, such as ground, pervasiveness, seamlessness, porosity, and coupling. Analogous ideas have mobilized discussions within both historical and contemporary urbanism. These concepts signal points of tension between the two fields of knowledge and help establish a basis for comparison. We hypothesize that local urban complexity shapes the digital landscape beyond the limits of globalized technical packages. Our objective is to further understand the mechanics of this process from a conceptual point of view, particularly in light of the transposed layers of canonical modernism that have shaped cities in the Global South.

We develop the argument in three sections. Hierarchical Grounds explores the characteristics of overbearing hierarchies in modern spaces – segmented, infrastructural, frictionless – and compares them to the technocratic approaches within digital landscapes. It also identifies critical spatial issues that could determine conceptual intersections between the urban and digital realms. Diffuse Countercurrents investigates alternatives to canonical modern frameworks in search of new tools for spatial ordering, enabling a dynamic approach to the evolving urban fabric. It further examines the interweaving of digital and urban processes and addresses some challenges of adapting digital frameworks to complex urban environments. Translations to a Complex Ground presents the city of Rio de Janeiro as a case study of the intersection between the digital landscape and a multilayered urban fabric characterized by cultural and spatial diversity. It aims to contextualize the transposition of globalized digital frameworks that continue to shape major cities in the Global South.

2 Hierarchical Grounds

Digital technologies have impacted our cities as much as the changes brought about by modern planning – a sort of second urban revolution still unfolding. Much like historic modernism, streamlined strategies are propagated globally under a discourse of efficiency through technology. Their seemingly technical neutrality conceals their capacity to function as a dominant, often insidious framework, infrastructural in nature and analogous to modernism's overarching grids, functional subdivisions, and transport lines.

Digital and contemporary urban approaches to the city have had to address some of the same phenomena: layered cities, growing social diversity, and morphological and infrastructural complexity. Examining this common ground can reveal essential differences in their approaches and the underlying nature of digital-urban interactions. While contemporary urbanism has largely abandoned the modern project of hegemony, digital platforms often thrive on its inherited hierarchical structures, such as transport systems and fragmented but frictionless space. Meanwhile, the critique of digital impact on cities has been informed by both postmodern and post-structural analyses of modern urbanism, particularly its effects on local diversity and the preexisting urban fabric.

Despite the complex impact of digital technologies on our cities, their role is increasingly framed through a technocratic prism, mainly under the concept of Smart Cities. Critics like Adam Greenfield (2013) point out that the discourse dominated by data-driven efficiency, marketed as inherently neutral by the tech industry, neglects cities' historical and cultural aspects. Similarly, Giselle Beiguelman and André Deak (2020), among others, denounce the biopolitical nature of technopolitics: a state of surveillance, centralized authority, and control. These critical views speak of a process of homogenization and hierarchy and aim to reestablish the political and sociological dimensions of the debate.

The ongoing debate is further complicated by the rapidly changing field involving contemporary cities and digital technologies. Although cities might be seen as the more static or slower-changing element of the equation, the digital realm has acted as a catalyst for once-gradual urban processes and a trigger for new urban phenomena. Technological tools are rapidly developing, as widely observed. Their changing forms have evolved into multi-scalar urban systems, with the capacity for micro-infiltration represented by the broad notion of digital pervasiveness.

The spatial component of the digital-urban equation is central to understanding its complex dynamics. Malcolm McCullough (2004) proposes that there is an indissociable connection between digital technologies and urban environments through Paul Dourish's use of the philosophical concept of embodiment – as opposed to the disembodied cyberspace and global digital flows. His approach embraces technological development while attempting to bring complexity to the spatial interaction between people, spaces, and digital technologies. These contextualized experiences, mediated by the then-emerging technological tools, occur within a broader, essentially infrastructural and digital frame (networks, software, devices): McCullough's proposed idea of the digital ground.

Dourish's (2001) investigation of embodiment – drawing from Heidegger's phenomenology – attempts to address, in the early 2000s, the gradual infiltration of digital systems into social life and, by extension, urban space. He defines "embodied phenomena [as] those that, by their very nature, occur in real time and real space." Embodied interaction "exploits a sense of familiarity with the everyday world of social and physical interactions" in which people are 'enmeshed' (Dourish, 2001, p. 100). Through the concept of coupling, Dourish reinforces the idea that digital tools not only function as extensions of human capabilities but that the physical and mental components of this experience are indissociable, resulting in a seamless experience. Both Dourish and McCullough explore the spatial translation of previously static interactions between humans and computers, examining the ongoing paradigm shift from cyberspace to ubiquitous computing – and later pervasiveness.

These early visions of digital tools and their spatial mechanics have multiple social and urban implications. The idea of seamlessness gradually migrates toward structural invisibility, configuring an underlying framework increasingly tied to the domain of labor and algorithmic control. The experiential nature of human-digital interaction will find itself encapsulated – enveloped, as described by Benjamin Bratton (2016), d'après Deleuze – within a restricted set of possibilities and spaces predetermined by the available digital tools, often related to the spread of generic spaces described by Rem Koolhaas (1994). For example, the 2024 iPhone 15 ad for the seemingly anodyne "Find My Friends" social tool portrays a Mandalorian-costumed urbanite navigating through typical North American suburbia (condominium lawns, diner, parking garage) and the city's Central Business District. His final destination is the controlled generic space of the Convention Center, where he and his software find themselves "at home" (Apple, 2024). Lastly, as Bratton proposes, the urban extent of these interactions will be absorbed into a layered global macro-structure, termed The Stack, extending beyond personal and city spaces and overriding local governance.

Despite his generally optimistic view, McCullough acknowledges that "context appears to have unintended consequences on information technology" (McCullough, 2004, p. 11), perhaps suggesting that experiential accounts of ubiquitous computing could be approaching a threshold of control. He also notes that architecture is "no longer separate from digital networks. Unlike cyberspace, which was conceived

as a tabula rasa, pervasive computing must be inscribed into the social and environmental complexity of the existing physical environment" (McCullough, 2004, p. xiii). On the other hand, Dourish aligns more closely with contemporary approaches to urban space through his phenomenological exploration of the intersection between social life and digital pervasiveness. Both visions, therefore, test the limits and nature of urban-digital interaction.

For Bratton (2016, p. 4), each dimension of the hierarchical stack has its structural and infrastructural frame: "As we link infrastructure at the continental scale, pervasive computing at the urban scale, and ambient interfaces at the perceptual scale, we […] explore how these interweave and how we might build, dwell within, communicate between, and govern our worlds". The pervasive nature of digital technologies is a critical element of Bratton's understanding of the urban scale. This "multilayered" system repositions previously dispersed conceptual propositions and provides a theoretical framework for situating different components of digital-human interaction, such as Dourish's experiential packages or McCullough's infrastructural ground.

As an urban phenomenon, digital pervasiveness is thus a matter of scale and structure. It functions as a broad structural frame – similar to a modern grid or mesh – while enabling micro-management. In this sense, its spatial command overlaps with that of the modernist project, where, through structural grids, functional zones, and hierarchical lines, the city's development could be kept under the strict control of the plan at all scales and over time: a technocratic control over spatial interactions. This is not to say that the technocratic project related to digital pervasiveness is equivalent to the structuring strategies of canonical urbanism per se, but rather that it finds in spaces similar to the generic modern ground its frictionless equivalent – as proposed by Greenfield (2013) concerning the Smart City.

We observe, therefore, that the debate is structured around some key ideas regarding the interaction between the urban environment and the spatiality of the digital domain. The notion of ground emerges as a foundational concept, represented by the reality of infrastructure (McCullough) and by the more abstract notion of pervasiveness (Bratton), drawing parallels with ordering instruments such as the modern grid. In this latter sense, it becomes indistinguishable from urban morphology itself. The concept mediates various scalar issues, ranging from the experiential spatiality of interactions explored by Dourish to the globalized macrostructure proposed by Bratton. It also organizes more complex themes, such as the trans-scalar infiltration capacity associated with technopolitics. Ultimately, it acts as an interface with urbanistic discussions, more specifically, establishing a point of comparison with the ordering of modern space.

If digital technologies and urban contexts are to be seen as indissociable, wouldn't they acquire the characteristics of the spaces and objects they modify? In other words, wouldn't these technologies potentially amplify or reinforce preexisting fragmentation, homogenization, and hierarchy if those conditions already exist? We can thus envision an inversion of Dourish's first-generation interpretation of coupling, where, instead of technology extending human capabilities, humans are on the threshold of becoming extension tools of runaway algorithmic frameworks powered by Artificial Intelligence – as happens in the gig economy. The idea can also be applied to the urban infrastructure – beyond McCullough's digitally-specific infrastructure within his interpretation of ground – coupled as extension tools of increasingly dominant and hierarchical digital frameworks, as will be seen further on. However, this also implies that other, perhaps more continuous urban fabrics could favor an ordered – though less hierarchical – complexity. To investigate this scenario, we will examine the evolving common ground between contemporary urban strategies and digital landscapes.

3 Diffuse Countercurrents

Writing in the early 2000s, Andrea Branzi characterizes our current urban condition as "dispersed, inverted, and immaterial" and argues that passing "from the strong and concentrated modernity of the twentieth-century to the weak and diffuse current one" requires innovations in design (Branzi, 2006, p. 9). The perception of growing urban complexity and new interrelationships between city scales – territorial, metropolitan, but also micro-urban – has demanded a new vocabulary and a new set of operative tools. Branzi proposes provisional models of weak urbanization, "reversible, evolving," which correspond to the necessities of a "society that is continually elaborating its own social and territorial organization, dismissing and re-functionalizing the city" (Branzi, 2006, p. 10).

The position underscores a fundamental difference from the static nature of canonic modern urbanism, where functionalist subdivision and architectural disposition are predetermined by the plan and waiting to be fully realized over time. But, while the fixity of functional modernism no longer responds to contemporary complexities, the idea of underlying order remains – a diffuse order. Branzi observes that the "immaterial

reality of computer networks has already created a de facto, dynamic, invisible, and abstract metropolis that is progressively substituting (or moving to the background) the physical and figurative metropolis" (Branzi, 2006, pp. 10-11). This idea is echoed in Bratton, though with more bleak undertones: "these networks also establish new territories by smothering precedent territories or interweaving with them asymmetrically" (Bratton, 2016, p. 159).

The descriptions go beyond the more accessible ideas of successive layering that urbanists have deployed in the past few decades to approach urban differentiation issues and scalar interrelationships. The authors describe the infiltration not only of digital infrastructure but also of an uninvited ordering framework – not entirely invisible in itself, but one that has broadly seemed invisible to the city's previously known dynamics and, particularly, to urbanism as a domain of knowledge. This extraneous element – foreign to both the known city and the field – has not been fully understood. Yet, it has assumed the place previously ascribed to designed frameworks, displacing their function and aspiring to the role of a dominant frame. The operation is not one of addition or superposition but of a fundamental interweaving, as we have seen in Bratton.

While Branzi (2006) views the "dispersed, inverted, and immaterial" – both within his own design tools and as a characteristic of computer networks – as a counter-phenomenon to the Generic City, Bratton (2016) repositions the quality of pervasiveness within a larger hierarchical chain, The Stack, as seen above. The seeming horizontality of pervasive computing is thus reabsorbed into a broader hierarchical order beyond the city itself. Nevertheless, some aspects of the digital-urban interaction respond more specifically to the internal complexities of cities, even within a larger, dominant frame. Although these interactions may appear straightforward within the context of a frictionless ground – as in the modern generic ground – complex urban fabrics defy such simplification. Branzi's investigation involves the search for alternative frameworks that can assume the structuring role of the modern grid while avoiding its rigidity.

Modernism developed its frameworks around the strict relationship between order and hierarchy, leaving a lasting impact on many of our cities today. The Ville Contemporaine, organized under the Cartesian grid, is both a plan and a diagrammatic model of the relative position of the city's fundamental elements. It lies halfway between the concentric city arrangements of order and expansion prevalent in many nineteenth-century European capitals and the emerging logic of the linear plan (Feferman, 2007). Its synthetic representation became both a clear exposition of its inner workings and a powerful instrument for its international translation.

The pervasive nature of the modern grid within the plan (i.e., the possibility of its indeterminate extension) rigidly ties the city's scales, functioning as an invisible governing framework. It is at once abstract – an autonomous instrument pertaining to the aesthetic, compositional aspects of the design process, still influenced by the nineteenth century – and structural, exerting spatial command over physical objects such as roads, buildings, and open spaces. It functions as a frame for what Bernardo Secchi and Paola Viganò (2011, p. 11) describe as the "destructuring of social demand into its fundamental components, treating each of these as part of a different layer," such as housing and business zones. The apparent neutrality of the grid, conferred by its recognizable geometry, becomes an element of visual stability and transparency of its components.

These historical instruments of design, which played an important role in shaping Latin American cities, such as Brasília and Rio de Janeiro, are seen as being in conflict with the growing complexity of contemporary cities and society. Secchi and Viganò observe that, from the 1970s onward, "the *great syntax* of analysis and representation of social demand developed by urban planners in the 1930s and generalized in the post-war period" was deemed ineffective across various fields of knowledge (Secchi & Viganò, 2011, p.11). Like Branzi, their work investigates new tools, both conceptual and operative, to build a non-hierarchical approach to spatial and functional diversity.

Viganò and Secchi (2011) investigate new frameworks for spatial equilibrium through the concept of *isotropy*. They observe that isotropic conditions do not signify homogeneity per se but rather the equilibrium of conditions throughout a given environment. In *La Ville Poreuse* (*The Porous City*) the authors describe three types of urban isotropic networks (*réseau isotrope*). The high-speed network "communicates faraway destinations" on a territorial scale, with fluxes not always connected to the city center. The space of median speed, or "passing network," concerns the nodes of the first network, with its "rich exchanges," and is also referred to as a space of lifestyles related to a polycentric city. A third network is termed "low-speed space," "territorial space of proximity," or "weak speed" (pp. 142-143).

The authors observe that “these three networks do not constitute a hierarchy, but three different urban spaces, differently inhabited, crossed at different times and at different speeds, with different relationships to facilities, activities, or commerce along their routes” (Secchi & Viganò, 2011, p. 142). Thus, the three speeds (*vitesses*) assume hybrid forms between displacement and medium. Though the idea of movement is central to the above network analysis, it is not bound by traditional subdivisions of transport modalities. On the contrary, the infrastructure is an agent of equilibrium through its nodal, polycentric structuring of local space (p. 142). Meanwhile, Bratton observes that “the *City layer* […] does not enforce dichotomies between urbanisms of enclosure and urbanisms of mobility as much as it combines them” (Bratton, 2016, p. 148). Both point to a similar compression of urban elements. Bratton, however, views the architectural-digital relationship as encapsulated by the large-scale programmatic architecture that Branzi seeks to challenge. So, while the former reading moves toward a hybrid and relational system that transcends scalar issues through an isotropic equilibrium, the latter describes the persistence of a hierarchical structure of containment.

The system proposed by Secchi and Viganò (2011) relates directly to the metropolitan space of the *Grand Paris* consultation. However, the underlying ideas apply to other urban contexts, particularly regarding their dynamic shift in scalar interrelations, a fundamental problem of modern heritage with its dominant infrastructural layer, as we have seen. The *isotropic medium* in which people, spaces, and systems are embedded takes on different forms as the variables change, gradually producing differentiation. Viganò proposes that “isotropy is the result of successive processes of territorial rationalization [...]. The notion of ‘isotropy’ concerns all scales: from the finest to the larger scales of major infrastructure networks” (Viganò, 2016, p. 42). The approach speaks of a fundamental shift in spatial ordering and is related to Branzi’s idea of diffuse structuring strategies. It points to the possibility of a less hierarchical, dynamically constructed order.

On the concept of *porosity*, Viganò writes that it “comes from the natural sciences [and] concerns movement and the resistance that opposes it. It is related to the phenomena of infiltration and percolation. […] Both a concept and metaphor, [it is useful] for describing and projecting contemporary cities and regions, and for cross-referencing the major changes they are currently undergoing” (Viganò, 2016, p. 148). Porosity also relates to the capacity for spatial penetration and is presented as a complementary concept to isotropy, establishing the possibility of interrelations between different networks. The idea of resistance pertains to the pre-existing fabric, which has the capacity to slow urban flows and multiply interactions. It thus stands in opposition to the frictionless flow of modern, hierarchical space. While it permeates all scales, porosity serves particularly as a tool for addressing finer scales.

The adaptive nature of isotropy allows it to be represented by a mesh, a cloud, or a diffuse and dispersed medium, observes Viganò. “As a metaphor, isotropy also encompasses different generic forms represented both in physical reality and in ideal readings of the territory.” (Viganò, 2016, p. 41). These ideas form the conceptual basis for describing and acting on contemporary urban complexity and find parallels in the concepts of pervasiveness, seamlessness and the capacity for digital infiltration. A gradual refinement of the isotropic grid, both literally and metaphorically, has been instrumental in contemporary approaches to urban diversity.

The proposed concepts establish an intersection between urban tools and the digital domain, through which it is possible to observe differences, for example, in the mechanisms of pervasiveness and micro-infiltration in each field. Digital pervasiveness is related in some ways to an isotropic system, with its spatial representation perhaps analogous to meshes of different scales. But is it the same thing? From a technocratic perspective, digital isotropy might be viewed as the gradual migration towards a dynamic equilibrium of the urban objects to which digital systems attach. However, algorithms often follow autonomous paths, reinforcing their initial commands in a loop. Furthermore, as Bratton has shown, local equilibrium often masks more insidious, overbearing frameworks. On the urban scale, this signifies not only the objects on which pervasive computing acts directly, but the urban frameworks to which it attaches itself.

It can be seen, therefore, that the domain of contemporary urbanism is moving to address issues that also characterize the digital landscape. Interaction with the complex fabric becomes the fundamental problem of non-hierarchical adaptation, and the terms of this interweaving continue to be defined. We observe, however, in contrast to Branzi's initial view of the phenomenon of digital diffusion, that platforms have migrated to situations of low porosity (frictionless spaces), acting against the processes that slow down urban flows and multiply interactions. The case study of Rio de Janeiro, presented below, examines the transposition of digital systems into a hybrid fabric that contains both porous and hierarchical structures.

4 Translations to a Complex Ground

Rio de Janeiro is not usually regarded as a modernist city, but its urban morphology was radically transformed during the twentieth century under the tenets of canonical European modernism. Like many cities in the Global South, its preexisting compact urban fabric, shaped during the colonial and nineteenth-century periods, was gradually replaced, superposed with new layers, and spread out. These transformations, led by early-modern reformers and, later, by Brazilian urbanists Lucio Costa and Eduardo Reidy, among others, served as a testing ground for many of the ideas that would be fully realized in the utopian/dystopian city of Brasília. They represented a fundamental reframing of the complex preexisting fabric and social life, resulting in what is now a layered-hybrid made up of clusters of continuous fabric within larger, modern infrastructural networks. The city thus embodies a history of framed complexity, representing a clash of opposing structures that reflect the conflicting ordering frameworks we have previously examined. Within this context, the digital landscape should be seen as part of the layering process. The transposition of digital platforms and infrastructure is not simply a technical matter, but involves the translation to a complex ground.

The city's central area exemplifies its historical layering process. The nineteenth-century city center, once a diverse mixture of housing, commerce, cultural and government buildings – the city's birthplace – was forcefully emptied of its residential function and replaced by modern office high-rises in an effort to forge a symbolic, restricted-function Central Business District, along the lines of the early CIAM (the International Congress of Modern Architecture). This model survived the transfer of federal government functions to the new capital, Brasília, in 1960, with government agencies such as the Central Bank and the headquarters of the Brazilian oil company, Petrobras, moving in as compensation.

More recently, however, the restricted zoning model reached its limits, with a general recognition that the absence of housing and of overall diversity were key factors in the decline of the central area. The growing number of empty office spaces was accentuated by the COVID-19 pandemic and further accelerated by the paradigmatic shift to digitally remote forms of work, as outlined in the 2023 report of the Brazilian Central Development Bank (BNDES, 2023). Although this can be seen as part of a global trend, its scale and spatial characteristics can be attributed to the city's historical modern context, which acted as a catalyst – particularly due to the relative isolation of the city center and its functional zoning. The ongoing phenomenon also shows the vulnerability of frictionless, non-diverse spaces to the indirect action of digital paradigm shifts. The isotropic nature of the delocalization process, which might otherwise adapt to a continuous and porous fabric, clashes with the spatial character of the inherited modern framework.

Official efforts to revitalize the central areas have included textbook global digital solutions related to Smart Cities and high-profile global events, such as the 2016 Olympic Games. The Rio Operations Center (*Centro de Operações Rio*), a control and data center, monitors integrated mobility and gathers information on diverse aspects of the city's inner workings, including a network of surveillance cameras, in partnership with the private sector. Touted as the first urban equipment delivered for the Olympic Games, its mission is to 'monitor the city and integrate actions to reduce the impact of occurrences 24 hours a day,' mainly on its system of expressways (Centro de Operações Rio, n.d.). The preexisting network, thus, functions as an infrastructural extension of the surveillance platform.

The striking geography of Rio de Janeiro, a city intersected by a high mountain range and developed in relatively narrow strips between the mountains and the sea, posed a complex problem for urban planning in the early and mid-twentieth century. Its metropolitan structure today relies on a series of arterial expressways established in the 1960s, which aimed to address the challenge of geographical fragmentation. The masterplan by Greek urban planner Constantinos Doxiadis, as noted by Juliana Bandeira de Mello, "sought the equitable redistribution of [urban] functions" (Bandeira de Mello, 2023, n. p.) and was an effort to organize the territory through high-speed roads. This system of expressways – the primary focus of the Rio Operations Center – also served as an instrument for hierarchy and class separation (Bandeira de Mello, 2023). The plan accounts for the city's contemporary framework of locally continuous, porous clusters that are territorially dispersed through the infrastructural network.

The local geography also presented a novel challenge for the first generation of modern urban planners. The diagrammatic Cartesian model, associated with radiocentric European cities, had been designed having in mind the continuous fabric and the relatively unimpeded urban expansion at its edges. Le Corbusier's iconic design for a linear building, which crossed the city and beyond, marked a radical shift from the still relatively compact, functional city of the Ville Contemporaine to a radically dispersed system of city fragments under Linear Planning.

The unrealized proposal, initially conceived for the city of Rio de Janeiro and refined in the plan for Algiers, extended beyond utopian experimentation. It positioned road infrastructure as the single most important element in determining order and hierarchy. It also operated a fundamental compression of structuring *line* (which replaced the Cartesian grid), infrastructure, and architectural object.

The conceptual transition between the abstraction of the grid and its physical manifestation serves as a point of connection to the dynamics of the digital mesh and the territorial interweaving of urban phenomena. These initial ideas would form the basis for the very real road system planned and built from the 1950s onward, and which would support the governmental policies of dispersal and enclosure. The capacity for social and spatial fragmentation of such a framework would be denounced Christopher Alexander (1965) in A City is not a Tree, signaling the imminent collapse of the large scale modern planning model.

The city's expressway system, which enabled territorial expansion, also evolved into a biopolitical apparatus, facilitating the removal, relocation, and circumscription of favelas in the latter half of the 20th century. The *Maré favela*, once located in the lowlands near Guanabara Bay, is now isolated from its surroundings by this network of expressways and has been the target of routine police operations purportedly informed by big data. These dystopian pockets, whose relationship to the rest of the city is mediated by an infrastructural system that both connects them on a city scale and isolates them on the local scale, are subjected to targeted, mediatized actions. The spatial configuration of the favela as an enclave perpetuates a vicious technopolitical cycle of police operations linked to digital surveillance packages for cities. In contrast to the opaque sources of official information, local organizations such as *Redes da Maré* (2023) (Maré Networks) collect data on these operations and disseminate it transparently through community networks. This counter-hegemonic initiative relies on statistical and digital tools, positioning itself sharply against the official narrative. However, its use of digital resources does little to diminish the asymmetrical interweaving of territorial power.

The favelas, as continuous urban fabric, display density and diversity that can be described as both *porous* and *isotropic*. Digital tools for spatial management and economic and social exchange could thus thrive on their internal characteristics. But their otherwise culturally and spatially rich environments often exist within the broader hierarchical order of infrastructural isolation. Their population experiences a *porosity* of another kind: a form of surveillance that enters bodies without touching them (Beigelman & Deak, 2020). David Harvey observes that these "enclosures, spatial controls, and policing [are deployed to] inhibit new forms of social relations (a new commons)" (Harvey, 2012, p. 67). The surveillance systems, *coupled* with the infrastructural framework inherited from modern planning, thus perpetuate a process of urban fragmentation.

Other government actions aimed to transform the post-industrial landscape of the Rio de Janeiro port area, adjacent to the modern center, in line with waterfront redevelopment strategies from the 1990s, which drew on experiences from New York, Boston, and Puerto Madero (Buenos Aires). Originally envisioned as an extension of the downtown business high-rise model, with iconic architecture and "smart" infrastructure, the area quickly became entangled in the office space expansion crisis described above. The local government then turned to new, technologically-themed strategies, such as creating a *tech hub* in the port area. These centralized attractions, intended to bring visibility to government actions, often distort what would otherwise have been a gradual urban development. The approach faces similar issues of fixity versus delocalization.

So, how did the city encounter problems again, given that the port area redevelopment seems to be evolving toward a peculiar form of monofunctionality – a "smart" one, this time – similar to the one that led its modernist center into crisis? Once more the answer is lies in the lack of complexity of the urban fabric and the social diversity that inhabits it: namely, the repetition of discontinuous, generic space characterized by the absence of housing. The example shows how such global solutions are tied to a decontextualized idea of ground, as Greenfield points out in his analysis of the IT campus and its self-serving equivalence between function and spatial configuration (2013). It is evident that the ideal place for a "tech hub" lies within a spatially and socially complex fabric, such as that found in the Maré favela.

It turns out that the residential function was not prohibited in the original port area plan, as this lesson was learned from the modernist experiment. The port area had a generic plan when first presented, involving mainly the determination of building heights to justify a total floor area to be sold. However, its principal operation was financial: the sale of building potential certificates (CEPACs) to be used in other areas of the city. The financial model did not take into consideration the actual interest or capacity to build within the port area. Thus, the operation constituted an autonomous financial cycle – its relationship to the development of the port area was an abstraction – a modus

operandi denounced by David Harvey, among others. Of particular interest is the algorithmic nature not only of the cycle of financial products, disconnected from city development but also of the physical displacement of building capacity within the city, as if the exchange of spaces could acquire the same fluidity as capital. The operation similarly works within the framework of a decontextualized ground.

These events exemplify the intersection between broad urban structural lines and digital technologies within the specific context of Rio de Janeiro. In the case of the city center's attempted renewal, the new dynamics of the digitally mediated domain of labor respond to fundamental and indirect changes in the spatial characteristics of the city, extending beyond the Smart City toolbox. The adjacent port area, in turn, highlights the crisis of generic space and the limitations of equally generic, packaged global solutions. Meanwhile, the pockets of continuous fabric, both connected to and isolated by the city's infrastructural frame, are divided into digitally integrated urban environments and digitally surveilled enclaves.

5 Conclusion

The investigation into the conceptual frameworks reveals a gap between visions of complexity in urbanism and the digital domain. Despite the growing capacity of digital systems to solve complex problems, from an urban perspective, digital frameworks migrate toward generic ground and have been used to reaffirm urban hierarchical order. This characteristic is exacerbated by the preexisting modern infrastructure found in cities such as Rio de Janeiro, with its layers of transposed urban planning forming a hybrid framework. It is unclear whether the generic representation of *ground* is favored by digital systems due to ease of adaptation, a lack of dialogue between urban and digital domains of knowledge, or a fundamental inadaptability of digital technologies to complex urban fabrics.

Establishing the mechanics of digital-urban interweaving is thus a fundamental issue. Spatial consequences beyond the foreseen functionalities of digital platforms point to shifting meanings within the definitions of *ground* and in the relationship between infiltration, control, and the representations of *pervasiveness*. An expanded interpretation of digital ground must then include the specificities of local contexts and consider the digital landscape and inherited urban layers as indissociable entities.

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GLOBAL SOUTH ADRIFT:
DIGITAL REGULATION IN THE EUROPEAN UNION AND BRAZIL

SUL GLOBAL À DERIVA:
REGULAÇÃO DIGITAL NA UNIÃO EUROPEIA E NO BRASIL

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Abstract

This article aims to analyze Internet governance systems in the Global North and South, addressing public policies to guarantee digital sovereignty through legal provisions to combat disinformation and hate speech. We investigated the points of convergence and divergence in the regulatory systems for digital platforms in the European Union and Brazil. The methodology prioritizes documentary analysis, examining legislation in the European Union, mainly the Digital Services Act, and in Brazil, notably Bill 2630/2020. In a comparative approach, the study presents results on the convergent and divergent aspects of these regulatory frameworks, emphasizing policies relating to content moderation, transparency, and the accountability of platforms in the dissemination of extremist, negative, and illegal content. The regulatory frameworks reveal tensions between self-regulation, non-interventive regulation, and digital deregulation. We found indicators that political and financial groups have captured and exploited social networks driven by the business model of technology conglomerates. The fight against disinformation requires changes in the economic architecture of the so-called big techs and the consolidation of advanced legislation, especially in the Global South. This region is a cradle of resistance to modern colonialism, which lacks digital governance capable of strengthening the integrity of information and promoting an online network that is effectively democratic, sovereign, and respectful of human rights.

Keywords: Digital platforms, Digital regulation, Disinformation, European Union, Global South

1 Introduction

This article investigates the processes of digital governance in Brazil and the European Union, particularly concerning tackling disinformation and hate speech. It should be noted that the concept of the Global South is not restricted to a merely geographical conception but, above all, encompasses a political-ideological position of opposition to colonialism and imperialism imposed by colonizing nations. In this sense, "decolonial thought and action emerged and unfolded, from the 16th century onwards, as responses to the oppressive and imperial inclinations of modern European ideals projected onto the non-European world" (Mignolo, 2017, p. 2, our translation). According to the author, the Global South is, therefore, a space of resistance against Eurocentrism and colonial domination, which suffocates or silences these societies' social, economic, and cultural aspects. It should be noted that contemporary colonialism operates through digital means.

We sought to analyze the legal provisions for combating disinformation and strengthening citizenship and human rights. We defined the following question: How do the European Union and Brazil regulate digital platforms to combat disinformation and protect democracy and human rights? We used documentary analysis since we examined legislative material from the European Union, notably the *Digital Services Act* (DSA, 2023) - the Digital Services Act and the e-Commerce Directive (ECD, 2000) - and from Brazil, mainly Bill 2630/2020 (Brasil, 2020). We do not intend to study the related legislation in these territories systematically. Instead, we will focus primarily on the DSA and Bill 2630, comparatively evaluating aspects of these laws, especially concerning disinformation and hate speech. We propose a comparative study (González, 2008), seeking to understand the points of convergence and divergence of the Brazilian and European paradigms (Bartóki-Gönczy, 2021; Bayer et al., 2019; García & Oleart, 2023; Schlag, 2023). Thus, disinformation processes, as a weapon of political strategy, are investigated in the light of public policies and legislation in the European Union and Brazil, emphasizing issues such as content moderation, transparency, and accountability of platforms.

2 Disinformation and Digital Misgovernance

Recent research, such as that carried out by *Global Witness* and the *Institute for Strategic Dialogue* (ISD) in October 2024, reveals that digital platforms have been failing considerably in their duty of transparency and their obligation to contain disinformation during the US electoral process (Soares, 2024). Disinformation is one of today's biggest problems, challenging the foundations of democracy and human rights. To deal with this phenomenon, it is necessary to rethink forms of digital governance to develop efficient and swift regulatory frameworks. The regulation of digital platforms must consider the international debate, whose concepts must address issues such as disinformation, information integrity, and digital sovereignty (Seto, 2021; Lima & Valente, 2020). The UN report on information integrity on digital platforms states, "Information integrity refers to the accuracy, consistency, and reliability of information. It is threatened by disinformation, false information, and hate speech" (UN, 2023, p. 5).

It is important to note that disinformation is intentional: it carries false or decontextualized information with the deliberate intention of misleading (Wardle & Derakshan, 2017). Therefore, it is a discursive practice constructed to deceive and cause damage, especially in politics. There are different types of disinformation, according to Wardle and Derakshan (2017), which have the following typologies: 1) misleading content, when disinformation creates a fallacious framework capable of deceiving and producing a negative perception; 2) imposter content, when content is published by imposters from existing sources; 3) fabricated content, when the information conveyed is entirely false (commonly called *fake news*); 4) false connection, when a false relationship is created between two pieces of content (for example, between a headline and the text, so that the headline does not accurately/adequately reflect the content of the story); 5) false context, when a false background is created for actual content, causing a distorted contextualization; 6) manipulated content, when facts are deliberately manipulated to deceive and mislead the target audience.

3 The European Union: From Self-regulation to the Digital Regulatory System in the Global North

Before addressing the implementation of the Digital Services Act (DSA), it is necessary to provide a historical context for the process of governance of digital platforms in the European Union (Schlag, 2023; Turillazzi et al., 2023). To this end, we are going back to the 2010s to situate the evolutionary panorama of self-regulation and regulation of digital markets and services in Western Europe historically, following the chronology of the most relevant facts in brief. In 2000, the European Parliament and the Council of the European Union established the e-Commerce Directive (ECD) or Directive on Electronic Commerce, with the aim of "contributing to the proper functioning of the internal market by ensuring the free movement of information society services between Member States", as stated in Article 1 of the Directive on Electronic Commerce (ECD, 2000, Article 1). The document includes the safe harbor principle for digital platforms and web hosting companies, exempting them from liability for illegal content published by third parties. Thus, these corporations would not be liable civilly or criminally for the content posted, as they are a safe harbor that cannot be held accountable by the courts. As intermediaries, they could only be penalized if, knowing about it, they published illegal content.

The Directive also prohibits the establishment of arbitrary monitoring of digital services and e-commerce (Leiser, 2023). That means it is impossible to exercise overt surveillance of intermediaries, regardless of the content published or hosted on their sites, pages, and applications. In other words, it is forbidden to promote authoritarian control, while it is advisable to be diligent in preventing fraud and illegality. Therefore, the spirit of the ECD is to guarantee the full functioning of digital commerce within the laws advocated by the Member States. Thus, the platforms must comply with the legal requirements of the European Union. They are protected from any lawsuits brought on account of disinformation, hate speech, and other illegal practices, given that they were considered, at the time, to be technology companies and, therefore, not responsible for the content published there. Requiring the truthfulness of user-created content would be considered a harmful interference with the right to freedom of expression. We can notice that the ECD's stance is liberalizing the sharing of disinformation. Content moderation is admissible if it does not violate fundamental rights and the platforms' business model. Therefore, the ECD is flexible on this matter, delegating the right and power of self-regulation to companies.

Leiser (2023) states that platforms that host and broadcast disinformation are legally protected until they have active knowledge of any illegality. The author argues, "However, this is an inadequate approach as it fails to adequately protect individual users and society from the negative impacts of disinformation, which can be artificially amplified to boost advertising revenue" (Leiser, 2023, pp. 3-4). Precisely because it is inadequate, lenient, and favors impunity, there is a need to create new codes, laws, and standards to update the system of regulation and self-regulation in the digital environment.

In 2020, the European Commission publicly presented the Digital Services Act Package, which combines the Digital Services Act (DSA) and the Digital Markets Act (DMA). The package has two general objectives: 1) to create a safer digital space in which the fundamental rights of all users of digital services are protected, and 2) to establish a level playing field to promote innovation, growth, and competitiveness, both in the European single market and globally. In 2022, the European Parliament approved the legislative package, maintaining the immunity of providers for disinformative content. In October of the same year, these laws were published in the Official Journal of the European Union, beginning the implementation process in part of the Union. In August 2023, the laws began to be applied to platforms with more than 45 million users, affecting the so-called big techs. The full implementation of the legislative combo only began in February 2024 and applies to all companies in digital markets and services, regardless of size.

4 South Global Adrift: Uncertainties in the Field of Digital Regulation in Brazil

Since the mid-2010s, Brazil has adopted some measures to regulate or self-regulate the Internet. In 2014, it instituted Law No. 12.965, known as the Brazilian Civil Rights Framework for the Internet - MCI (Brazil, 2014), which provides for the use, rights, duties, and neutrality of the network and other essential rules in the country. One of the most critical principles refers to freedom of expression and the prohibition of censorship, preventing large digital platforms from barring content and blocking access. Another essential principle concerns net neutrality, i.e., all data packages must be treated equally without prioritizing speed (Santos, 2020). The Brazilian MCI is an important instrument that needs to be complemented by other legal provisions to face the new challenges that arose during a disinformation pandemic. Despite timid progress, we still have not achieved significant protection in holding digital platforms accountable, neither in the Global North, the Global South, or Brazil.

Years later, Law 13.709/2018 – the General Personal Data Protection Law (LGPD in the Portuguese acronym) – was created to regulate and safeguard the constitutional principle of privacy. This law establishes protective mechanisms based on respect for privacy, informational self-determination, the inviolability of intimacy, honor, and image, and the exercise of citizenship. It seeks to prevent abuses by technology conglomerates, which collect, process, and sell users' data for targeted advertising (Morozov, 2023). They also use psychometric techniques to map and generate interests, automatically distributing strategic content.

Some measures have been taken to combat digital guerrillas. However, these actions are primarily one-off and legally weak, which shows omission or inaction on the part of governmental and non-governmental organizations. Given this legal vacuum, platforms have arbitrarily decided whether or not to remove disinformative or discriminatory content. It is important to stress that platforms are not neutral. Their business models boost the reach of harmful content since the algorithms work on expanding reach by considering engagement, clicks, and views (O'Neil, 2020; Fisher, 2023). Sensationalist, appealing, scandalous, and uninformative posts tend to go viral on social networks like Instagram, Facebook, X/Twitter, YouTube, TikTok, and instant messaging apps like WhatsApp and Telegram. The greater the reach and penetration, the greater the platforms' profits.

5 Comparative Analysis: Accountability, Transparency, and Content Moderation

The legislative content of the DSA is focused on establishing harmonized rules to guarantee a digital market and a safe and reliable online environment, based on collaboration between authorities and Internet platforms having specific obligations of responsibility and diligence. This is clear from the general objective of the law:

> 1. The aim of this Regulation is to contribute to the proper functioning of the internal market for intermediary services by setting out harmonized rules for a safe, predictable, and trusted online environment that facilitates innovation and in which fundamental rights enshrined in the Charter, including the principle of consumer protection, are effectively protected.
>
> 2. This Regulation lays down harmonized rules on the provision of intermediary services in the internal market. In particular, it establishes:
>
> a) A framework for the conditional exemption from liability of providers of intermediary services;
>
> b) Rules on specific due diligence obligations tailored to certain specific categories of providers of intermediary services;
>
> c) Rules on the implementation and enforcement of this Regulation, including as regards the cooperation of and coordination between the competent authorities. (DSA, 2023, Article 1)

In Brazil, the proposal to regulate digital platforms was centered on Bill 2630/2020, the Brazilian Law on Freedom, Responsibility, and Transparency on the Internet, popularly known as the "*Fake News* Bill", drafted by Congressman Orlando de Moraes (PCdoB/SP). However, this bill will no longer be put to the vote. The president of the Chamber of Deputies, Mr. Arthur Lira, created a working group with twenty deputies from different political parties and sent the bill back for rediscussion. As a result, the agenda has been slowed, and a new bill may be proposed later. Bill 2630 has a scope focused on digital rights and strengthening democracy. To this end, it advocates ensuring the transparency of providers, moderating content, promoting education, and protecting the rights of users, especially children and adolescents:

Art. 4 - The objectives of this Law are:

I - strengthening the democratic process and promoting the diversity of information in Brazil;

II - ensuring the transparency of providers to their activities with the user, including the drafting and modification of its terms of use, criteria for moderating and recommending content, and identifying advertising content;

III - the exercise of the user's right to notification, to an adversarial hearing, to a broad defense, and due process to content moderation;

IV - promoting education for the safe, conscious, and responsible use of the Internet as a tool for exercising citizenship;

V - full and priority protection of the fundamental rights of children and adolescents; and

VI - encouraging an environment free of harassment and discrimination (Brazil, 2020, Article 4, our translation)

The DSA, in turn, acts in a complementary manner, seeking legislative harmonization in the European Union without breaking with or replacing the e-Commerce Directive. Like the ECD, the DSA does not define clearly what is illegal, which is why it refers to the specific laws of the Member States. It is worth noting that different obligations depend on the size of the platforms, as large platforms have additional requirements. The giants in the field, known as VLOPs, are those with more than 45 million users, among which we can mention the big techs, which are often referred to by the acronym GAFAM, which includes the following corporations: Google (Alphabet), Apple, Facebook (Meta), Amazon, and Microsoft. The DSA refrains from acting in the retail field of individual publications, instead looking at the systemic risks of the network in the wholesale field. The law advocates a set of preventive and combative measures by prohibiting authoritarian surveillance mechanisms that undermine freedom of expression. In other words, it seeks to avoid an ostentatious surveillance stance that curtails rights, determining that large companies take measures to prevent and confront savagery in the digital space.

Systemic risks include: 1) manipulation of information to violate human rights and affect vulnerable groups and people, especially children and adolescents; 2) use of algorithms to boost and engage with malicious, illicit, denialist, and extremist content; 3) use of inauthentic (fake) accounts and bots to amplify the distribution of malicious messages, such as hate speech and attacks on institutions; 4) use of advertisements to monetize channels, websites, pages, and profiles that spread disinformation, sensationalism, and fake news. Upon identifying these risks, digital platforms must immediately adopt reasonable and practical measures to mitigate the impact, such as adjusting the terms of use, changing the recommendation algorithms, collaborating with other platforms, and allowing private and independent audits.

In particular, a form of regulation has been created in which supervision is carried out through trust markers. According to Article 22, item 2 of the DSA, trust flags meet the following conditions:

a) it has particular expertise and competence for detecting, identifying, and notifying illegal content; b) it is independent of any provider of online platforms; c) it carries out its activities to submit notices diligently, accurately, and objectively. (DSA, 2020, Article 22).

Therefore, they are independent organizations highly specialized in digital rights. Their mission is to monitor and investigate complaints of possible systemic risks and damage committed on the web, using the notification and action mechanism. Their notifications must receive swift and priority treatment from platform providers. Current legislation does not mandate the automatic removal of content. Large corporations must carry out biannual assessments to prevent the intentional manipulation of their service, notably through inauthentic use or automated exploitation of the service, with actual or foreseeable negative impacts on public safety, collective health, the education of children and young people, the functioning of democratic institutions and electoral processes.

To neutralize or minimize these risks, the DSA provides for a duty of care, i.e., the obligation to adopt a set of measures to ensure the integrity of information, avoiding promoting disinformation and illegal acts on the web. The duty of care concept has become an essential principle in several countries, breaking the lenient tradition of self-regulation without holding online platforms accountable. Moreover, it has been consolidated as a pressing need in the paradigm of stricter public regulation, in which accountability for the systemic risks of the services provided becomes legal and legitimate. This measure avoids threats to democracy and ethical values, especially those of children and adolescents. Another vital measure is creating an ad bank, whose information must attest to the fairness of advertising distribution, thus

avoiding exploitation for disseminating and boosting disinformation and fraudulent news. In addition, they must grant academic researchers access to enable scientific research to be carried out.

In this way, "the DSA signifies a transition from ex-post to ex-ante regulation, which will likely have extensive implications for overseeing platforms as content provider 'gatekeepers'" (Leiser, 2023, p. 6, author's quotation marks). In other words, we are moving from an evaluation "after the fact" to an active preventive stance "before the fact". The first model is more passive because it depends on a judgment of the past and preceding historical facts; the second model is more active since it seeks to anticipate foreseeable events, adopting crisis management to mitigate systemic risks. Therefore, it potentially acts before the events happen. Metaphorically, we can say that the ex-post posture acts with an eye on the storm's damage; the ex-ante posture focuses on the clouds in dark formation. The DSA and PL 2630 provide for a duty of transparency. Platforms must produce reports on preventing systemic risks, mitigating crises, and dealing with human rights violations. They can be submitted to audits by independent institutions, representing a significant step forward in guaranteeing possible punishability.

Bill 2630 impacts the content of Article 19 of the Brazilian Civil Rights Framework for the Internet (Law No. 12.965/2014). This article establishes that platforms cannot be held responsible for content generated by third parties unless they fail to take the necessary measures to stop the illegality after a specific court order. This principle aims to protect freedom of expression by requiring a court decision to remove content. Considering that the contemporary digital reality demands strict and urgent measures in defense of democracy and fundamental rights, Bill 2630 proposes that digital platforms be held responsible without the need for a prior court order in specific cases involving hate speech, incitement to violence, coups d'état, elections, public safety, public health (false information about vaccines, for example). Therefore, in some instances, the bill advocates that providers adopt more active moderation without judicial intermediation. To avoid unfairness, platforms must notify users if content is removed or accounts are suspended, with the right to challenge and appeal. Concerning the basic policies, below is a comparative table between the DSA and Bill 2630 (Table 1):

Politics	**DSA - Digital Services Act** **European Union**	**PL 2630/2020** **Brazil**
Platform Accountability	Platforms can benefit from exemption from liability for user posts, as long as they adopt proactive measures to quickly identify and remove illegal content and disinformation. They have due diligence and transparency obligations and are subject to regular supervision and evaluation mechanisms, especially large platforms	It emphasizes a proactive stance in content moderation, especially against disinformation, hate speech, and content harmful to public health and electoral security. It demands that platforms act directly to remove content considered illegal, without necessarily waiting for a court order
Content moderation	Platforms are responsible for moderating content, especially content that could be considered illegal or fraudulent. They must quickly remove disinformative content and hate speech	It provides mechanisms for removing false and illegal content. The policy includes: proactive moderation, user notification, appeal mechanisms to challenge decisions, and transparency reports
Transparency	It requires platforms to publish clear annual reports on content moderation. Large platforms and search engines have additional obligations, such as publishing data on the average monthly number of active users and communicating relevant information about their operations	Platforms must publish regular reports on their moderation policy, with data on the amount and types of content removed. They must notify the user and guarantee the right to appeal against content removals and account suspensions
Confronting disinformation and hate speech	It emphasizes the need to act proactively to protect users, enforces the moderation of illegal content, demands efforts against the spread of hate speech and disinformation, seeks cooperation with trusted beacons, and promotes education and awareness among citizens	It creates rules to prevent the dissemination of harmful, false, and hateful content, and to protect human rights and democracy. It provides for proactive content moderation, notification mechanisms, partnerships with fact-checking agencies, and educational campaigns

Data protection	Platforms must handle user data responsibly and transparently, promoting trust and security in the digital environment under the General Data Protection Regulation.	Strengthens the security of users' personal data in compliance with the General Data Protection Law (LGPD). Limits the use of sensitive data, especially in targeted advertising and campaigns to manipulate public opinion
Advertising on platforms	It requires transparency in targeted ads, especially if they are based on sensitive user data. It imposes transparency reporting obligations, access to ad repositories, and targeting information	It establishes rules to guarantee transparency and prevent the risk of manipulation in electoral and advertising campaigns using sensitive data. It provides for the identification of advertisers, transparency in audience segmentation, and periodic reports
Collaboration with institutions and organizations	Platforms should cooperate with national and EU authorities to remove illegal content swiftly, encourage the adoption of codes of conduct and human rights codes to protect vulnerable groups, notably children and adolescents	It establishes rules for collaboration with public authorities and regulatory bodies. It provides for partnerships with fact-checking agencies and public institutions to carry out educational campaigns
Supervision and inspection	European Commission and national authorities of EU Member States	Not defined. This is one of the project's most controversial points
Sanctions and penalties	Platforms that fail to comply with the law may face sanctions, which must be effective, proportionate, and dissuasive Several factors are taken into account, such as the seriousness and recurrence of the infringement, the number of users affected, and the degree of negligence and intentionality. The fine can be up to 6% of the offending company's annual global revenue	The regulatory authority, which has yet to be defined, will be able to impose sanctions on the platforms, such as warnings, fines, and in serious cases, suspension of activities. The biggest penalty is blocking access to the service in Brazil.

Table 1: DSA and Bill 2630/2020 policies in comparative perspective. Source: Compiled by the author.

From the point of view of platform accountability policy, both the DSA and Bill 2630/2020 emphasize the need to increase the degree of accountability of digital platforms, moving away from treating them as simple technology companies and towards considering them as corporations, which have a duty and responsibility to moderate content and protect users. Another point of similarity concerns transparency: both legislative frameworks demand greater transparency about sponsored campaigns and targeted ads, especially those of a political and electoral nature. There is also a vigorous concern about tackling disinformation and hate speech, emphasizing the need to stop disseminating content potentially harmful to democracy and human rights. In addition, both laws provide for sanctions and financial penalties, ranging from a simple warning to the temporary suspension of services or the total blocking of operations in the country.

However, marked differences exist between the DSA and Bill 2630/2020. The former has a broader scope, covering platforms of different sizes and different digital services; the latter focuses only on large platforms, prioritizing the fight against disinformation, seeking to strengthen public security and protect electoral integrity. The DSA has a robust central authority, the European Commission, responsible for supervision, oversight, and enforcement. Bill 2630, on the other hand, has not yet defined who would assume this authority. It could be a new or existing body, but one that could be expanded and restructured to take on this role. Another striking difference is that the DSA is linked to the General Data Protection Regulation (GDPR), which provides a more solid framework for protecting users' data. On the other hand, Bill 2630 is in line with the General Data Protection Law (LGPD) but with specific adaptations to the disinformation ecosystem that exists in Brazil. Finally, it should be noted that the concept of parliamentary immunity has been incorporated into Brazilian law but does not apply to the DSA.

6 Final Considerations

In the contemporary socio-political context, digital platforms, particularly big tech, dominate the Global North and South data economy. The processes of platformization, datafication, and transmedia are profoundly and rapidly transforming everyday reality. Because of this, limits must be placed on collecting personal data and mass disseminating harmful and illegal content.

In the face of the coup, denialist, radicalized, and extremist political environment (Hafez & Mullins, 2015), indicators have been captured and instrumentalized by political groups through social networks and instant messaging apps with the support of financial capital. It is, therefore, necessary to create a digital governance system to regulate digital platforms, preventing and combating symbolic violence and hate speech on social networks (Sponholz, 2020).

One of the big problems is precisely the business model imposed by the big techs, especially Google, Meta – Facebook, Instagram, WhatsApp –, X/Twitter, Microsoft, and Apple. This commercial architecture of large digital conglomerates results from a hyper-concentrated structure, which imposes strict control over communication. This business model (Zuboff, 2021; McChesney, 2013) favors disseminating disinformative content since it has more significant potential for views and engagement. Hate speech thus thrives in this environment, whose algorithms favor the logic of profit through viralization and click-through rates. Disinformation monetization operates by turning views/clicks into dividends.

In any case, despite convergences, divergences, and regional specificities, the DSA and Bill 2630 are an essential milestone in the context of the digital economy, representing a significant step forward in efforts to promote digital rights and information integrity. The regulation obliges big techs to create rapid mechanisms for removing harmful, fraudulent, and criminal content; it requires independent analysis of the algorithms that govern social networks and provides strict punishments for those who do not respect the law. The aim is to protect fundamental rights in the digital space, strengthening democratic values and citizenship while building a fairer, more harmonious, and competitive digital environment (Schlag, 2023; Turillazzi et al., 2023).

The regulatory frameworks under construction in the Global South, in particular, need to deal with challenges still to be overcome: the omission and inaction of government institutions, the lack of transparency from digital platforms, and the business model of technological conglomerates. Tackling disinformation requires changes in the economic architecture of big tech and the construction and consolidation of advanced legislation, especially in the Global South. The region lacks rigorous digital regulation capable of strengthening the integrity of information and promoting an online network that is effectively democratic, sovereign, and respectful of human rights. Without digital governance, Brazil remains adrift, despite acts of resistance to digital colonialism, and could succumb to the strong economic power of media and financial corporations.

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DIGITAL ACTIVISM AND PLATFORM (DE)REGULATION IN ELECTORAL CONTEXT

ATIVISMO DIGITAL E (DES)REGULAÇÃO DE PLATAFORMAS NO CONTEXTO ELEITORAL

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Abstract

This article investigates the intersections between digital activism, platform regulation, and the electoral context, focusing on the tensions characteristic of the Global South, with an emphasis on Brazil. Digital activism has played a central role in mobilizing and increasing the visibility of social causes, particularly those of the LGBTQIA+ community. However, it simultaneously exposes these groups to heightened risks of cyber violence and persecution, exacerbated by hate speech and misinformation. This study uses a qualitative methodology grounded in bibliographic review and document analysis to evaluate how digital platforms shape activism and state regulation, particularly during electoral periods, amplifying structural inequalities. While these platforms expand opportunities for social mobilization, they also facilitate the spread of hate speech and misinformation, undermining the integrity of public discourse and democratic processes. The findings underscore the need for inclusive regulations that promote online safety and justice while preserving the digital sovereignty of Global South nations. Finally, the article emphasizes the importance of alliances between governments, digital platforms, and civil society to create effective moderation mechanisms that guarantee fundamental rights, foster social equity, and ensure an inclusive digital environment that strengthens democracy and digital governance.

Keywords: Digital activism, Platform regulation, Misinformation, LGBTQIA+ Rights

1 Introduction

Digital activism has emerged as a transformative force in contemporary societies, where the dynamics of Internet governance and technological innovations significantly shape the space for collective action and the exercise of rights. This article addresses the central question: How do digital platforms impact LGBTQIA+[1] activism in Brazil and the Global South during electoral contexts, simultaneously enhancing possibilities for mobilization and increasing risks of repression and silencing? This question gains further relevance in the Global South, particularly in Brazil, where digital activism faces global challenges of digital dynamics and economic, social, and technological inequalities that exacerbate preexisting structural oppressions. The LGBTQIA+ community, in particular, is disproportionately affected by forms of digital violence, exacerbated by the lack of adequate protection policies and the proliferation of conservative discourse. During electoral contexts, hate speech and misinformation circulate widely on digital platforms, threatening the security and visibility of minorities and intensifying their political and cultural marginalization. Therefore, understanding these dynamics and the role of platform regulation is essential to protect fundamental rights and balance these challenges with the digital sovereignty of Global South nations.

While the Internet has created new opportunities for mobilizing social causes and building support networks, these advancements come with challenges. Major technology corporations, primarily headquartered in the Global North, control the digital infrastructure and impose policies that disregard local realities, reproducing patterns of exclusion and inequality. This control, conceptualized as digital colonialism, restricts the sovereignty of Global South nations by limiting their capacity to develop their agendas and adapt policies to their populations' cultural and social needs. In the Brazilian electoral context, these dynamics are exacerbated as digital platforms facilitate political mobilization and promote exclusion through biased algorithms and inadequate moderation practices. Social network accessibility only sometimes translates into effective inclusion or structural transformation. Digital justice understood as the capacity to ensure equality and protection of rights in the virtual environment, is essential for preserving the integrity of democratic processes and ensuring fair and plural participation.

The originality of this study lies in its integrated analysis of technology, activism, and regulation, focusing on the implications of digital colonialism for LGBTQIA+ activism during electoral periods. Although the literature addresses misinformation and hate speech, there still needs to be more regarding how these phenomena specifically affect LGBTQIA+ mobilization during elections. This article seeks to fill this gap by proposing a regulatory model articulating democracy, technology, and human rights. The research employs a qualitative approach based on bibliographic review and document analysis to investigate the intersections between sexuality, technology, and activism. By

1 The acronym LGBTQIA+ was chosen to encompass the identities of Lesbians, Gays, Bisexuals, Transgenders, Queers, Intersex, and Asexuals, as well as other orientations and gender identities represented by the '+' sign. This acronym reflects a continuous effort toward inclusion and recognition of diversity, giving visibility to populations that have historically been marginalized and subjected to discrimination. The use of this terminology seeks to respect and reflect the complexity of identities, avoiding the erasure of groups facing specific challenges, such as LGBTQIA+ phobia in digital and physical environments, in line with the variant adopted by the United Nations (UN) since the Free and Equal campaign.

exploring both advances and setbacks in the digital environment, the analysis underscores the urgent need for digital regulations that consider the specificities of the Global South, ensuring fundamental rights and digital sovereignty. The findings aim to contribute to future debates and more effective collaborations among civil society, governments, and digital platforms toward building a safer, more inclusive, and equitable virtual space.

2 Digital Colonialism and Internet Governance: Impacts on Activism in the Global South

The impacts of digital activism in Brazil must be analyzed in light of the unequal power dynamics that characterize Internet governance. This governance involves a complex interplay of actors —including major corporations, governments, and civil society organizations— competing to define the rules governing freedom of expression, data protection, and accessibility. These disputes reflect global inequalities, influencing how the Internet is accessed and regulated and how it reproduces existing power relations. While the Internet amplifies voices and connects individuals globally, it also presents contradictions that establish a form of digital colonialism. In this framework, the interests of corporations from the Global North disproportionately shape conditions of access and regulation, often disregarding local needs and realities. According to Faustino and Lippold (2023), this digital colonialism manifests in the concentration of infrastructure and data control in a few companies headquartered in the Global North, imposing values and norms that perpetuate historical inequalities in the digital age. For Global South countries like Brazil, these dynamics hinder efforts to build a more inclusive and sovereign Internet, deepening barriers to equitable digital governance that respects local specificities.

This power architecture is fundamental to understanding how social movements organize and mobilize in the digital public sphere, leveraging the Internet to advance rights and collective action. However, these movements often encounter algorithmic practices[2] and corporate interests that marginalize local or minority causes, such as LGBTQIA+ activism, thereby reinforcing deeply rooted global hierarchies of power. Furthermore, technological innovations —particularly the advent of the Internet— have profoundly transformed global economic dynamics, influencing international capital flow. Despite being hailed as one of modernity's most significant innovations, the Internet's impact reveals ambiguities. Emerging technology companies[3] hold disproportionate power compared to national corporations, operating in a transnational sphere where rules are often imposed without room for local adaptation or revision.

The new digital governance models largely reflect the Global North's economic interests, shaping the digital environment according to their values. While the Internet is promoted as a democratizing tool, it perpetuates digital colonialism by concentrating power in transnational corporations. By imposing rules that disregard local specificities, these companies reinforce inequalities and establish barriers to the sovereign participation of states and communities in the Global South.

The control exerted by digital platforms creates obstacles to the digital sovereignty of Global South nations and marginalizes local voices, as algorithms prioritize content originating from the Global North. In Brazil, digital infrastructure and governance reflect a neocolonial dynamic in which transnational corporations dominate the landscape. This dependency undermines the ability of nations to define their digital agendas, leaving them vulnerable to the commercial and regulatory priorities of external interests (Faustino & Lippold, 2023). In response to this scenario, states may adopt various governance models. The liberal model permits platforms to manage data autonomously, adhering to their internal policies. Conversely, the restrictive model prioritizes state sovereignty, requiring platforms to comply with local regulations to operate. The hybrid model, meanwhile, seeks a balance between state authority and corporate freedom, combining digital sovereignty with economic development (Pigatto, Datysgeld & Silva, 2021).

Multistakeholderism in Internet governance ensures that applicable norms consider diverse perspectives and foster an inclusive digital ecosystem (Kurbalija, 2016). This approach contrasts with Barlow's (1996) utopian vision of the Internet as a lawless, regulation-free space. However, the absence of a United Nations secretariat to regulate Internet governance underscores the complexity of articulating diverse interests within the multistakeholder model. Despite its inclusive proposition, Internet governance often follows patterns reinforcing the concentration of power among Big Tech companies, limiting civil society's influence and overshadowing state authority. As Figueredo and

2 We refer to the actions or decisions of algorithms, which are rules programmed to process data and produce outcomes. In digital platforms, these practices include recommending content, prioritizing information in feeds, and automatically moderating posts. These processes are often based on criteria that can perpetuate biases or distort the visibility of certain groups and issues.
3 Innovative technology companies develop impactful digital products and services, such as social media platforms, communication applications, and artificial intelligence solutions. These companies often rise to prominence in the global market, competing with established corporations.

Bolaño (2017) argue, this digital colonization exacerbates information access inequalities and obscures digital dynamics' authenticity. Consequently, advocacy strategies have sought to reverse this trend by amplifying the visibility of community-based issues and elevating historically marginalized voices.

International organizations such as Amnesty International, Human Rights Watch, and Greenpeace have integrated digital mobilization strategies to foster global debates and advance international agendas. Similarly, local and regional social movements employ these practices to promote government policies aligned with social interests. This process has innovated the diplomacy field by elevating media diplomacy's relevance (Burity, 2013; Nogueira & Burity, 2014) and introducing new voices into political debates. Nevertheless, these innovations occur within a digital colonialism context, deepening power dynamics and intensifying historical and geopolitical inequalities. Faustino and Lippold (2023) highlight that major international corporations impose cultural standards aligned with their interests by monopolizing access to information and centralizing data monetization. In Brazil, these platforms use algorithms that marginalize local voices, obstructing the promotion of social causes and perpetuating historical exclusions. Burity (2013) emphasizes that this marginalization is not merely technical but reflects cultural and economic dynamics of domination, cementing digital colonialism as an extension of structural inequalities within virtual spaces.

3 LGBTQIA+ Activism and Challenges in the Digital Environment

LGBTQIA+ activism utilizes the Internet as a strategic space for articulation and mobilization, connecting individuals from diverse geographic contexts, from urban centers to isolated areas. Despite amplifying the visibility of LGBTQIA+ issues, digital technologies also present contradictions. They are frequently used to silence social movements and obscure local content (Probox, 2023; IDEM, 2022). This duality manifests in challenges such as censorship and algorithmic manipulation, which directly affect the exposure and relevance of mobilizations.

Since its inception, the LGBTQIA+ movement in Brazil has been a central force in the struggle for rights and recognition. However, it is critical to question to what extent digital activism transforms the power dynamics that have historically marginalized this community within institutional politics. While the visibility achieved through social media represents a significant advancement, it does not eliminate entrenched patterns of exclusion. The commercial logic of platforms and the absence of structural safeguards hinder profound changes, requiring ongoing critical analysis of the capacity of digital activism to promote full inclusion and lasting social transformation.

The Internet and social media have introduced new forms of organization, information dissemination, and the creation of support networks, fostering citizenship and belonging. Seen as democratic spaces by marginalized groups (Bonoto & Brignol, 2020), digital platforms facilitate the multiplication of voices and representations in public debates. However, algorithms that privilege certain agendas while marginalizing others compromise the diversity of discourse, restricting the visibility of social movements and the plurality necessary for social transformation.

These dynamics are particularly relevant for LGBTQIA+ activism in Brazil. The movement is anchored in historical resistance milestones, reflecting global influences and local dynamics. The Stonewall Rebellion inspired political actions and legislative advancements worldwide, including in Brazil, where the "Brazilian Stonewall" occurred in 1980 at Ferro's Bar. This event marked a pivotal moment of resistance against repression, drawing attention to the struggle for LGBTQIA+ rights and strengthening mobilization efforts toward an inclusive agenda.

As in New York, the Ferro's Bar episode symbolized resistance to violence and repression, showcasing the courage of national activists and driving the fight for recognition and inclusive public policies. These historical milestones reveal the continuity of the struggle for equality, demonstrating how Brazilian LGBTQIA+ activism aligns with global movements while addressing the cultural and political specificities of the local context. This resistance has been central to confronting the criminalization of gender and sexual expressions that challenge cisheteronormativity, particularly within a landscape shaped by conservative structures and religious influences. Such resistance is essential, especially in political contexts that reaffirm traditional norms and exclusionary values, with LGBTQIA+ activism challenging normative discourses that marginalize dissident identities and strive for a more inclusive and equitable space.

The innovations brought about by the Internet and social media have significantly transformed LGBTQIA+ activism, renewing strategies for action and articulation. Digital platforms are used to denounce violence, disseminate achievements, and advocate for historical and social reparations (Apocalypse & Jorente, 2024), thereby expanding the scope and visibility of activism. These tools enable efficient communication

about events, protests, and support networks in various contexts, facilitating access to information and promoting engagement in campaigns for rights, citizenship, and dignity. However, while they amplify activism, these platforms also serve as vehicles for disseminating hate speech and reinforcing prejudices. Frequently, they deepen marginalization and violence against the LGBTQIA+ community, underscoring the urgent need for regulation and more effective actions against harmful content.

Within this landscape of oppression and resistance, Gloria Anzaldúa's (2016) concept of "borders" offers valuable insights into the identity dynamics experienced by minorities. Anzaldúa views borders as spaces of continuous negotiation between identity and oppression, constituting territories of struggle for belonging and resilience. This concept helps frame activism as a practice that transcends the barriers between physical and digital spaces, reaffirming identity and resistance in hostile environments. The "digital border," where LGBTQIA+ voices are silenced by algorithms or repression, echoes the concept of nepantla — a liminal space of resistance and transformation that challenges oppressive systems.

Digital violence against the LGBTQIA+ community is a global phenomenon, manifesting in forms such as persecution, harassment, and online hate crimes, often encouraged or tolerated by state actors. For example, in the MENA region[4], communication and dating apps are weaponized to identify, expose, and criminalize LGBTQIA+ individuals, undermining both identity expression and local activism efforts. Reports from Human Rights Watch (2023) and Article 19 (2018; 2024a; 2024b; Rigot, 2022) document these violations, illustrating how repression silences resistance, infringes upon fundamental rights, and limits opportunities for social transformation.

Many activists are forced into exile to escape retaliation, highlighting the severity of persecution (UNCHR, 2022). Beyond direct repression, marginalization persists through conservative political contexts that reinforce exclusion. In Brazil, this dynamic is reflected in the lack of legislative initiatives to advance LGBTQIA+ rights. As Bonin (2011) noted, conservatism dominates Congress, leaving the Judiciary to assume responsibility for ensuring progress without legislative support (Campos & Alfano, 2021). Concurrently, LGBTQIA+ political advocacy has evolved to address growing demands for inclusive public policies. However, the absence of mechanisms for declaring gender identity and sexual orientation since 2002 has contributed to the underreporting of violence and discrimination (Pereira, 2017). Data from ABGLT underscore the urgent need for more inclusive and transparent policies that reflect and respond to the community's realities.

Brazil remains among the countries with the highest rates of LGBTQIA+ homicides, a situation exacerbated by the community's increasing visibility and the rise of conservative discourses. These discourses have intensified violence in recent years (Grupo Gay da Bahia, 2024; Portal G1 Bahia, 2024; Dobbin, 2022), promoting dehumanization and exclusion under the guise of preserving traditional values. This narrative perpetuates violence and consolidates exclusionary social structures, complicating efforts to promote rights and citizenship. Beyond physical violence, political violence is pervasive and directly impacts LGBTQIA+ representation. The exclusion of LGBTQIA+ individuals from participatory processes reveals significant democratic deficits. In recent Brazilian elections, transgender, *travesti*, and cisgender candidates advocating progressive agendas faced hate and threats both online and offline (Instituto Matizes, 2023). This hostility reflects individuals' structural resistance in challenging the status quo and striving to reform power structures embedded in the so-called "cistem"[5].

LGBTQIA+ activism represents ongoing resistance to representation and the protection of fundamental rights, using the Internet and social media as essential tools for mobilization, visibility, and social engagement. However, these platforms also expose the community to new forms of violence and discrimination. Despite these challenges, activism remains central in both virtual and physical spaces, highlighting the importance of maintaining a dual presence to meet the community's demands. While the digital environment expands opportunities for expression, LGBTQIA+ activism emphasizes the need for fundamental rights, such as access to basic resources and the full recognition of identity and dignity. This integrated approach fosters safety and social inclusion, contributing to the construction of a more just and pluralistic society.

4 The MENA region includes countries in the Middle East and North Africa, such as Egypt, Iran, Lebanon, Morocco, and Tunisia, characterized by diverse social, cultural, and political contexts.
5 In the book "Transfeminismo: Teorias e Práticas," Professor Letícia Nascimento introduces the term "cistema*" to critique the social system that favors cisgender identities over transgender identities. The "cistema" refers to the social structures and norms that uphold and reinforce cisnormativity as the dominant standard, which leads to the marginalization and erasure of trans experiences and identities, as well as those deemed deviant (Nascimento, 2021).

4 Challenges of (De)Regulating Digital Platforms in Electoral Contexts

4.1 Algorithms, Platform Business Models, and the Brazilian Electoral Context

Like any other technology, digital platforms are not inherently positive or negative; their impact depends on how they are utilized and managed. However, it is crucial to recognize that these platforms are shaped by sophisticated algorithms that organize and prioritize content with the primary goal of maximizing user engagement. The core logic guiding companies like Google and Meta is to provide services or foster social interactions and sustain a business model centered on datafication[6] and targeted advertising (Gregori & Finger, 2023). This model monetizes user behavior by converting personal data and browsing patterns into commercial capital for advertisers.

Algorithms prioritize emotionally engaging content, such as polarizing discussions and hate speech, as these reactions keep users active on platforms for longer periods. Prolonged exposure is monetized through targeted advertisements, enhancing the company's profitability (Pardo, 2022). This dynamic explains why hate speech, including that directed at the LGBTQIA+ community, remains widely available despite violating the platforms' guidelines. Effectively moderating such content conflicts directly with the financial interests of these companies, as it entails operational costs and reduces revenue from removing high-engagement content (Quadrado & Ferreira, 2020).

Algorithms also contribute to the "filter bubble" phenomenon, where users are repeatedly exposed to content aligned with their beliefs, limiting access to alternative perspectives (Quadrado & Ferreira, 2020). This phenomenon is particularly harmful to the LGBTQIA+ community, as it amplifies discriminatory discourse and entrenches social prejudices. Consequently, digital platforms create a hostile virtual environment where diversity is marginalized and attacked. During elections, this digital polarization is exacerbated by misinformation campaigns and hate speech. Brazil's 2018 and 2022 presidential elections demonstrated how political actors, often in collaboration with platforms, manipulated public opinion to reinforce conservative narratives (Gregori & Finger, 2023). Misinformation targeting the LGBTQIA+ community not only undermined candidacies but also reinforced stereotypes that hindered the advancement of inclusive policies.

Digital platforms have become indispensable in the Brazilian electoral landscape, facilitating connections between candidates and voters. However, they have also created opportunities for disseminating misinformation and hate, compromising public debate and electoral integrity (Gregori & Finger, 2023). Such campaigns exacerbate social exclusions and obstruct the promotion of rights, strengthening conservative discourses. The dissemination of misinformation involves collaboration between political actors and platforms, transforming the digital space into an informational battleground. Digital militias[7] manipulate algorithms and fake profiles to amplify deceptive campaigns, intensifying political polarization (Quadrado & Ferreira, 2020). This context perpetuates the political marginalization of LGBTQIA+ candidates (Instituto Matizes, 2023).

The lack of clear regulations for moderating harmful content highlights a gap in the current legal framework, allowing the proliferation of hate speech and misinformation. Legislative proposals such as PL 3.814/2021[8] and PLP 120/2022[9] aim to hold platforms and fraudulent profiles accountable, but they still prioritize criminalization over effective preventive mechanisms (Gregori & Finger, 2023). This regulatory void underscores the urgency of a more comprehensive and inclusive approach in Brazil. Beyond criminal accountability, coordinated efforts among governments, civil society, and international institutions are essential to ensure digital sovereignty and more inclusive governance. Moderation policies sensitive to gender and identity and transparent reporting systems are critical to preventing digital environments from perpetuating exclusion and discrimination.

6 Datafication is the process of converting elements of everyday life, behaviors, and interactions into digital data that can be collected, stored, and analyzed. In the context of digital platforms, datafication enables companies to utilize this data to target advertisements, shape algorithms, and make business decisions, often without fully informing or obtaining the consent of users.

7 The term used here refers to organized groups that leverage digital tools, such as social media and messaging apps, to spread misinformation, manipulate public opinion, or target political opponents. These groups often operate coordinatedly, utilizing fake profiles, bots, and various strategies to amplify deceptive campaigns or hate speech.

8 It proposes measures to hold digital platforms and social networks accountable for content moderation, particularly in addressing the spread of misinformation and hate speech. The project aims to regulate algorithm usage and enhance platform transparency in Brazil.

9 It emphasizes holding fraudulent profiles accountable and fighting digital manipulation through stricter sanctions and measures to prevent the abusive use of data.

4.2 Hate Speech and Its Impact on the Mental Health of the LGBTQIA+ Community

As discussed previously, by prioritizing content based on emotional engagement, digital platforms often facilitate the dissemination of hate speech. This dynamic is particularly damaging to historically marginalized groups, such as the LGBTQIA+ community, which faces verbal attacks and discriminatory behavior on social networks. Rather than serving as inclusive spaces for dialogue and expression, these platforms often reinforce prejudices and perpetuate social exclusion. The absence of effective moderation allows hostile discourses to thrive, hindering the creation of safe and welcoming digital environments (Human Rights Watch, 2023).

Studies by the Human Rights Campaign (2020) and the World Health Organization (2022) reveal that prolonged exposure to online hate speech increases rates of depression, anxiety, and suicidal ideation, particularly among LGBTQIA+ youth. These impacts are exacerbated during electoral periods when misinformation targeting the LGBTQIA+ community increases stress levels and makes members more vulnerable to both online and offline violence (Pardo, 2022). Such discourses not only delegitimize diverse gender identities and sexual orientations but also promote intolerance, undermining the full citizenship and social recognition of the community. The difficulty in reporting these hostile discourses further aggravates the situation, as many incidents of digital violence go unaddressed.

Beyond individual harm, this dynamic undermines the political participation of the community. During Brazil's 2018 and 2022 elections, hate speech and misinformation campaigns directly targeted LGBTQIA+ candidates, undermining their campaigns and restricting the advancement of inclusive public policies (Instituto Matizes, 2023). Political violence directed at these groups exemplifies the challenges they face in exercising basic democratic rights and perpetuates structural inequalities, limiting the creation of representative policies (Quadrado & Ferreira, 2020).

The digital marginalization of the LGBTQIA+ community highlights a global issue, particularly acute in the Global South, where activists face both local and international repression (Pardo, 2022). This underscores the urgent need for effective platform regulation. As Kurbalija (2016) emphasizes, transparent moderation policies that include vulnerable groups are essential, alongside accessible channels for reporting violence and ensuring timely responses for victims. Without such measures, platforms will continue exacerbating inequalities rather than contributing to social inclusion and justice.

4.3 The Role of Platforms and Effective Regulation

Digital platforms, operating on a global scale, challenge traditional state legal frameworks, which still need to regulate their social and political impact adequately. Effective governance of these platforms requires innovative approaches that address data protection and the prevention of abuses, such as the spread of misinformation and hate speech. Regulation must account for the unique dynamics of local contexts, respecting the peculiarities of Brazil's digital environment and the needs of its civil society (Kurbalija, 2016).

The absence of a robust regulatory framework leaves gaps that facilitate the proliferation of harmful content, disproportionately affecting vulnerable communities like LGBTQIA+ individuals. These communities suffer from the lack of effective regulations to curb the circulation of discriminatory discourses, particularly during periods of heightened visibility, such as electoral campaigns. In this context, regulation must go beyond individual accountability and establish clear platform content moderation rules. Such measures can ensure a faster response than current judicial processes and prevent more profound social harm.

Bolaño, Martins, and Valente (2022) argue that platforms, guided by their terms of service, exploit misinformation to maximize user engagement. While they may appear neutral, these platforms shape public discourse and reinforce narratives of hate and misinformation already discussed in this article. Digital sovereignty is central to this issue, as it enables states to establish rules tailored to their cultural and political contexts, ensuring transparent and responsible platform operations. However, addressing the transnational operations of these companies requires greater international cooperation and cross-sector collaboration (Pardo, 2022). Effective regulation demands partnerships between governments, civil society, and the private sector to preserve freedom of expression and technological innovation.

An effective regulatory framework must also include clear enforcement mechanisms and proactive moderation policies to protect vulnerable communities and ensure the rapid removal of harmful content. Platforms must assume greater responsibility for the impact of their algorithms

and the dissemination of harmful content, incorporating these practices into their operational models. These initiatives mitigate misinformation and foster a more inclusive and safer digital environment.

Additionally, digital literacy must be promoted to enable users to better understand the risks associated with online information and identify misinformation. Such education can strengthen public trust in democratic institutions and reduce the negative impacts of informational manipulation.

5 Conclusion

This study has demonstrated how digital platforms pose significant challenges for the Global South while promoting social mobilization. In Brazil, LGBTQIA+ activism illustrates the advancements enabled by digital technologies and the persistent structural barriers. The Internet has become a crucial space for resistance and advocacy, yet algorithmic dynamics and commercial interests continue to reproduce exclusions and marginalizations, undermining democratic integrity and restricting the autonomy of Global South countries in shaping an inclusive digital environment.

The concept of digital colonialism is pivotal to understanding how Internet governance reflects asymmetrical dynamics, where transnational corporations impose values and practices disconnected from local realities, perpetuating the exclusion of minorities such as the LGBTQIA+ community. The lack of adequate regulation and the manipulation of algorithms exacerbate inequalities, hindering these groups' full political participation, particularly during electoral processes.

Platform regulation must move beyond punitive approaches, adopting preventive and collaborative policies that ensure transparent moderation and effective reporting systems. To achieve this, fostering South-South cooperation is critical, enabling Latin American and other Global South countries to develop alternative digital governance models better aligned with their realities and needs. In this context, digital education emerges as a strategic tool to strengthen societal resilience, empowering users to identify informational manipulations and critically engage in the digital public sphere.

Furthermore, governments, civil society, and platforms must collaborate to promote inclusive governance based on transparency, respect for diversity, and the protection of human rights. Regulation of digital platforms cannot be treated as a purely technical issue but as an essential component of the struggle for digital equity and justice. Only through coordinated efforts can the digital environment be transformed into a truly democratic space aligned with the needs and specificities of the Global South.

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COSMOPLATFORMIZATION:
DIGITAL PLATFORMS FROM THE GLOBAL SOUTH
COSMOPLATAFORMIZAÇÃO:
PLATAFORMAS DIGITAIS A PARTIR DO SUL GLOBAL

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Abstract

This article aims to challenge the concept of platformization based on dynamics specific to the Global South, considering the different ways of understanding technics in various cultural contexts, cosmotechnics, or ancestral technologies. Those aspects result from territorialized knowledge forming networks of networks when interacting with digital platforms. This process (a byproduct of digital platforms) involves many dynamics, such as data infrastructure, markets, and governance. To problematize and expand on the concept, we present examples of traditional peoples and their practices, supported by a narrative literature review, to contemplate a sympoietic practice and thus inspire other ways of thinking about platformization. This procedure led us to a proposal we call cosmoplatformization, which we hope can be included in future research. Keeping the theme of the digital and the South in mind, this text addresses particular technological appropriations that lead to technopolitical actions and an exercise in thinking about the digital experience and its theorization.

Keywords: Digital Platforms, Cosmotechnics, Technics, Global South, Platformization

1 Introduction

Digital platforms have become relevant places for discussions on digital technologies, both in the specialized fields of science and civil society, particularly over the last decade. The influence these informative architectures have had on the various sectors of society and everyday life has led to a wide range of studies on the widespread impact these technologies have on political expressions, economic arrangements, forms of sociability, and the dynamics of culture change and survival. At the heart of these discussions is platformization, a term that describes a shift to digital platforms. With no real clear and comprehensive definition, the objective concept of digital platforms (including the characterization of their process) is often subject to the field in which they are studied, and approaches are often restricted to their sociotechnical, market, and economic aspects (De Reuver et al., 2018; Hein et al., 2020; Bonina et al., 2021). Poell, Nieborg, and van Dijck (2019) revisit and explain these concepts to contextualize the platformization process. According to researchers, four disciplinary areas contribute to understanding digital platforms.

The first disciplinary area is Software Studies, which focuses on platforms' technical and infrastructural aspects. Here, platform operators provide a minimum technological base to facilitate other operations (Plantin et al., 2018). The second area looks at digital platforms from an economic perspective, presenting them as a new business model capable of operating in multilateral markets (McIntyre & Srinivasan, 2017). This model optimizes business activities by allowing them to interact with different audiences on different fronts. The third area is Critical Political Economy, where digital platforms relate to recent changes in power structures, surveillance practices, and data-based governance models. Works and authors in this area seek to understand the consequences these technological changes have on the meanings of work (Fuchs, 2017), the forms of capital accumulation (Haucap & Heimeshoff, 2014; Srnicek, 2017), and what their role is in the development of new forms of imperialism (Jin, 2013).

As Poell, Nieborg, and van Dijck (2019) point out, all the previous areas define and analyze platforms and platformization primarily "in institutional terms", relating them to "data infrastructures, markets, and forms of governance" (Poell et al., 2019, p. 5). These authors draw attention to a scarcity of analyses about how digital platforms transform cultural practices and how they could transform "platforms as particular socio-technical constructs" (Poell et al., 2019, p. 5). These analyses could be included in a fourth area of investigation, Cultural Studies (not always using the term digital platforms), which would use theories in the field of culture to present critical perspectives to describe fundamental transformations precipitated by these technologies. That would provide comprehensive literature (Burgess et al., 2017; Baym, 2015; Duffy, 2016) and research addressing topics ranging from subjectivity, gender, and sexuality to labor relations. Poell, Nieborg, and van Dijck (2019) present their definition based on these four areas of understanding the meaning of digital platforms and other definitions presented in previous works (Rochet & Tirole, 2003; Langlois et al., 2009; Gillespie, 2017): **“**[...] we define platforms as (re-)programmable digital infrastructures that facilitate and shape personalised interactions among end-users and complementors, organised through systematic collection, algorithmic processing, monetisation, and circulation of data (p. 3)”.

They go on to define its process:

> Following research in software studies, business studies, and political economy, we therefore understand platformization as *the penetration of the infrastructures, economic processes, and governmental frameworks of platforms in different economic sectors and spheres of life*. And in the tradition of cultural studies, we conceive of this process as *the reorganisation of cultural practices and imaginations around platforms* (Poell et al., 2019, pp. 5-6, our emphasis).

Despite the crucial operational role of the definitions presented, they have a distinguishable instrumental side related to the idea of infrastructure. We understand this instrumentality to come from the instrumental and universal notion of technics (Hui, 2020) implicit in the definitions of digital platforms, which could precipitate different effects as a kind of resource or tool that would function universally despite the diversity of cultural contexts.

Thus, based on Yuk Hui's (2020) reflection on cosmotechnics, this article reflects on digital platforms and the platformization process to outline an expanded definition that is more in tune with the proposal of technodiversity. We contrast this definition and the notion of technics implicit in them — which Ingold (2010) would call a hylomorphic model — with a model whose primacy is the established connections and relations, to the detriment of their objective constitution. We consider digital platforms more than universal instruments or tools guided toward human actions and particular predetermined objectives. We assume platforms are based on relationships with local experiences in connection with other cosmotechnics. This complex process strains the limits of current definitions originating mainly from the Global North.

2 Cosmotechnics and the Critique of Modern Technology

The experiences we present in this article have challenged us to reflect on the constitution of platforms and platformization as a complex and plural process. It is subject to the quirks that come from interacting with different cosmotechnics or, as we call them, ancestral technologies, fruits of territorialized knowledge that form networks of networks due to this interaction. Different appropriations of digital platforms by different imaginaries and symbolic repertoires of the Global South would be at stake. In turn, how platformization operates depends on the understanding that a given people or cultural community has of techniques or how each community elaborates its productive dimension and material and symbolic articulation. This premise implies thinking not only about technology but also about the concepts of digital platforms and platformization, beyond the perspective of a means or instrument, as something consistent with the cosmic and moral dimensions. That is the reason we propose the term cosmoplatformization.

This theoretical proposal is inspired by the work of Chinese philosopher Yuk Hui and his concept of cosmotechnics, described as a "unification between the cosmic order and the moral order through technical activities" (Hui, 2016, p. 19). Hui starts by problematizing the concept of technics in the West, which, he argues, is based on a universalizing perspective, as if the modes of meaning and functioning were the same in different cultural contexts. In his book *The Question Concerning Technology in China*, Hui (2016) suggests that the discussion about technical activities, as well as their apparatus and processes, seeks to broaden perspectives to consider how these elements are intertwined with the complexity of the cultures in question, hence his proposal to think about their integration into the cosmic and moral dimensions. This perspective would open up possibilities for conceiving plural modes of existence of technology, a technodiversity (Hui, 2020), as each cultural universe would relate to technology differently. In this sense, "all non-European cultures should systematize their own cosmotechnics and the histories of these cosmotechnics" (Hui, 2020, p. 42, our translation). Also seeking to overcome the Kantian antinomy about the anthropological universality of technology, Hui summarizes his orientation based on the following statement: "Technics is not anthropologically universal; technologies in different cultures are affected by the cosmological understandings of these cultures, and have autonomy only within a certain cosmological setting — technics are always *cosmotechnics* (Hui, 2016, p. 19)".

Hui (2016) seeks to resume the discussion on the modern separation between technics and nature, reaffirming the organicity between both. In this sense, as a key to understanding the concept of cosmotechnics, he uses the philosophy of technology from Gilbert Simondon (2012), notable for revisiting the *Gestalt* principle of figure and ground to describe the inseparable relationship between human beings and the outside world. Tim Ingold (2011) is another essential author who addresses this articulation. His idea of sentient ecology can be understood as an ecology "mediated and operated according to the affective relations between human beings and their environments" (Hui, 2016, p. 25). The notion of cosmotechnics thus allows us to evaluate how digital platforms intersect with specific cultures, their verbal-sound-visual modes of operation, and symbolic universes, giving rise to various possibilities of platformization or various possible platformizations.

This notion then leads to the existence of "different technicities" (Hui, 2016, p. 18) or "technological futures under the conception of different cosmotechnics" (Hui, 2020, p. 39, our translation). The path toward the plurality of cosmotechnics does not deny technology and tradition but “to unmake and remake the categories that we have widely accepted as technics and technology" (Hui, 2016, p. 281). In line with this attempt to problematize the restricted concept of technics with which we operate (Hui, 2020), Ingold (2010) relates the four Aristotelian causes (material, formal, final, and efficient) to an objective-instrumental understanding that constituted our productive — *poietic* — relationship with the world. According to Ingold, this creative model, which he calls hylomorphic, has taken root in Western thought. It created an imbalance: a productive model that is too anthropocentric, objective, and teleological, applied to a world without vitality, occupied and appropriated by man as his unlimited raw material. Ingold proposes an “ontology that assigns primacy to processes of formation as against their final products, and to flows and transformations of materials as against states of matter” (Ingold, 2010, p. 2-3).

For Ingold, the world is made up of things and not objects. Drawing on Heidegger, he states that the object stands “before us as a *fait accompli*, presenting its congealed, outer surfaces to our inspection” (Ingold, 2010, p. 4). The thing, in turn, is constituted by a “gathering of the threads of life […] a ‘going on’, or better, a place where several goings on become entwined” (Ingold, 2010, p. 4). He suggests the thing is co-created as a “*parliament of lines*”: “we participate […] in the thing’ thinging in a worlding world” (Ingold, 2010, p. 4).

> [...] the thing has the character not of an externally bounded entity, set over and against the world, but of a knot whose constituent threads, far from being contained within it, trail beyond, only to become caught with other threads in other knots. Or in a word, things *leak*, forever discharging through the surfaces that form temporarily around them (Ingold, 2010, p. 4).

He illustrates this statement using a tree as an example, whose character as a tree cannot be dissociated from its reactions to wind currents, from the exchange of nutrients with the soil or with the animals and microorganisms that inhabit it, and of an actual building, whose foundations are embedded in the soil, which is battered by the climate and susceptible to visits from birds, rodents, fungi, in addition to human visitors. Therefore, we can create all sorts of artifacts (material or immaterial) in the controlled environments of our laboratories, factories, design studios, etc. Once released into the world, these objects become things, joining the flow of a world in motion, giving them a life of their own: they can, therefore, assume other applications and meanings within the social imaginary in which they are housed. This foray allows us to think of cosmotechnics as cosmopolitics and, consequently, understand the contradictory and conflicting developments perpetrated by digital platforms and the process of platformization in different contexts and by the framework of technodiversity.

3 The *Making With* of the Global South

Before we continue, we shall clarify two critical issues as a prelude to what we refer to as an exercise in cosmotechnics: thinking about another concept (or concepts) of platformization. The first is the Global South, which began to take shape in the 1990s, especially in the writings of Boaventura de Souza Santos (2018). In his seminal text, *Pensando desde o Sul e com o Sul* (in English, Thinking from and with the South), Santos stated that this expression referred to "peripheral and semi-peripheral regions and countries of the modern world system, which were called the Third World after the Second World War" (Souza Santos, 2018, p. 650, our translation). When presenting this same text, Maria Paula Meneses states that this thought is characterized as the moment of the return of the humiliated and subordinate. "And this return is not only epistemic, it is also ontological. Theorizing politically and epistemically the heterogeneity that makes up the Global South is at the basis of the Epistemologies of the South" (Souza Santos, 2018, p. 27, our translation).

The fundamental perspective of the Global South highlights the importance of a return of the "subordinate" (Sousa Santos, 2018) beyond epistemology. Thus, the shift in thought would be more radical, putting pressure, at least initially, on the epistemic shift in how the world is understood and knowledge is produced toward an ontological shift. This operation would mean taking "absolutely seriously what [...] the indigenous and all the other 'minor' peoples of the planet say, the extranational minorities that still resist total dissolution by the modernizing blender of the West", as Eduardo Viveiros de Castro urged us in the preface of the book *A queda do céu* (in English, The Fall of the Sky), an account of the Yanomami ways of life as told by the shaman Davi Kopenawa (Kopenawa & Albert, 2015, p. 15, our translation). This path is, by the way, precisely the path that Yuk Hui envisions for the development of his concept of cosmotechnics.

> With my limited knowledge of Latin America, I hope this work will spark curiosity that leads to questions such as: what does an Amazonian, Inca, or Mayan cosmotechnics mean? [...] To do so, we need to rearticulate the question of technology and challenge the ontological and epistemological assumptions of modern technologies, be they social media or artificial intelligence (Hui, 2020, p. 13, our translation).

In this sense, we use the idea of the Global South in this text as a starting point based on the ontological turn, which resumes the place of nature in the production of knowledge and adds technology to this equation.

The second question concerns networked social movements experienced in Brazil in June 2013. The event that took over the Brazilian streets was part of a wave of indignation and hope (Castells, 2015) that began in mid-2009 with the Arab Spring protests in Europe and the United States before they reached Brazil. These experiences led to an activist's use of digital technologies for collective speaking, as Di Felice (2017) explains when characterizing net activism. For Di Felice, net-activism is a complex web of interactions that allow for collaborative actions resulting from exchanging information between humans, connection devices, and data. This approach already advances the proposal of sympoietic (something done together, like *making with*), which admits the coexistence of possible worlds on the planet. This is the key to understanding digital platforms from the cosmotechnics of the Global South.

Donna Haraway (2016) uses the term sympoiesis to refer to systems of collective production that have no self-defined spatial or temporal boundaries, in which information and control are distributed among the components: "poiesis is symchthonic, sympoietic, always partnered all the way down, with no starting and subsequently interacting 'units'" (Haraway, 2016, p. 33). Based on previous experiences in net activism, the Global South inspires us to think about the *making with* from a myriad of uses and appropriations and, ultimately, to tension and expand the understanding of digital platforms and platformization concepts.

4 Ancestral Technologies and Networks of Networks

When reporting on the experience of the Free Territories, Free Technologies project[1] by Intervozes – Coletivo Brasil de Comunicação, researcher Tâmara Terso (2023) warns of the importance of thinking about digital activism beyond the examples in the Global North. She reminds us that "there were other exciting ways of doing digital activism that dialogue a lot with our local reality, with our reality as Brazilian people, and with the reality of the traditional territories of black and indigenous peoples" (Terso, 2023, p. 64, our translation). When mapping the Internet, information technologies, communication, and socio-environmental justice in *quilombos* and rural communities in the northeast region of Brazil, the researchers found the difficulty in accessing the Internet quite interesting: 28% of participants had no access at all, and 71% of those that did have access only used smartphones.

However, this lack of full Internet access, with a quality signal and adequate devices, mainly occurs in remote communities characterized by what Di Felice (2019) calls the connection of all things, referring to the indigenous complex and connective way of living. The connective ambiance of the original cosmologies contributes to an essential point observed by the Intervozes' researchers: how technologies were understood by the people interviewed. The researchers realized that digital technology mixes with other technologies that have historically been present in the territory, such as soil management, care through traditional medicine, sharing experiences in circles, mysticism, creole drums, and *rodas de coco* (a dance from northeast Brazil). "All these technologies are named, are typified by mother-of-saint Beth of Oxum [...] as ancestral technologies" (Terso, 2023, p. 80, our translation). This notion of ancestral technologies is in parallel with what we understand as digital technologies in the framework proposed by Hui (2016): technology as poiesis, which creates worlds or possibilities of worlds from what it allows to reveal or bring to light, from the relationships that it will enable us to know and establish with the world and things themselves.

This possibility is quite evident in some experiences, such as TV Quilombo[2], a multiplatform production group created in 2017 by youths from Quilombo Rampa in the interior of the state of Maranhão, Brazil. Of particular interest is the equipment they made, such as a cardboard camera, a twig microphone, a bamboo drone, and a bamboo tripod, all made from materials found locally. Raimundo José, one of the project creators, uses the exact words as mother-of-saint Beth of Oxum when defining communication production strategies.

> We built a tripod out of bamboo, which is a native plant here in the community and is easily found in the forest. We didn't have a microphone, so we made one out of twigs. So, any twig or piece of wood was a microphone for us. And then we just kept innovating based on what we call "ancestral technology", which is the technology that has always existed in the community (José & Guimarães, 2023, p. 229, our translation).

1 Website available at: https://territorioslivres.intervozes.org.br/.
2 Website available at: https://www.tvquilombo.com.br/.

This is a glimpse of a sympoietic know-how — an example of *making with* the land — with the knowledge of the land and its relationships. The TV Quilombo experience is part of what Tâmara Terso refers to as networks of networks: "territorial networks that expand through digital networks" (2023, p. 85, our translation). Another example of networks ofnetworks can be seen with the Rede Wayuri de Comunicadores Indígenas, an Indigenous communicators network formed in 2017, based in the city of São Gabriel da Cachoeira. The network is made up of members from 23 ethnic groups from the Alto Rio Negro indigenous territory in the northwest of the state of Amazonas (Ferraz & Melo, 2024). The production of audio bulletins in several local languages, such as Baniwa, Iantu, Tukano, and Yanomami, plays a central role in the productive routine of this collective. Some of the communicators have Internet access in their communities, while others must travel along the Negro River and its affluents to get connected in another community.

In this context, territorial networks woven from other technologies are fundamental: boat and river. "In these situations, they use their canoes and boats to go to neighboring communities, getting information through oral communication if other means are unavailable" (Ferraz & Melo, 2024, p. 196-197, our translation). Thus, the group articulates networks of networks by integrating digital production: 1) with the analog radio broadcast system and antenna transmission in three municipalities, 2) with streaming transmission on digital platforms such as Spotify, and 3) with remote territories where there is no radio transmission or Internet access, taking flash drives on boats and playing them on radio trees or using content downloaded onto players and other devices that appropriate digital platforms in a way it was not intended to.

Tarcízio Silva (2024) also provides a relevant contribution to further our reflection on platforms and platformization. Silva proposes the concept of algorithmic racism — the attempt to perpetuate a social technology of segregation that dates back to the transatlantic slave trade in the Brazilian colonial period. He argues that "the record or erasure of inventions and technologies is a sociopolitical and historical process employed to privilege Eurocentric conceptions of scientific progress for centuries" (Silva, 2024, p. 143). Although it does not cite Hui directly, this argument seems to have the hallmarks of technodiversity. It offers support for understanding the processes by which the universality of technology is established. Silva goes a step further by stating that this erasure of technodiversity is even more hostile to Afro-diasporic populations in environments fashioned by white supremacy in countries like Brazil. This oppression has generated what Rayvon Fouché called "black vernacular technological creativity" (2006, as cited in Silva, 2024, p. 143), how African-American inventors have adapted, reinvented, or created technologies for their specific realities despite being constantly underestimated or having their authorship erased.

We can find evidence of this form of cosmotechnical resistance in the cases presented above and in those highlighted by Silva in his research. Another example is PretaLab[3], a digital platform created in 2017 to connect black women who work or intend to work with digital technology. It offers training, organizes networks of professionals, connects people in the job market, and promotes all levels of study. The laboratory seems to be aligned with technodiversity as it combines digital and analog technologies with specific knowledge about programming, building information architectures, and a know-how of resistance and resilience forged from the *quilombo* model (Souto, 2021). A cosmoplatform built by and for the black community aims to create a collective existence as an alternative to the structural conditions left behind by enslavement. This kind of joint effort, gathering several goings on — social, economic, historical, political, and technological — in a sympoietic way (Haraway, 2016), allows solutions and initiatives such as PretaLab to emerge. Its format, as well as that of the other examples cited, suggests an expanded notion of technology as this know-how integrated into a cosmology, territoriality, and a mode of existence from which it is not separated, along the lines proposed by Yuk Hui (2020) with the concept of cosmotechnics, culminating in this architecture of networks of networks.

5 Final Considerations

The cases mentioned in this text are somewhat asymmetrical among themselves (and even more so when compared to the experiences of the Global North). They seem to engender a localized idea of a platform linked to the territory and its historicity. Convergent in some points yet divergent and original in others, this perspective represents the conceptual limits of the current definitions and understanding of platformization in recent years. We believe that this small sample represents an invitation to move forward with *making with*, based on ancestral technologies and networks of networks, towards an expanded concept of platforms from the Global South.

3 Website available at: https://www.pretalab.com/.

Digital platforms, created in their technocratic shells, are also subject to the flow of the world. Their globalizing informative architectures are locally determined, their data centers occupy defined territories, the raw materials used to manufacture hardware (from microchips to retina screens and lithium batteries) are extracted from the soil of countries located in the Global South, the protocols that today allow connections and disconnections between different technological gadgets are determined by political and economic disputes that are also localized, and their architectures are inhabited by diverse entities with epistemologies that are similar to and dissonant with the hylomorphic model. Therefore, a comprehensive definition of digital platforms and the platformization process must take into account a space that is not instrumental and objectifying but a thing in the sense attributed by Ingold concerning the flows that cross these architectures, their ecology, or rather, the ecosystem that constitutes them and they constitute.

The main objective of this trajectory was to challenge the single meaning of platform and platformization ideas and then think about them in the plural, in an original way, about the idea of technology perpetrated from the experiences of the Global North and the colonialism of knowledge performed by the Internet giants. To this end, without offering a definitive concept, we propose to consider platforms as spaces of connective articulation, hybrid architectural and ecological formation, constituted and inhabited by myriad entities that sympoietically compose a common, a community, according to their cosmology. Similarly, more than the simple dissemination of forms of social organization engendered by the logic of collection, processing, monetization, and circulation of data on digital platforms, the process of platformization must be understood as the “thinging” of platforms. These architectures are formed out of contact with other cosmologies, cosmotechnics, and other networks of networks.

Ultimately, we think of cosmoplatformization as a name that can group reports and experiments related to other ways of thinking and producing research on this topic, including publications in diverse fields of knowledge production. The concept of cosmoplatformization can be relevant to various fields of knowledge, especially from how Yuk Hui points to the power of technology and how it constitutes new worlds. Therefore, this is an introductory glance within the limited length of a scientific article at a proposal configured as a research program to be worked on in future reflections and writings.

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SOCIAL ROBOTS: A SOCIO-TECHNICAL CONTROVERSY

BOTS SOCIAIS: UMA CONTROVÉRSIA SOCIOTÉCNICA

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Abstract

The rise of far-right groups in Latin American and Caribbean countries reveals the use of strategies to manipulate public discussions, including the massive use of fake profiles on social media. Therefore, using case study methodology, this article aims to analyze the concept of social bots by describing the main initiatives for detecting automated profiles on X, formerly Twitter. By using the Actor-Network Theory, it was possible to uncover the complexity involved in defining a computerized profile, pointing to the need to establish an umbrella concept that encompasses practices such as automated profiles, robots, hybrid profiles, sockpuppets, and meatpuppets. Ultimately, we identify that the Botometer X, Pegabot, Bot Sentinel, and Bot Slayer platforms are based on automated monitoring methodologies, with data on user behavior patterns as the essential elements that indicate whether users are humans or robots.

Keywords: Social bot, Social media, Sockpuppet, Meatpuppet, Actor-Network Theory

1 Introduction

Following the main political movements in Latin America in recent years, a growing tension has been directly linked to using strategies to manipulate digital conversational dynamics. The advance of far-right groups, which gained strength with the election of Jair Bolsonaro in Brazil in 2018 and more recently with the election of Javier Millei in Argentina in 2022, highlights the need to expand studies on how manipulating public discussions on social media has been damaging to democracies, especially in the Global South. Questioning public institutions is among the traditional strategies of far-right groups, such as allegations of electoral fraud (Yañez, 2022), the production and massive sharing of fake news (Esquivel, 2022), the use of robots and other mechanisms to manipulate public discussions (Azevedo Júnior & Lourenço, 2023), resulting in increased polarization and threaten electoral processes.

The importance of analyzing these controversies grows as the speed of Internet connections evolves, increasing the number of agents connected to the World Wide Web and becoming one of the most striking features of digitizing politics. In addition to identifying and understanding this content as a whole, it is also necessary to map the circulation flows, identifying the agents and their roles in these networks. That is why we need to focus on analyzing the agents who participate in discussions on the Internet, trying to understand who they are, how they organize themselves, and how they influence the production and sharing of information. One specific profile of an agent deserves much attention: social bots. This term can be translated as social robots and describes automated accounts for sharing and interacting with social media content.

Automated accounts feature prominently in discussions about digital controversies, mainly due to a negative view of their behavior in manipulating public discussion. Such discussions raise the need for greater control of these accounts on social media, seeking their identification, banning, and accountability for managing these social robots. Based on this debate, this article aims to analyze the concept of social bots by describing the main initiatives for detecting automated profiles on X, formerly Twitter. Its specific objectives are to describe the behaviors analyzed by these initiatives, to explain how human and non-human profiles are differentiated, to delimit the differences between the categories of robots and cyborgs, and, finally, to explain the most common behaviors of automated accounts.

The methodology used was a case study, which enabled a detailed analysis and description of the initiatives mapped (Eisenhardt, 1989; Yin, 2009). This mapping was carried out between May 2020 and October 2022, making up Twitter's move to X. The focus on social media X is relevant because it is more open to monitoring initiatives of this nature and is also widely used by important institutions and world leaders. Teixeira (2018) reinforces the importance of social media for building public opinion and anticipates the challenge of ensuring that these social robots are not used en masse as an instrument of colonization by anti-democratic groups. Indeed, it is precisely these groups that lead the use of manipulation strategies with automated profiles around the world, especially in Brazil (Ruediger et al., 2017) and the United States (Bessi & Ferrara, 2016), but with a growing presence in the Global South, in other Latin American and Caribbean countries (Tricontinental: Institute for Social Research, 2021). Before detailing the initiatives, a theoretical contribution is appropriate by pointing out the difficulties of defining a social robot and its role in social media. In identifying whether a human or an automated algorithm manages an account, any attempt at simplification based on a few specific characteristics of these accounts has proved unproductive. More is needed to

analyze the pattern of profile pictures or the names and addresses of accounts. It is necessary to follow in the footsteps of these actors. To advance this understanding, it is worth mentioning the principle of symmetry and technical mediation (Latour, 2012; Law, 1992; Callon, 2004), which are fundamental elements for this discussion.

Actor-network theory (ANT) has made significant progress in analyzing non-human elements' role in bringing about transformations, a process based on the principle of symmetry. This principle is anchored in the denial of a natural primacy of man over things, or, as Santaella and Cardoso point out, "(...) Latour rejects both a determinism of technique over the human (materialism) and the determinism of the human over technique (anthropocentrism)." (Santaella & Cardoso, 2015, p. 169). ANT starts from the symmetry between the agents in a network, with their nature not mattering in principle but rather the actions they undertake.

The same applies to the controversy over whether a social media account is managed by a human, as descriptive characteristics of the account are not decisive for analysis. Lemos (2013) reinforces this understanding by stating that "(...) entities have their attributes acquired as a result of the relationship with other entities and not by their inherent qualities" (Lemos, 2013, pp. 64-65). In this sense, an automated profile is the sum of the social media, the algorithm programmed to automate a specific action, and the actions of the programmer who created the social robot. Since actions play a leading role from the perspective of ANT, it is crucial to go into greater detail. Thus, technical mediation is built on four pillars: interference, composition, reversible obscuration, and delegation (Latour, 2012). Interference is the action program carried out by the agent in the network in which it is inserted. It is the action of interfering in ongoing flows, generating a transformation. For this article, it is the visualization of the actions of social robots that interfere in public discussions.

The second pillar understands that in a network, every action generates a series of other actions, or, in other words, a series of articulated actions. This pillar points to the characteristic that every action can be broken down into micro-actions, thus revealing other agents. In short, we verify that in the action of automated accounts, it is not possible to impute responsibility only to the social robot but also to the programmer who carried it out and the person who hired the programmer and financed the whole process of sharing false information. In this sum of responsibilities, the action's meaning is ascertained, and the network shows itself as a fluid and ever-changing space. Composition articulates actions resulting from a first movement: "It is the multiplication of sub-programs that results in composition." (Melo, 2011, p. 10).

Thus, it is possible to see how intricate the notion of technical mediation is and its relevance to this challenge of understanding and identifying automated profiles on social media. Reversible obscuration is the third pillar of technical mediation, revealed as the actions are composed.

> Whenever a network acts as a single block, then it disappears, replaced by the action itself and the apparently unique author of this action. At the same time, the form in which the effect is produced is also erased: in the circumstances, it is neither visible nor relevant. It then happens that something much simpler emerges - a (working) television, a well-run bank, or a healthy body - for a while, to cover the networks that produced it. (Law, 1992, p. 385)

In normality, the action's complexity is then obscured and simplified into its principal agent or main effect. In the current context, crises have revealed the complexity of the actions of these agents on social media. It took the interference in critical electoral processes to intensify the analysis of the role and effects of these agents. When analyzing the role, we see the last pillar of technical mediation: delegation. Since social robots are lines of code programmed by programmers who respond to a need pointed out by a third party, the principle of delegation becomes easier to understand. It is the ability to delegate an action program to an actor in the network.

Mediation is built through this complex correlation between the pillars presented, and the solution for identifying automated social media accounts follows the path of analyzing mediation. This should make it clear that

> [...] the idea of mediation is being related here to a sharing of responsibility for the action between various actors, respecting the action of all those involved in the technique in question. This is what the author means by composition since only the sum of all the agents involved can give meaning to mediation. (Santaella & Cardoso, 2015, p. 171)

After this brief contextualization, the next section will present some definitions of social robots and also describe how the main initiatives to combat these practices are moving towards, following the traces left by these actors.

3 The Definitions of Social Robots

Social bots are computer programs designed to mimic human behavior on social media, such as retweeting messages from a profile or constantly tweeting the same message (Davis et al., 2016; Ferrara et al., 2016; Ruediger et al., 2017). These programmed activities aim to influence public opinion in favor of specific groups. These automated agents can be seen in full action in contemporary electoral processes, especially with the rapid growth of polarization in Latin America and the Caribbean due to the advance of the extreme right. Ferrara and other authors highlight the central objective of these agents: "A robot is an algorithm that produces content and interacts with people on social networks, emulating and even altering their behavior." (Ferrara et al., 2016, p. 96). The attempt to imitate a human user and alter their behavior reveals the nefarious link between these tools and the main controversies in the political field, whose ultimate goal is to influence public opinion (Ruediger et al., 2017).

The diversity of behaviors performed by these agents reinforces the need to avoid the simplifying description of a single category and to explore the complexities of these practices. With a growing understanding of these agents, monitoring and combating this practice is gaining momentum. It is therefore necessary to understand the main types of technological agents surrounding the most significant public discussions on social media today, which can be classified into human and non-human. Accounts legitimately managed by humans have specific behavior patterns. They have a great diversity of content, interact with a network of users, and invest time in consuming information on other profiles. Some may even have a high volume of posts on the same day, differing from the standard average. A typical presence in Internet discussions who exhibits this type of behavior is the troll, "an individual who seeks to interfere with the progress of a discussion in a particular online community by posting nasty or out-of-context comments." (Zago, 2012, p. 151). Trolls can carry out these actions with their own or fake profiles, but a human still manages the profile.

Social robots, on the other hand, have a more limited set of behaviors compared to humans. However, with the growing development of this technology, they become increasingly complex when imitating a human profile, making the detection process increasingly complicated. Because of these advances, it is necessary to make an initial distinction when working with the concept of robots. In principle, there is a need to establish an umbrella category to describe any social media profile with a certain level of automation: social bots. Then, those we call just bots are operated entirely by a computer program. At the same level are hybrid profiles, operated part of the time by an algorithm and part of the time by humans, called cyborgs (Duarte et al., 2016). Cyborgs are the latest strategies to give profiles more credibility and circumvent robot detection mechanisms.

Among the practices that define cyborgs, those that have gained popularity are sockpuppets and meatpuppets. Liu and other authors (2016) define sockpuppets as multiple accounts controlled by the same individual, while meatpuppets are multiple accounts controlled by a group of people, usually from the same organization (Liu et al., 2016). It is interesting to note the coexistence of these strategies for a single purpose - to meet the objectives of the organization they work for - whether they are automaton profiles (robots), those managed by the same human operator (sockpuppets), or a group of humans operating fake social media profiles (meatpuppets). Solorio, T., Hasan, R. & Mizan, M. (2013) explore some of the standard actions of this type of organization, demonstrating the growing challenge of media detection initiatives:

> (...) *smart sockpuppet* can therefore avoid detection by using multiple IP addresses, modifying writing style, and altering behavior. In addition, a malicious user can create dormant accounts that perform benign edits from time to time but are used as puppets when necessary. Identifying these accounts as puppets is not obvious, as these accounts can have a long and diverse editing history. (Solorio et al., 2013, p. 59)

Finally, the growing challenge of trying to locate and identify accounts managed by robots and cyborgs is clear. It is now time to present some of the initiatives and demonstrate the main information used as a parameter to identify these accounts.

4 The Initiatives and their Methodologies

Before starting the presentation of the platforms, it should be noted that the initiatives mapped for this case study were identified before Twitter's move to X, which implied severe changes to the data usage permissions of these tools.

a. Botometer X

Botometer X (https://botometer.iuni.iu.edu) is available on a website, created in 2014 under the old name of *BotOrNot*. According to the descriptions on the page, the tool uses data from a user's activities on X and returns a score based on the likelihood of this account being a social robot. The higher the score, the more likely the account is to be characterized as a social robot. The classification system devised by the platform's authors is based on six main classes: a) network patterns, b) user characteristics, c) friends, d) temporality, e) content, and f) sentiment. Network characteristics analyze information dissemination patterns by analyzing networks of retweets, mentions, and co-occurrence of hashtags (Davis et al, 2016). These analyses are carried out using their statistical characteristics, which reveal distribution patterns and relationships between their elements. User characteristics identify metadata including language, geographical locations, and the date and time of account creation. Information on friends includes an analysis of followers, profiles followed by the account, and posts made, among other information (Davis et al., 2016).

In addition to the networks, information on the user and their friends, the characteristics of temporality, content, and sentiment of the content are used in *Botometer*. With regard to temporal characteristics, information is captured on posting patterns and information consumption on the platform. Regarding the content of posts, linguistic information is analyzed using natural language processing and sentiment analysis, seeking to identify the main emotions captured from each post (Davis et al., 2016, p. 274). *Botometer X* currently operates in archive mode, providing historical data collected until May 31, 2023.

b. Pegabot

Pegabot (https://pegabot.com.br/) is a Brazilian initiative that was launched in 2018. According to its creators, its aim is to contribute to the fight against disinformation in Brazil, targeting journalists, experts, and civil society organizations. Its dynamic follows the logic of *Botometer*, assigning a score to an analyzed profile. According to the information available on the project's website, the tool analyzes the profile's posting history in search of patterns in three main categories: profile analysis, network analysis, and sentiment analysis. Profile analysis takes into account the name, number of profiles followed and followers, description text, number of posts, and favorites. This information is processed using metrics such as the character count of the name, evaluation of the age of the profile, number of tweets, and existence of a profile photo, among others.

Each of these elements has a direct influence on the profile's score. Interaction dynamics are carried out by collecting a sample of the user's timeline and identifying hashtags and mentions of the profile. To this end, it identifies the distribution of hashtags and mentions, seeking to understand whether the user is forwarding spam messages. It also performs sentiment analysis on a sample of the 100 most recent posts. With this, it seeks to identify whether a specific emotion is prevalent, whether negative or positive. The more neutral the profile, the lower the score and the more likely it is to be a social robot. The website currently has errors, precisely because of the change in the policy for accessing X's data.

c. Bot Sentinel

Bot Sentinel (https://botsentinel.com/) was created in 2018 and worked in two ways, on a *website* and also integrated with Twitter. However, in 2022 the platform entered into a dispute with Twitter over the allegation that it was violating the company's policies, losing its integration with social media. After that, *Bot Sentinel* continues to work only on the *website* with historical data and some recent information, due to the limitations imposed by X's new policy. On the website there is still an information-rich dashboard where you can follow the monitoring carried out automatically on X. Previously there was a function on Twitter called *Check user,* present on users' profiles. By clicking on this option, Bot Sentinel was triggered to check whether the profile was a robot, helping to combat disinformation.

According to the description on the *Bot Sentinel* website, it is based on a machine learning model that uses Twitter's own rules as a standard, unlike other platforms that create models based on researchers' interpretation of collected data. There is no detail on what types of information are used and how Twitter's rules were applied in the analysis. The classification system is also not detailed but is limited to

describing that accounts are classified in a system that goes from zero to one hundred percent, with the higher the percentage, the greater the possibility of the account being involved in harassment, trolling, or deceptive tactics.

d. Bot Slayer

From the same creators as *Botometer*, *Bot Slayer* (https://osome.iuni.iu.edu/tools/botslayer/) differs from previous platforms by focusing on the flow of sharing malicious information on Twitter. Throughout this process, the platform also analyzed the characteristics of the users involved in sharing certain content, indicating whether or not the profile might be an automaton. To arrive at this classification, Hui and other authors (2019) indicate that *Bot Slayer* extracts four characteristics from each profile: volume, trendiness, diversity, and botness. For volume information, the tool counts the number of posts involving the user over a given period of time. The Trendiness characteristic "is calculated as the ratio between the entity's volume in two consecutive time windows" (Hui et al., 2019: p. 3). Diversity is a value calculated from the ratio between the number of unique users and the number of posts, and botness is the measure of an account's classification as a possible social robot.

From these four platforms, it is possible to see the diversity of methodologies used to identify anomalous behavior on digital social media. These methodologies range from methods that use less information, such as Pegabot, to those that are more complete and fully described in scientific publications, such as *Botometer*. There are also major similarities in some of the cases, such as the proximity of the methodologies and techniques used by *Botometer X* and Pegabot. Now, in order to delve deeper into this analysis, it is necessary to look at the main methodologies used by these platforms to collect and analyze large volumes of data, as this is a major challenge in implementing tools to monitor the flows of disinformation circulating on social media.

5 The Challenges of the Hunt

The processes of interaction and information sharing on social media generate large volumes of information, which has a high impact on the costs of collecting, processing and analyzing this data. And the exponential growth of these flows is perhaps one of the biggest challenges facing initiatives that seek to analyze the anomalous behaviors that influence public discussions. So, in order to deal with this large volume of data, some techniques make use of great computational potential and are making these initiatives viable. Embracing the challenge of analyzing the main methodologies for detecting bots on social media, Alothali, E., Zaki, N., Mohamed, E. A., & Alashwal, H. (2018) observed that the platforms so far use the behavioral patterns of each account as a fundamental element. In other words, as can be seen in the description of the four platforms mentioned in this study, the various variables analyzed are directly related to the behavior of profiles, how they interact with other users, and how they share information, among other aspects. However, the lack of consensus on which characteristics best represent a social robot on social media is still a challenge.

To help in this process, Ferrara and other authors (2016) systematized in their study the main information used by detection initiatives. The authors highlight the relevance of elements such as the number of posts and reposts, replies, mentions, number of shares made by the analyzed account, its age at creation, and the length of the user's name. As a result, they define that a social robot has a high number of reposts, an account with a more recent creation date, a low number of post,s and a username with many characters (Ferrara et. al., 2016, p. 102). It is essentially an artificially created account, with random names, with the sole aim of replicating content as much as possible. Its life cycle is different from a human user account, as it is usually created for a specific task, acting systematically for a short period of time, before being identified and taken down by robot detection mechanisms. However, identifying the fixed characteristics of social robot accounts faces a number of challenges when taking into account the performance of cyborg profiles, precisely because of their high capacity for adaptation. This makes it difficult to implement mass detection strategies for these profiles.

Another challenge linked to this issue is the main methodologies applied in monitoring platforms. Some authors classify these platforms into three main groups: graph-based, crowdsourcing and machine learning (Alothali et al., 2018; Ferrara et al., 2016). The initiatives that fall into the first classification are those that use the social graph, or social connections, as the main element of the analysis (Alothali et al., 2018). In this process, relational information is highlighted, such as connections between accounts, posts and reposts, mentions and the use of common hashtags. In other words, everything that can demonstrate a connection between users and content. The other line of development

of these systems is based on *crowdsourcing*, i.e. involving the collaborative work of several human users in the task of identifying social robots.

This method is a hybrid between humans and non-humans, as it uses human analysis skills combined with computational strategies to standardize information at scale. On this point, Ferrara and other authors (2016) state that "(...) robot detection is a simple task for humans, whose ability to evaluate conversational nuances such as sarcasm or persuasive language, or to observe emerging patterns and anomalies, is as yet unparalleled in machines" (Ferrara et al., 2016, p. 101). The last group of methodologies is based on machine learning, a method that uses powerful computational resources to identify anomalous behavior (Alothali et al., 2018). The focus of this method is the processing of large volumes of data, facilitated by the choice of the type of information processed. According to Ferrara and other authors, approaches that use machine learning focus on behavioral pattern information, stating that such patterns can be coded and assimilated by machines to distinguish between humans and social robots (Ferrara et al., 2016).

The four detection platforms analyzed are mainly graph-based and machine-learning, focusing on developing automated detection applications with little dependence on human action. This feature is due to the cost of maintaining entire teams to analyze the high volume of information produced on social media. That is why hybrid methods, which guarantee more satisfactory results and are adaptable to the updating processes of social robots, are outside the leading platforms implemented. Beyond this difference, a common element between the different methods is the concern of increasing data analysis capacity while reducing computational processing. This challenge is presented by the continuous growth in information sharing on social media.

6 Final Considerations

Faced with this scenario where machines learn human behaviors and mimic their virtual presence, debates on social media are increasingly susceptible to massive manipulation processes. In this environment, threats to democracies in Latin America and the Caribbean are growing, ingeniously coordinated by extreme right-wing groups whose control dynamics are based on political polarization. Therefore, understanding the main strategies that are at work in these media is essential if we are to find new solutions to these problems.

Following this path, we chose to inspect the black box of the term increasingly used in the fields of Social Sciences, social bots or social robots. Thus, with the help of ANT, it was possible to understand that this is a complex category encompassing various types of practices involving people and algorithms with varied functions, created to adapt to every new platform targeting to detect manipulation. By understanding technical mediation and its four pillars, it became possible to observe the complex network of agents and agencies that circulate in these processes, noting that the term social robot can no longer contain all the meanings needed to describe the strategies implemented. Instead, it should be understood as an umbrella concept, encompassing everything from completely autonomous profiles to cyborgs that function in a hybrid way. Among these hybrid profiles, sockpuppets and meatpuppets result from the most current strategies for evading detection platforms.

Therefore, the analysis of the methods of the four platforms mentioned in this study revealed that these systems focus on the behavioral patterns of suspicious profiles, monitoring the frequency of posts, profile information, and the network of relationships built up by these agents. However, pinpointing a rigid standard that defines an automated account is challenging despite similarities, especially given the hybrid strategies of cyborg profiles. Platforms mainly use graph-based and machine-learning methods to deal with the growing volume of information on social media, relying on automated computing power to process large volumes of data. These methods, however, find it more challenging to deal with hybrid profiles due to their capacity for adaptation coordinated by human actions.

Finally, in the current context of tensions, where extremist political groups and large corporations threaten the institutions and sovereignty of southern countries, digital dynamics on social media are a complex battlefield with plenty of network actors that must be analyzed from an interdisciplinary perspective. The following ways range from the urgent need to regulate social media to holding the large corporations that own these platforms accountable. If the scenario remains as it is, the manipulation ecosystem may not be threatened, as detection initiatives are divided between those operated by groups that implement transparent and scientifically rigorous tools, which have a small impact. Others are linked directly to large corporations but are used as a subterfuge to respond to external pressures for control and the fight against disinformation.

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LAND, FREEDOM, AND DIVERSITY: METAPHORS TO THE DIGITAL WORLD?

TERRA, LIBERDADE E DIVERSIDADE: METÁFORAS PARA O MUNDO DIGITAL?

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Abstract

We can formulate metaphors about the complex, dynamic, and ever-expanding social media environment, as Castells did in his 2003 work The Internet Galaxy. However, with its new ways of use — even with the expansion of access to a broader population — - we may face a possible contradiction: the potential infinite galaxy of the Internet would be ever so limited into a closed world. Another possible metaphor that will be upheld throughout this article is the notion of the land as lively, dynamic, complex, and full of live entities, similar to Yanomami's way of thinking (Kopenawa & Albert, 2019). Such portrayal of land as a metaphor may also apply as an example of what the Internet can (or could have) been in juxtaposition to the white man's impoverished vision of the land (Kopenawa & Albert, 2019) — or the westernized, eurocentric —, who sees it as something sterile or just as a resource for profit, focused in the monoculture of the land, in other words, the impoverishment of the diversity of life (Shiva, 2003). In this sense, this article brings together the thoughts of different Global South authors regarding a more complex, dynamic, and lively conception of the land. It demonstrates how this framework may constitute a theoretical weapon when considering the Internet, its tensions, and possible outcomes, having the Brazilian surroundings as a departure point. In light of the above, we may question: how far can the metaphor of social media as the land, this fertile, complex, blossoming, and diverse soil (Kopenawa & Albert, 2019), contribute to the debate regarding digital networks and their potential? Moreover, what are the limitations that the monoculture of uses may develop?

Keywords: The Internet Galaxy, Freedom, Diversity, Monocultures, Controversies

1 Introduction: From the Riches of the Land to the Riches of the Network

We might explore different metaphors to describe the Internet, and one we abide by in this work is the earth (as land), not just land as its material form but also relative to its riches and prospects of land as life itself. It addresses that life-rich land, as alive entities, as Davi Kopenawa (2019) claims, to be from the shamans' point of view. That means a portrayal of the earth that stretches beyond the minds of white men, who happen to see nature through limited lenses and, due to that, do not refrain from destroying it (Kopenawa & Albert, 2019). This Eurocentric skewed view about the land reduces it to something simple and detached, hence, dead. According to Kopenawa & Albert (2019), though it might even look quiet and unaltered, it is, in reality, alive, and this is where its beauty lies. Drawing inspiration from the thoughts of Kopenawa & Albert (2019), the Internet would be that lively land, complex and beautiful, and not that skewed, dead, and up for the taking, as displayed in the recurring non-indigenous people's thinking. The idea of the Internet as an actant — i.e., an actor that moves, leaves traces, and, in a certain way, is alive, according to Bruno Latour's (2012) perspective — seems to fit this proposal, just like the land one.

The Internet, though, appears to be less and less alive, spread, and autonomous, as one could infer from the land or infinite galaxy ideas (Castells, 2003). By any means, this article intends to disregard the fact that the Internet has enlarged and developed throughout the last few years. By observing its uses and possibilities for the broader population, the main point is that such developments seem restricted to a few specific ways of use, such as social media. This limitation is more profound when we observe that each social media network works within its limited logic and parameters, curtailing the infinite galaxy of Internet prospects we could benefit from, as observed in the Brazilian matter (CGI, 2023). In this article, we compare the reticular libertarian rhetoric logic from the beginnings of the Internet — which developed into a digital utopia (Turner, 2006) — and social media's closed architecture, especially the one from Meta Inc. In Brazil, this kind of use is the most recurring one (CGI, 2019), stemming from the notion of platforming and its domination of communication means (Poell et al., 2020). In that manner, the Internet is becoming ever more limited, as a dead means or as the land through white people's eyes, according to Kopenawa (2019).

As described by Vandana Shiva (2003, p. 15, our translation), "the main threat to life among diversity springs from the habit of thinking in monoculturistic terms, what I called as "monocultures of the mind". In that sense, the monocultures of the mind deeply contribute to the end of diversity, and the end of diversity implies an end to different alternatives (Shiva, 2003). There is a tendency of monoculture in the means

of Internet use. These uses have been turning ever more specific and limited, given to the “digital lands” of the Internet, akin to the colonization or dressage of this space, in a definition coined by Antonio Bispo dos Santos (2023), in his quilombola perspective:

> Both the trainer and the colonizer begin by uprooting the person's identity or being they target, severing its connection to its worldview, separating it from its sacred beliefs, imposing new ways of living, and renaming it. This act of domination is an effort to erase one memory so that a new one can take its place. (Santos, 2023, p. 2, our translation)

Here, the author approaches the quilombolas sacred notion of the lands. However, could we extrapolate that idea to think collectively about the Internet’s wicked paths known to us? In this article, by taking a look into the Global North author’s optimism about the potentialities of the Internet throughout the 90s and the beginning of the 2000s (Castells, 2013; Lévy, 2003; Turner, 2006), we aim to understand the reasons why even after the broadening of access for the wider population, as such is Brazil’s case, private social media companies’ logic has subverted digital networks’ infinite potentialities of uses. A bibliographic revision from Global South critical authors, in juxtaposition to the Global North theorists, is appointed here, aiming to develop analytic, critical weapons in opposition to the eurocentric monocultural modern thinking (Shiva, 2003), with the latter imposing a restricted view of progress.

New rich and complex perspectives will be brought, making use of concepts and theories crafted by Global South authors detached from the eurocentric pattern, demonstrating tensions in the digital world considering land and biodiversity metaphors (Kopenawa & Albert, 2019; Shiva, 2003; Santos, 2023). Such insights do not establish parallels to the topic at hand. However, these concepts may just as well become a prosperous path for reflections on social media, especially in the Brazilian situation. The main goal is, in such a way, to enrich the debate about the constraints in digital ways of use, developing counter-hegemonic pathways.

2 Internet as a Network of Networks and the Need for Recomplexifying It

The value of the forest’s fertility in Yanomami’s thinking, i.e., the constant vitality from which the land sprouts, is named *në rope*, a concept the recurring white men’s way of thinking fails to grasp (Kopenawa & Albert, 2019). Would it be possible to find something like the *në rope* in a broader, more lively, and complex view of the digital networks? Or even coming from the broad notion of the pure jungle, similar to the equatorial Amazon Sarayuku people who also view the forest as anthropogenic, more precisely “(...) more-than-anthropogenic, in the sense that it comprises densely populated territories by its predecessor remnants (*tayakkuma*), by human beings and non-human beings tangled in care, affection, predation, and precaution networks” (Santos, 2023, p. 163, our translation)? Beyond a constricting modern definition, it is interesting to perceive the concept of pure jungle as the “pure” Sarayuku, which comprises movement, the connections, and as such, some contradictions. This complex network of networks with human and non-human beings, loaded with traces of their predecessors or past relationships, might be a base metaphor for the Internet’s complex galaxy.

Considering digital networks’ potentialities since the beginning of their popularization throughout the 1990s decade, it is essential to point out how impactful this reticular logic was as a network (an ever-expanding universe, infinitely) for the culture, economy, and society as a whole (Lévy, 1999; Castells, 2016; Di Felice, 2017). Such technologies set in motion transformations in the logic of telecommunications and traditional means of communications, all set in an unidirectional model, pointing outwards to a receiving audience. Massive transformations came with the diffusion of digital networks, reshaping that one-to-many communication logic and opening itself up to more possibilities as many-to-many models.

French philosopher Pierre Lévy (2008), by the beginning of the 2000s, would perceive the complexity of digital networks in a very optimistic light, stemming from the notion that cyberspace would never stop expanding itself and, in that sense, it would begin breathing in universalization. It would not be in any way a restrictive universalization but one without a totality, ever moving, never being fully comprehensible. There was a break for a bigger democratization within those possibilities and with the enhancement of multimedia technologies in a non-linear logic, not only for information access but also its production. In that sense, the idea of a shared and collective production started sprouting and structuring towards achieving collective intelligence (Lévy, 2003), nearing the Yanomami people's perceptions of forest and land (Kopenawa & Albert, 2019).

A myriad of interesting, creative, and constructive aspects are shown to be even more present in cultural productions in the urban settings of Brazil with the growing usage of digital networks. Such are the cases of *tecnobrega* in the Brazilian state of Pará, which brought fascinating

novelties to the whole national music production and business (Lemos & Castro, 2012) and hip hop in Sao Paulo, to name a few. Over the 2010s decade, given political struggles, various demonstrations happened worldwide through digital networks, with new horizontal and participative organizational ways (Castells, 2013; Di Felice, 2017). In Brazil, the most notable examples of these collective political struggle actions were the June 2013 (Ortellado, 2013) protests, the eclosion of the Feminist Spring (Pinheiro-Machado, 2019), and the school occupations in the state of Sao Paulo (Tori, 2021).

All these events demonstrate the positive and creative impact of democratization and broader access to digital networks, primarily through the use of cell phones (Silveira, 2012). On the other hand, at the same time all that had been happening, other matters also came to prominence: the rise in hate attacks and negationism towards science, the ever-growing diffusion of misinformation, and the vulnerability of democracies in countries across the world (Bennett & Livingston, 2018), showcasing Brazil as a foundational case (Cesarino, 2020). With that in mind, a pivotal question arises: How does the diffusion of digital networks contribute to collective production and widespread, almost endless access to information and simultaneously propagate all the abovementioned problems? Where is the life, the fertility, the riches, and the beauty of these “digital lands”? In a way, the democratization of access to the networks is in motion. However, let us look at the kinds of use and possibilities for the general people. Such access is almost completely limited to a few social media networks with their private logic, limitations, and closeness as opposed to the potentialities that the free, open, fertile, and democratic Internet could provide, as observed in the Brazilian case (CGI, 2023).

The beginnings of the Internet as we know it today emerged in the 1970s in the United States of America. With a military warrant aligned to the Californian libertarian thinking present around that time, designing network architecture in a daring and even unexpected turn of events — with influential universities and the emergence of the hippie movement (Castells, 2016). As Fred Turner (2006) claimed, there is a fundamental relationship between counterculture movements in California, such as Whole Earth Network, and the emergence of Cyberculture. Manuel Castells (2016) states that, from that expansion, we began to live in an effectively globalized network society. Such an idea is based on real case studies, especially with the widening possibilities of the most diverse kinds of quick interactions amassing the whole world, sharing data and information, and providing ever-growing cultural access. However, as Lévy (2008) claims, everything goes on the Internet, and nothing is erased. That is why we must keep our guard up since there is no filter, and all ideas (even those that may hurt human rights, for example) may overtake such means. Drawing a parallel with the land, we may think about pesticides, which have essential roles in rationalizing the soil, being of great value for agriculture, but their unrestrained use can cause it to wither. We must also proceed cautiously when dealing with the possible pesticides of the “digital lands”.

There was a quick spread of the Internet at the beginning of the 90s, but what set that in motion were the lowering of costs, connectivity, and larger bandwidth in the cell phone generation (Castells, 2016). Cell phones then started to have great processing capacities (Silveira, 2012), as seen through the 2000s with the arrival of smartphones. Philip N. Howard (2011), when analyzing Manuel Castells' thinking for the Science, Technology, and Society (STS), emphasizes that the Internet — even in the 2010s — was not yet a well-distributed network as some great thinkers might have believed: "(...) African and Latin American countries certainly have information networks, but the connection between them is not as important as their connection to North America and Europe” (Howard, 2011, p. 6). The inequality of access and production in digital networks has, on a large scale, a geographical reason behind it. That means that the wishes of Brazilian geographer Milton Santos (2018) in the 90s for a different, counter-hegemonic globalization, where the poorer populations of the world should overtake the technological tools (with a particular focus on the Internet), is still far from becoming a broad and palpable reality. Therefore, the widening of access to the Internet by the general population would not be a resolution for this matter since there is still a need for a qualitative approach regarding this very access.

3 Land and Diversity as a Metaphor for Digital Networks?

The democratization of access to the Internet is taking place, in a way. For instance, by 2022 in Brazil, over 81% of the population 10 years or older had some kind of access (CGI, 2023), coming from a share of 74,5% of the population in 2018, following an upward trend (IBGE, 2020). It is also substantial to point out that 99% of the population had access to the Internet in 2022 through a cell phone, the only means of access for 62% of those people (CGI, 2023). Another outstanding data, according to the National TIC Domicílios research (CGI, 2019), is that 93% of the country's households already have access to at least one cell phone. Nevertheless, when taking a closer look, we realize

that 93% of the users utilize it via instant messaging applications, with social media also being the primary use for 80% of the users, an elevated percentage (CGI, 2023).

At the same time as cell phones are reaching a more significant number of people and thus expanding Internet access on a global scale, there is a surge in hate speech, right-wing governments, and a profusion of fake news and misinformation. All this has been happening in different parts of the world, as in the case of Donald Trump's election in 2016 (Howard et al., 2016; Bennett & Livingston, 2018) and Jair Bolsonaro election in 2018 (Cesarino, 2020) in Brazil. Given these events, the term "post-truth" happened to be deemed the world of the year, according to Oxford Dictionaries. In addition, work relationships crumbled before the excessive use of applications, which happened to be called the uberization of work (SLEE, 2019). All these matters have been sprouting and becoming ever more pivotal globally, under a seeming contradiction: a notable increase in Internet access through cell phones. What could that possibly mean? Does democratization mean a reduction in the quality of this access? In that sense, one could bring land reforms issue hand to hand the access to digital networks. Regarding the land, the Green Revolution (Shiva, 2003) brought benefits and gains, but to whom exactly? So, it is always imperative to consider the complexities, contradictions, and agents behind every development: Who benefits from it?

It is vital to pay close attention to the fact that the Internet's democratization is happening via cell phones and that most of them utilize data plans with monthly fees for Internet access. Such plans have data limits, but many provide unlimited use for Facebook and Whatsapp applications from the same company (Meta). This practice is called zero rating and, according to Belli (2015), would not be compatible with the net neutrality determined by Law n. 12.965/2014 (Brasil, 2014), known as The Civil Framework for the Internet. The endorsement of such practices in Brazil molds a skewed view of what the Internet is to a large share of the population, which limits its usage through these applications and cannot reach farther beyond once its data limit is reached. This way, not only does there form a restriction of use directed towards these very applications, but it also has a dependence. As such, the reticular complexity of the Internet, its fertility, and its potentialities to the general population are mostly being undermined.

Would the most pressing matter lie in expanding digital network access to the population? With the amount of shared information expanding on an unprecedented scale each day, the informational world we are part of grants economic, social, and political preeminence to those who can manipulate large chunks of data and bits (Silveira, 2015). Large companies that operate with the so-called Big Data and Data Mining are the richest globally, according to Silveira (2015), as is the case of Meta or Google. Moreover, how do these companies operate? Facebook, the largest social media in the world, has its own set of parameters within its environment. Its informational architecture holds sway, and its uses are only performed under the logic mentioned above, which was developed and accepted by the company. It is widely regarded as the weight of Facebook in current public debates. However, the biggest problem, according to Silveira (2015), is that this platform, which exerts a crucial role as a public virtual debate and articulation stage, has its own private regulation, which grants them full power to block or remove content as they please. All the libertarian and decentralized logic from the Internet's inception is broken behind the walls of these large social media sites, such as Facebook, which are highly centralized and predefined (Silveira, 2015). A common ground should, then, be claimed toward land reforms and the digital world.

Silveira (2017, p. 192, our translation) states: "The informational society is constituted by technologies which communicate and control simultaneously". In other words, we should not forget about the complexities and political, social, and technical contradictions the network society might bring. This wide opening allows some parts and influences to be taken by whoever is more powerful, becoming fragile in the face of significant economic powers (Silveira, 2017). Ideology plays an essential role in building new technologies. It is observable that these kinds of matters are within individual liberties (right-leaning), but also collective action liberties (left-leaning). However, these tendencies are never isolated and are also hard to distinguish (Torres, 2019), being a complex web embedded with political ideologies.

Considering such complexities and contradictions, how has the Internet shaped in recent times? According to Luca Belli's article (2015), the Internet is becoming more akin to a feudal environment, with separate non-communicating spaces that develop their own rules or laws –- the impoverished monocultures that expand in all directions, as well stated by Vandana Shiva (2003). Despite all that, freedom of choice exists for the user within cyberspace and the inclination towards applications or services. Beyond being a fundamental foundation of the Internet's libertarian ideals, it is a human right to emit and receive ideas freely (Belli, 2015). However, such a right is only secured, as states Belli (2015), through the principle of network neutrality, which is the judicial mechanism that imposes no discriminatory control on Internet traffic. Revisiting the Yanomami thinking:

> The forest's fertility resides in the surface layer of the soil. From this layer flows a life-giving, moist breath that we call *wahari*. This cool air emerges from the darkness of the underworld, from its vast river, *Motu uri u*, and from the chaotic being *Xiwãripo*. The guardian of this is the spirit of the forest, *Urihinari*. (...). We describe this as the forest's skin. So, when the white people strip it away with their tractors, only rubble and sand are left deep within the land, and the moisture vanishes. This fresh dew is like a liquid akin to sperm. It fertilizes the trees, reaching into their roots and seeds. It is this force that causes them to grow and flourish. The land will lose its fertile scent and become barren if it disappears. (Kopenawa & Albert, 2019, pp. 470-471, our translation).

The internet, as a complex and rhizomatic entanglement (Di Felice, 2017; Lévy, 2008), is a fertile and beautiful life, just as the land is a skin to the forest in the Yanomami's thinking. Current hegemonic thinking destroys these riches and beauty, and it can also hinder and sterilize the potentialities of the virtual setting.

The dominant economic mindset in digital networks through social media confers the illusion of life, growth, and participation. However, it resembles the trees that white people plant, as described: '(...) mango, coconut, orange, and cashew trees do not know how to summon the rain. They grow weakly, scattered throughout the city in a ghostly form' (Kopenawa & Albert, 2019, p. 471, our translation). This metaphor can also be applied to eucalyptus plantations, which appear lush and prosperous at first glance. However, in reality, they deplete the land and only thrive within the capitalist framework of productivity and profit (Shiva, 2003). In other words, social media does have life and significance.

Nevertheless, it is isolated — in its logic, entirely controlled and restrictive — from the richness of the complex, diverse ecosystem it could potentially belong to. It represents a separate, regulated life and incapable of self-management; it is not as fertile or abundant as it could be, and may even degrade the environment. Ultimately, it functions like a monoculture or, more specifically, like eucalyptus plantations, designed to create uniformity at the cost of biodiversity (Shiva, 2003).

4 From the Struggle for the Land Diversity to the Digital Environment Diversity

Kopenawa and Albert (2019) argue that when white people alter riverbeds, clear riverbanks, and use engines to burn trees, they drive away the forest's wealth, leaving it unhealthy. In this context, we see Western and white technologies presented as a form of progress. However, they harm the vitality, richness, and beauty of nature's complexity and land. Similarly, we observe how the dynamic, vibrant, and intricate environment of the Internet is losing its vitality, growth, and beauty due to the influence of powerful economic groups — many of whom are also white — who restrict its potential to narrow, easily controlled uses, which impoverishes its true capabilities. That is reminiscent of the Green Revolution, which almost succeeded in standardizing global agriculture to become more profitable, mainly through the overuse of pesticides, but ultimately undermined the diversity of nature, poisoning the environment, animals, and humans (Shiva, 2003). How universally beneficial is this singular view of progress?

These are examples of how the idea of constant progress and linear development, stemming from modern European ideologies, is not as universal as they would like it to be, being a limit when just one way of living and knowledge is followed so far. That is the monoculture of knowledge and mind developed by Vandana Shiva (2003). This development has destroyed many indigenous communities all over Brazil; for example, those who try to live out of the so-called civilized world grid end up being trapped by this very development (Cunha, 2019). In a less impactful way, we can monitor the flaws in this development and cumulative progress notions when observing the potentialities and possibilities the Internet brought us in its first uses and the limited way all this development has brought it.

It is essential to recognize that indigenous peoples and other traditional communities play a vital role in maintaining agricultural plant diversity and contributing wealth to the land and human consumption. This concept, known as agrobiodiversity, is crucial for ensuring food security (Cunha, 2019). What may be perceived as underdeveloped in a capitalist framework is the richness of the land and the diversity these communities bring, in stark contrast to the impoverishing effects of monoculture (Shiva, 2003). Similarly, digital networks' diversity, complexity, and interconnectivity are being diminished by the monocultures, divisions, and privatization of social networks that currently dominate the Internet. Just as the forest, for the Sarayaku people, is a complex web of living beings beyond humans, connected through vast communication networks (Santos, 2023), the Internet must also reclaim this intricate web of relationships among its participants (Latour, 2012) to unlock its full potential as a rich, ownerless galaxy, full of contradictions but abundant in opportunities for diverse forms of appropriation.

In platform capitalism (becoming increasingly monocultural), large corporations — particularly the dominant social networks — employ advanced technological tools to maximize user attention in more personalized ways. That is done by gathering personal data under the pretext of improving user experience while simultaneously storing details of individuals' lives and creating bubbles that isolate like-minded people (Silveira, 2017). Just as the Internet's creation and development were shaped by ideologies that can intersect (Torres, 2019), algorithms — often seen as neutral technologies by the public — are, in reality, not neutral at all; they "carry the determinations imposed by their programmers" (Silveira, 2017, p. 1332, our translation). Algorithms are always intertwined with other actants (Silveira, 2019). Therefore, it is essential to open up these technologies, as users have the right to understand the foundations of the codes being used (Silveira, 2017).

Algorithms have earned a growing pivotal spot with the social media explosion worldwide. User content is distributed across them by targeted advertisements. Therefore, there is no shared experience among people on all social media platforms, and their use has become more and more tailored to oneself (Silveira, 2019). All this increases social media's worth and, according to Silveira (2017, p. 86, our translation): ”(...) the informational, post-industrial society, intertwined with cybernetic technologies, has reshaped the capitalist market to the point where it relies on a microeconomy of personal data interception. The underlying contradictions of these developments are obscured, as user experiences are streamlined for greater efficiency, while simultaneously, these practices generate "exclusions and socially unacceptable costs" (Silveira, 2017, p. 91, our translation). Given the dominance of major social networks in daily life and large corporations' extensive control over personal data, one must ask: What influence do they wield over society and politics? Silveira (2017, p. 239, our translation) also argues, "The end of privacy would simply mean the indistinction between private and public space." This process accelerates the commercialization of life in ways never seen before (Silveira, 2017). As the author rightly points out, the Internet embodies the contradictions and complexities that technologies inevitably bring. Therefore, the fight for access to the Internet is fundamental for the expansion and true democratization of technological and informational tools.

It is important to remember that before the advent of the Internet, telecommunications companies were solely focused on providing telephony services. Since telephone cables only transmitted voice calls, there was no need for differentiated service plans. Telephone operators were neutral regarding what passed through their networks (Silveira, 2017). However, with the rise of the Internet, operators began attempting to sell the amount and speed of data passing through their cables and filter what is transmitted, offering different plans for specific applications (Silveira, 2017, p. 466, our translation). As a result, net neutrality becomes a critical safeguard, ensuring that those who control communication infrastructure do not interfere with data distribution. This shift, in turn, plays a crucial role in democratizing Internet access (Silveira, 2017; Belli, 2015). Neutrality is guaranteed when no content is prioritized within telecommunications systems, promoting greater democratization and more equitable information distribution on the network (Torres, 2019).

As Torres (2019) claims, the free and open Internet ideology is complex and amasses discourses from well-distinguished fields. Therefore, it is not easy to separate them, nor would it be sensible to do so. The contradictions and complexities of such debate are part of it since the technologies are power apparatuses, as Silveira noted (2017). In that sense, informational capital widens its reproduction with the aid of the Internet, owned by the large technology companies that reach for more worldwide access. However, these companies do not seem to get along well with a “(...) distributed interactive potential that facilitates free communication and the coordination of activist groups and dissidents of the socio-economic system” (Silveira, 2017, p. 1397, our translation). As a result, contradictions and controversies are crucial for understanding the Internet and its mechanisms while also recognizing that the significance of its openness represents a weakness for powerful entities — with differing interests. That is how the current way of thinking states that the tropical forest would be the fruit of counterproductive chaos, demanding a more rigid and effective organization for the monocultural technologies to attain more significant productivity, control, and riches (as in capital) (Shiva, 2003). Considering these thoughts, what about the wealth and riches of nature’s biodiversity and life?

With that in mind, let us reclaim the idea of disciplining or colonization brought by Antonio Bispo dos Santos (2023):

> Some trainers use force and offer affection; some rely on punishment, while others use food to create dependency, but they are all still trainers. All training, regardless of method, aims at making animals perform or produce objects of attachment and pleasure. However, not all animals are capable of being trained (Santos, 2023, p. 2, our translation).

Allowing us to access social networks 'for free' is a form of gentle conditioning, especially when we are fed the feeling of some satisfaction. However, to what extent are we truly aligned with or fully benefiting from the wealth of the digital complex galaxy?

5 Conclusion

As aptly described by Jerá Guarani (2020) in her accounts of the São Paulo Kalipety village reoccupation by her people — which was eventually acknowledged as Indigenous land by the National Foundation for Indigenous Peoples (Funai) and later by the Ministry of Justice — the first action they took after reclaiming the land was to plant on it. So they did with immense joy, using the diverse seeds they had exchanged at different fairs. The land, though vast, had been degraded by large eucalyptus plantations established in the area by squatters (Guarani, 2020). Yet,

> we started by treating the land with organic fertilizer and green manure (...). In six years, we managed to restore over 50 varieties of sweet potatoes and over nine types of corn. We also planted peanuts, green bananas, cassava, and plants that the Juruá (white people) call PANCs (non-conventional edible plants). (Guarani, 2020, pp. 5-6, our translation)

The land was then rescued by the so-called “savagery” of the Guarani Mbya people — as classified by the assumed civilizational progress of European modernity, centered on monoculture and environmental degradation - restoring diversity and life richness. Hence, Jerá Guarani's (2020) call is essential, encouraging more people to embrace wilderness.

As in Yanomami’s worldview (Kopenawa & Albert, 2019), the concept of fertility is a model to follow and be fought for a more prosperous, vast, fertile, and diverse environment of the Internet, which started closer to this. Taking different paths for the diversity of thoughts and uses by the different people of planet Earth. Namely, for this to happen, the prevailing white men’s mindset must not exercise complete control over the digital networks possibilities, as Milton Santos (2018) remarked on the importance of reappropriation, rather than denial, of such technologies by peripheral populations — in a broader sense. As Jerá Guarani (2020) claims, all bad things in the world derive from the Juruá, but there are good things from this culture as well. It is possible to grow and develop partially incorporating it: “I wanted to show my people that we can learn the other people’s culture in order to defend our own better (...)” (Guarani, 2020, p. 9, our translation). Close to that idea, Bispo do Santos (2023) also believes that it is necessary to weaponize their enemies as a defense form to defend themselves from the colonizer society. Aligned with the Sarayuku people, Santos (2023) advocates for rather than imposing a singular way of life or a single, universal world, it is about fostering the possibility of multiple worlds coexisting and learning from one another, in opposition to essentialism and universalism. In such light, the Internet needs to reclaim its confluence, which is:

> [...] The energy that is moving us towards sharing, towards recognition, towards respect (...). When we confluence, we do not stop being ourselves, we become ourselves and someone else — we surrender. Confluence is a force that surrenders, that increases, that expands. (Santos, 2023, p. 4, our translation)

The *Internet Galaxy* concept (Castells, 2003) can be revisited from this viewpoint; in other words, an Internet that embraces multiple worlds within its interconnected networks and rhizomes could offer more diverse, democratic, and complex uses, enhancing the planet's diversity through the ways its tools are used and appropriated — which should be open, accessible, constantly evolving, and not confined to narrow, controlled, and uniform structures like monoculture. In this regard, we are reminded of Vandana Shiva's statement: "Monocultures are indeed a source of scarcity and poverty, both by eradicating diversity and alternatives and by undermining the decentralized control of production and consumption systems" (Shiva, 2003, p. 17, our translation).

Accordingly, the purpose of this article was to explore the critical insights of thinkers from the Global South, such as Vandana Shiva, Davi Kopenawa, Antonio Bispo dos Santos, and Jerá Guarani, as examples of how the belief in a singular, white (Kopenawa & Albert, 2019), and Eurocentric model of progress limits the inherent potential of technologies like the Internet and the ideas they provoke. The metaphor of knowledge, land, and diversity presented by these authors demonstrates ways to appropriate, enrich, and create counter-hegemonic uses that can enhance the digital network of networks. In other words, like the land at the foundation of forests — open, chaotic, yet brimming with life and beauty (Kopenawa & Albert, 2019) — it should not be confined to the regulated uses of a few applications and social networks, as observed nowadays in Brazil.

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BETWEEN PHYSICAL AND VIRTUAL WINDOWS: OPENINGS OF LIVING IN THE PANDEMIC

ENTRE JANELAS FÍSICAS E VIRTUAIS: ABERTURAS DO MORAR NA PANDEMIA

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Abstract

This work discusses the physical and virtual windows enhanced during the COVID-19 pandemic, from 2020 to 2023, reflecting on new ways of understanding the production of domestic space and the ambiguity of openings during the period of isolation based on texts by Brazilian writers Helô D'Angelo (2022) and Aline Valek (2021). Relying on the theme The digital and the South: tensions, it brings into dialogue the perspectives of these writers, who are users of architecturally designed spaces, regarding the pandemic in Brazil, which also are perceptions on dwelling initially shared online during the peak of isolation. Using the collage methodology, in which distance is bridged, according to Fuão (2014), this study incorporates the perspectives of philosopher Paul Virilio (2002) and researcher Beatriz Colomina (1992) to examine the permeability of living amid digital technologies. At a time when the home became increasingly introverted and connections with the outside world were mediated through various types of windows, the boundaries between interior and exterior, physical and digital, became blurred yet simultaneously reinforced by the sanitary measures imposed by social isolation.

Keywords: Architecture, Living, Windows, COVID-19 pandemic, Literature

1 Introduction

Before the COVID-19 pandemic outbreak in 2020, Helô D'Angelo, a comic artist and illustrator from São Paulo, moved into an apartment on the first floor of a building in a neighborhood that at first sight seemed quiet. When health institutions imposed social isolation, many people complied with its measures by confining themselves at home, leading to a different daily life, with new sounds and movements produced by the neighbors, as D'Angelo has seen from her window. From observing this confined daily life, the comic artist began creating comic strips based on scenes she saw from her window, initially publishing them on her social networks throughout the pandemic and later gathering them in a printed publication (D'Angelo, 2022). In the first comic, the reader is introduced to a facade showing the twelve apartment windows in which each group of characters who appear in the stories live, who are portrayed throughout these almost three years of the pandemic. The reader is then a *voyeur*, as the author herself describes it, observing the lives of these neighbors as someone standing at the window across this fictional condominium.

In the book, interspersed between some blocks of the comics, the author puts short texts to contextualize the moment they were written for readers who may not have followed the rhythm of her social media publications in real-time, simultaneously with the news that came out during the isolation. In this way, the comic weaves her anguish over the uncertainties of the pandemic into the story. Amid *panelaços* – protests where a group of people bang pots and pans from their windows – against the government and shouts from its supporters, Brazil was facing a vertiginous increase in deaths, reaching the number of fifty thousand in June 2020 (Coelho, 2020). For the author, this seemed a terminal situation that would not be overcome. But it was only the beginning. The artist and writer Nuno Ramos (2022) also expresses his anguish during this period. He mentions this impressive absence of limits in a conversation from May 2020, where he portrays this moment as an absolute loss of shape and boundaries, an apparent infinite descent with no ground in sight.

In an interview, D'Angelo (Vitral, 2021) says that her new apartment transformed her window into a theater box overlooking the whole neighborhood. From what she saw outside this opening, she reinforces how important it is for storytellers to be good “gossipers” since the observation of other people's lives can make up complex and believable material for writing. “So, in that sense, I think that in addition to inspiration, I like to weave endings to these stories that we hear halfway”, says D'Angelo (Vitral, 2021, our translation). The interviewer then raises a question about the similarity of the balconies that D'Angelo draws with profiles on social media and asks if her social media neighbors are also part of her stories, to which she replies:

> [...] Of course, much of the inspiration for the comic comes from sources beyond the neighbors themselves. Since we spend so much time hanging out in these social media “windows”, I think a lot of the stories from social media spill over into *Isolamento*. This includes broader stories, like people’s emotions at particular moments — whether it is a period of widespread panic or record deaths — and more specific ones, like a blogger who, after being canceled' embarks on a journey of self-care and therapy. To quote Drummond, I think there are various feelings about the world that I capture in the comic. And as the world is confined to windows (whether real or virtual), I end up using the material that comes to me (Vitral,

> 2021, n. p., author's quotation marks, our translation).

During the lockdown, windows were more than a membrane separating inside and outside the houses, working also as a permeable means of collective communication and political manifestation while the streets were momentarily closed. Writer Aline Valek (2021) mentions the synchronization of the shouts with different purposes coming from her neighbors in *Hour of Synchronicity*. Valek is also intrigued by "gossip by halves", especially at a time when many people were confined in their homes. The shouts from the windows, whether in protest or as expressions of pandemic-induced anguish, created ways of interacting with others even without seeing them. As D'Angelo notes (Vitral, 2021), through these physical and virtual windows, a form of sociability with the outside world became more present during confinement, exacerbating the individuality of each housing unit.

> Someone shouted GOAL from the window [...]. The neighbor from another building understood something else, went to pick up the pot, and started shouting "Bolsonaro out!" out of turn. She is not wrong. I do not think it is wrong to shout from the window, but we need to normalize and give a new meaning to shouting from the window, especially when we live in confinement. You could even say to me "Wait, it depends" and we could think about in which situations it would be acceptable or not to shout at the window, as hypothetical legislators of the scream. Generally speaking, the socially acceptable shout at the window is the one that belongs to more than one person, the one that invites you to shout together. The shout is comfortable because everyone is in sync with the same feeling and subject. They are watching the same scene: a soccer match, a political and humanitarian disaster, the last seconds of the year. [...] A year of the pandemic is enough time for you to become a completely different person; on the other hand, not even that amount of time can change other things. Like the nightly *panelaços* that continue with the same strength as last year, motivated by hatred for the gnawed *pequi* (expression from the name of a Brazilian fruit) that governs us. (Valek, 2021, n. p., our translation)

Architect and professor Guilherme Wisnik (Coutinho, 2020), in an interview with Gama magazine, was asked about his relationship with the window in his house during the pandemic, whether "there is more of the world coming in or going out through it" (Coutinho, 2020, n. p., our translation). Wisnik replied that today the window represents a two-way channel, a point of connection with the outside world, and wonders if it is a coincidence calling the screens we open on digital platforms windows. He then references Alfred Hitchcock's film *Rear Window* (1954) to discuss his relationship with others around him during this time.

The feature film follows a photographer who, isolated in his apartment while recovering from a fracture, observes his neighbors and eventually begins to suspect that one of them has committed a crime. From the fragmented narratives of material and immaterial windows narrated by D'Angelo (Vitral, 2021) and Wisnik (Coutinho, 2020), as well as the synchronized cries mentioned by Valek, one can see how the openings were protagonists in this state of waiting during isolation. As part of the discussion on "The Digital and the South: tensions", this work draws from these perceptions about the multiple windows that remained open throughout the pandemic in Brazil, demonstrating the ambiguity between the physical and digital realms during this period. It discusses contemporary living, offering a critical reading of these experiences in dialogue with a theoretical analysis focused on architecture. The following discussion delves into the multiple openings within the digital context, drawing on the perspectives of Paul Virilio (2002) and Beatriz Colomina (1992) to explore, much like Hitchcock's character (1954), how we come to observe and be observed in indiscreet ways.

2 Methodology

The methodology used in this work builds upon a practice refined in recent years through other projects and a recently defended master's thesis. It is a collage, a method that has shaped a distinct research approach. To frame it as a methodological practice, we began with the constellation way of thinking, developed by Rita Velloso (2018) based on Walter Benjamin's ideas, who discusses the relationship between components under investigation, positioned as stars, and their imaginary lines connected in a given set. This approach addresses not only the proximity of one star to another but also the possible meanings that the set as a whole can reveal (Velloso, 2018).

The bibliographical framework that shapes this methodology also includes a background in fiction literature, bringing in perspectives from different authors on the writing process. One of the most significant writers in this formative journey is Ursula K. Le Guin (1986). In her essay *The Carrier Bag Theory of Fiction*, the author discusses how narratives are often linear, favoring weapons and the hero's journey. Le Guin (1986) proposes a new rationality, based on the valuation of the container and the space where items are stored along the way. The writer approaches writing and creation as acts of carrying a bag with different elements that are gradually added together and articulated, even without apparent initial connections.

Thus, a *modus operandi* that accumulates objects during a thematic immersion was built, allowing us to think about possible meanings. This method is similar to what researcher and architect Beatriz Colomina describes in *Still Writing* (2023), where she discusses her methodology of thinking through images. The approximation to Colomina's method, which is also very transdisciplinary, then becomes an instrument for investigating architecture that can be described as a way of thinking through collages, since the text has the same importance as the images. According to Fernando Fuão (2014), the collage brings the distant closer to a fragmented world. In addressing the multiple windows that permeate contemporary daily life, focusing on the COVID-19 pandemic, it becomes appropriate to consider them through this methodological perspective.

3 Discussion

In the *Split Wall*, Beatriz Colomina (1992) reflects on the word window in English, whose etymology

> reveals that it combines *wind* and *eye* (ventilation and light in Le Corbusier's terms). As Georges Teyssot has noted, the word combines "an element of the outside and an aspect of innerness. The separation on which dwelling is based is the possibility for a being to install himself" (Colomina, 1992, p. 121, author's quotation marks).

The association between physical and virtual windows made by D'Angelo (Vitral, 2021) and Wisnik (Coutinho, 2020) and the etymological analysis of the word window are the starting point for discussing the prominence of this element during confinement. Even though the comic artist and the architect have distinguished the two types, there has been a kind of hybridization between them, adding greater ambiguity to their definition.

In the aforementioned text, Colomina (1992) references the French architect and philosopher Paul Virilio and his discussion on the changes in the construction and spatial perception of architecture with the emergence of electronic interfaces inside houses. In recapitulating Virilio's thinking, Colomina revisits the figure of windows from the looking, stating that the eye functions as a door to architecture, and the door, being an architectural element, is the first structure of a window. Virilio's observations date back to the 1980s, when he was primarily concerned with cinema, the strong presence of television in domestic spaces, and the early days of the Internet. However, the constant presence of the duality of time and space in his analysis remains relevant today, especially when considering spatialities during the COVID-19 pandemic.

In *Improbable Architecture*, Virilio (2002) draws on Walter Benjamin's assumption that cinema is capable of exploding the possibilities of space, expanding it through the camera's close-up: "so that now, abandoned in the midst of its far-flung debris, we take on adventurous expeditions" (Benjamin apud Virilio, 2002, p. 71). The metaphor of space as fragments projected from a distance through new technologies refers to a kind of open system, with limits that are not easily perceived. The French philosopher then attempts to predict how the telecommunications system could impose a new way of life on urban dwellers based the *inertia* and sedentary living principles.

> [...] legal citizens for whom the liberty to come and go is suddenly replaced by the liberation of home reception. [...] The office, which was once an other-place, an architectural aside, has now become a simple screen. In the *bourgeois* apartment, the space reserved for work and study has become the terminal of an office-viewfinder, in which the data of tele-information instantaneously appear and disappear as the three dimensions of constructed space are translated into the two dimensions of a screen, or better of an interface, which replaces more than the volume of the ancient dwelling, with its furniture and their arrangements, its contracts and blueprints. This new arrangement also directs the more or less distant displacement of the occupant. This transmutation – where the inertial confinement of the new office has become the axis of gravity and the nodal center of techno-bureaucratic society explains yet again the contemporary, post-industrial redeployment. (Virilio, 2002, p. 73)

These observations have been consolidated to this day, especially with the ubiquity of the Internet in our daily lives. Overcoming the omnipresence of television and other techniques discussed by Virilio (2002), this sedentary lifestyle has been continuously renewed in urban centers. When we analyze the isolation imposed by the pandemic as a type of exceptional sedentary lifestyle, we can also infer it worsened something that was already in progress.

The philosopher's perception of teleworking reduced to a screen is currently materialized in the multiple screens-windows in the palms of our hands, technological devices that are present in the daily lives of a large part of the population. Windows that blur together, as D'Angelo says (Vitral, 2021), mixing the windows of our immediate neighbors, on the side of our homes, with those further away, with whom we share the terrain of social networks, the latter almost always in a state of openness. For Virilio (2002), bringing time closer together through

telecommunications is, in turn, a distancing in space, which means

> The vast dispersion of the scattered debris now involves more than the fragments of the concentration-camp universe denounced by Benjamin. Scattered as well are the personnel, the tele-laborers, who have become objects and subjects of an energy and film transmutation whose purpose has moved from simple industrial production to the long-distance representation of that structural and post-industrial reduction that affects all neighborly relations. As Benjamin noted: "Every day, there grows a need to own the object at the closest possible proximity, through its image and even more its reproduction." No longer aspects of physical space, size and proximity are now elements of the time of photographic, cinematic or infographic exposition, which is a delay of almost instantaneous response, irrespective of the distances among interlocutors. Coming together to deconstruct structurally or to scatter to the winds, the functions here of eye and equipment become confused, since by definition the resolution of the transmitted image is its instantaneous reduction. But this reduction affects more than the simple content of representation, the projected form-image. It also takes over constructed space, the territorial form, from which emanates the organization of time through the chrono-political direction of the so-called "advanced", or developed, societies. (Virilio, 2002, p. 74, author's quotation marks)

Virilio (2002) also mentions a morphological and architectural fracture, since the fragmentation and decoupage of material space into geometric dimensions, with the separations of built space, have been replaced by an instantaneous cut, almost imperceptible in the time of telecommunications, according to Faria (2024):

> There is an inertia due to the concentration on real time related to broadcasting and reception through the media, to the detriment of, or renewing, the previous concentration on the real space of living together in a neighborhood, characteristic of city architecture. The settlement of time is now given greater weight than the settlement of urban space, leading the notion of proximity to take on other meanings. (Faria, 2024, p. 59, our translation)

In using the term social distancing (Carvalho, Ninomiya & Shiomatsu, 2020), the World Health Organization also denotes its ambiguity. Although the effectiveness of keeping part of the population confined to their homes, sociability has acquired other forms of closeness, precisely through digital technologies. There has been an attempt to transpose fragments of the collective spaces of the city onto virtual spatialities using digital platforms as a sort of common ground to foster closeness during isolation. However, these forms of sociability, much like D'Angelo's (2022) starting point as an author-observer of her neighbors' stories, also reinforced a certain type of individualism that had existed even before the physical isolation decrees.

Virilio (2002) also mentions some pertinent notions for this discussion, starting with the consequences of this fragmentation of space into individualized compartments, referring to the separation and functional distribution of a house into rooms. To address this “the irruption in which the architectonic undergoes a series of topological distortions whose effects still remain largely unknown” (Virilio, 2002, p. 78), the philosopher uses elements such as walls, windows, doors, and chimneys to discuss the access to the space of the house. Virilio considers all these openings to be types of windows.

The first opening is the door, which is responsible for granting access to the home and featured as its threshold since it is also responsible for the articulation between inside and outside as it necessarily implies penetrability to access the interior/exterior. The second window would be the one that appeared later, since there was no exclusive opening for lighting in the first houses, except for the chimneys. This window as a type of interface first appeared in places of devotion and later became popular in rural homes and bourgeois residences. The third window is the television screen, “a removable and portable window that opens onto the false day of the speed of light emissions” (Virilio, 2002, p. 79). One of the main characteristics that distinguishes it from the others is that it is not oriented towards an immediate exterior. It is an introverted opening that turns towards distant exteriors, beyond its surroundings.

> As a means of physical and communicative access over great distances, the audio-visual and automotive media merge here, collapsing the traditional architectonic structure. Basically, just as the television set posted before the sofa is an object that punctures the walls, the garage must also be considered in the context of its effect on the rooms of the house. Both are thresholds of transformation that provoke the anamorphosis of constructed architectural and urban structures. Movable elements such as seats, beds or various arrangements conspire with new means of transportation and telecommunication to contribute to the deterioration of a stability which is actually a stasis of immobile equilibrium. As a phenomenon of accelerated substitution, contemporary living becomes the crossroads for mass-media. At this point, the garage could easily replace the house, that "dwelling" which was only a parking lot for the nomad's furniture anyway. (Virilio, 2002, p. 80, author's quotation marks)

Virilio (2002) continues the discussion by questioning whether in the future there will be a dissolution of property based on these fragmented

units of architectural space, combined with the autonomization and overvaluation of the window-screen, in this case, the television.

> Don't we already feel a kind of domiciliary atopia in the urban absorption of towns and suburbs? Isn't the ostensibly functional development of the modern architectural plan, with its hierarchies of space into principal and secondary rooms or receiving and serving units, really nothing more than an aspect of the different modes of access, such as door, window, stair, elevator, as well as of the means of automotive communication and audiovisual telecommunication? As regards recent developments in advanced technologies, we must pose one final question. How will it end? (Virilio, 2002, p. 80-81)

The philosopher also discusses how these technologies have advanced over time to create a false supplementary day since the window of these technological devices has the power to artificially create it. American professor Jonathan Crary (2013) addresses this infinite day discussing the current state of capitalism, which demands a dedication to 24/7 (twenty-four hours a day, seven days a week) consumption. In the context of the pandemic, it is inevitable to associate these dissolutions of boundaries with the space where these temporal activities are inscribed, leading to an attempt at uninterrupted illumination of all spheres of daily life, aimed at obliterating the alternation between night and day, leading to the existence of an infinite productive day, with windows always open. In this way, to return to Virilio's window-screen is to analyze it as the beginning of the dispersion of this opening onto other screens, small windows onto an infinite outside world, which are no longer anchored to the space of the house, but to the body due to their size and mobility.

In this logic, time and space are distorted and remain in uninterrupted continuity due to the fragmentation of space and time, and the absence of a demarcated separation between day and night. The philosopher adds that this continuous time may even be the chronological time of history, but it does not fit into everyday life. This highlights the role of interruptions in structuring time on an individual scale, and draws attention to this aspect, especially during social isolation.

Between 2020 and 2023, during the COVID-19 pandemic, the physical limit was imposed more dramatically, while the temporal limit became more blurred, due to the accumulation of daily activities in a single space: the home, even more introverted. This confinement has considerably reduced the markings and fragmentations between a sphere of life and another, concentrating them in a continuous flow of work, study, leisure, and rest, with a practically smooth temporality due to the absence of clear demarcations, such as spatial ones, and thus not necessarily following the clear division between day and night. Virilio says:

> Today, technology plays an analogous role in creating from all forms of new interruptions a modification of time, a distortion of the astronomical day which affects the arrangement of urban space and of architecture, as the window displaces the door. The solar day that structured the living day was displaced by the chemical day, in which candlelight permitted the development of numerous nocturnal activities. The chemical day gave way to the electric day, which indefinitely prolonged the perception of daylight. With the recent advent of the electronic day, the extension of day and of visibility spreads, taking over space as the extension of an audio-visual and tele-topological continuum, and erasing all the antipodes of those of geographic distances, as well as the dead angles that domain constructed by closed-circuit TV. [...] Basically, reality encounters the fate of modernity: it has always already happened. The moment of the direct perception of objects, surfaces and natural or constructed volumes gives way to the indirect and mediated reception, an interface that avoids day-to-day duration, as well as the calendar of everyday living. We will never be neighbors in any televisual proximity, and the media are not our contemporaries. We live today in an ever-growing fault between the promptness of the broadcasts and our own capacity to grasp and measure the present moment. (Virilio, 2002, p. 83-84)

For the philosopher, the absence of present time in instantaneous communication reaches the building, reducing it almost to an image-form. Using terms such as “video-city” (Virilio, 2002, p. 86) and “televisual urbanization” (Virilio, 2002, p. 86), Virilio describes this conformation from his present, which has become more pronounced in contemporary times.

> We have passed beyond caring about the supremacy of one mode of information over the press, radio or film. Our house has become a press house, an architecture in which the information-dimension grows and intensifies, and in direct opposition to the activities of all journalists. The contour of daily living and the framing of viewpoint in an architectonic constructed of doors and doorways, windows and mirrors are replaced by a cathode framework, an indirect opening in which the electronic false-day functions like a camera lens, reversing the order of appearances to the benefit of an imperceptible transparence, and submitting the supremacy of certain constructive elements to that cathode window that rejects both the portal and the light of day. (Virilio, 2002, p. 87)

Virilio's description is very similar to Paul B. Preciado's analysis (2019), in his book *Pornotopia: An Essay on Playboy's Architecture and Biopolitics*, about the political and sociocultural dynamics during the Cold War, which were responsible for shaping domestic and public

spaces in American cities, incorporating alienating and symbolic mechanisms. One of these spatialized logics is materialized in the bachelor apartment discussed by Preciado (2019, p. 35), which incorporated the aesthetics of the spy agent through the transformation of the male housing into a command center. The dwelling conceived as Virilio's press house is also placed as the image of a spaceship sailing solitarily through space, with the first windows sealed, facing an obliterated exterior, while the telecommunications windows and their control panel gain greater importance. That said, it is possible to argue how the regimes of visibility in architecture have become increasingly ambiguous:

> If architecture offers a view through the very materiality of the erection of walls, partitions and buildings, it also contributes to the dissimulation of the horizon of appearances. In this, architecture operates in a manner similar to the way in which state-of-the-art technologies of communication make prisons more visible and more shadowy. More than any form of demonstration, it is this occultation that is the common denominator of all technologies, old or new. It is the privileged analyst of all arrangements of space and time. For example, the first *tableau*, the first means of ocular representation, was the opening for door- ways and windows. This was long before the easel-and-canvas painting, which so often was self-enclosed, as in a triptych. To understand the first *tableau*, we would have to try to return to the visual unconscious, to the nature of the opening and the closing, rather than attempt to repeat individual demonstrative performances of one electronic optic or another.To this end, consider the evolution and three-dimensional extension of the light-providing opening from the ancient cloister, through the mullion windows of the Middle Ages, the great lancet and rose windows, past the special effects of gothic architecture, to the bow-windows and the great metal spokes of the last century and beyond, and up to the glass facades of our present skyscrapers, and the curtain- walls that were themselves contemporaries to the invention and development of the cathode opening. All of this helps explain the importance of this transmutation of appearances, the subsequent supremacy of the televisual window over the door and other traditional means of access, a supremacy that already contributes to the decline of public space and the decrease of collective venues. (Virilio, 2002, p. 90-91)

4 Concluding Remarks

The discussion indicates a current state where the window replaces the door, becoming the main architectural element that organizes the space, affecting architecture and its assumptions, and relegating physical access and actual presence to the background of real experience. When Virilio mentions the “primacy of the access protocol” (Virilio, [1993] 2014, p. 93), one can also perceive proximity to the context of social isolation due to the omnipresence of artificial windows and the real imposition of sanitary protocols for entering spaces to avoid contamination by the virus.

> With all of this, there is no reason to stand stunned before post-modern facades or the ambiguous character of an architecture that has announced its own superficiality. The mediating of the environment now affects much more than simply the tools of communication, such as control towers, video-based management, nodal centers, and informatics centers; it has come to re-order intimate space, the very nature of our domiciles, through the development of teledistribution. Servan-Schreiber's apartment offers a taste of this future; every room save the bedroom is dominated by a piece of advanced electronic furniture. There's a telex-computer console for satellite correspondence, a game computer for the kids, a home-management computer for domestic affairs, an educational computer for the study of languages, history or math, a word-processor replacing the old typewriter, not to mention televisions and VCR'S. (Virilio, 2002, pp. 99-100, author's quotation marks)

Thus, it is possible to perceive a shift in the perception of living between physical and virtual windows, with the latter being increasingly privileged even after confinement. Today, houses can have all their rooms with windows without physical openings to the immediate exterior. Through digital openings, the exterior becomes the entire world. Furthermore, the house as an object hermetically sealed off from its surroundings came before the pandemic, as stated by Virilio (2014) and recapitulated by Colomina (Colomina, Bodegraven & Al Assal, 2023). And although they were inserted in other contexts, they also assumed that their occupation was in a state of isolation.

From these readings, one can infer that windows, although differentiated by the nature of their materiality, became cyborgs in today's daily life, as evidenced by the COVID-19 pandemic years. This term is based on the philosopher Donna Haraway (1985), who makes us understand openings as hybrids with permeable borders. Haraway questions the purism of the binary divisions between natural and artificial, something valuable to bring to the present discussion between physical and digital, which challenges a dichotomous analysis in contemporary times. With the ubiquity of technology in the daily lives of many, digital spatialities function in a way that overlaps with physical ones.

Although it can be said that there were no substantial changes in terms of the architectural materiality of physical windows after the isolation period, we can see a change in the perception of domestic space users. The pandemic marked a critical moment, but in some ways, it was part of an announced turning point in terms of how we understand openings. While we used to avoid crowds in the streets, we now gather

in digital swarms. Today, even without health recommendations, we continue to observe from our windows the many others who are enclosed, and we become enclosed in front of those who open up to infinite horizons and neighbors.

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PROJETO
PROJECT

ECOLOGICAL ENSEMBLE
CONJUNTO ECOLÓGICO

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ARTIGO SUBMETIDO EM 4 DE AGOSTO DE 2024

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Abstract

The arrival of the Internet in Atlixco, Puebla, frames a reflection on the complexities of communication in the Global South. Unlike urban contexts in the Global North, where Internet access and technological infrastructure expanded rapidly and almost universally, the Global South faces unique challenges. In places like Atlixco, digital communication has been a gradual and fragmented process, marked by significant gaps in access and adoption of technology. "Ecological Ensemble" is an installation that explores the symbiotic communication between fungi and plants, specifically through the underground network known as the Wood Wide Web. This network, where fungi and trees exchange nutrients, symbolizes alternative communication connections among non-human species. The work unveils what is usually hidden, transforming fungal spores into cotton threads to visually represent this interaction. It draws on empirical methodologies and grounded theory. Inspired by the late arrival of the Internet in my hometown, Atlixco, it links this natural communication network to human digital technologies, addressing the complex effects of digital media on everyday life in the Global South, from Internet infrastructure and communication methods to techno-political challenges. Exploring "Ecological Ensemble" invites a critical perspective on communication in a world that must recognize biological and digital networks to achieve a more harmonious and sustainable coexistence.

Keywords: Wood Wide Web, Communication, Global South, Ecology

1 Introduction

Communication between human and non-human species reveals the vast diversity of communication forms. The connection between fungi and plants explored in this work highlights non-hegemonic communications. Despite human advancements in digital networks, it is vital to learn from other forms of non-human communication, understanding that these are equally legitimate, natural, and essential for the environment and our future. Communication, in its complexity, challenges the technological human-centric perspective. Inspired by limited digital connectivity and barriers to technology in the Global South, stemming from economic disparities and lack of infrastructure, they highlight that human communication should not be the sole valid model and indicate the existence of connection methods that respond to a more complex and resilient ecology (Gobierno de Mexico, n.d.; TecScience, 2023). Thus, the research delves into different forms of non-human communication. In the world of plants, communication occurs thanks to fungi, assembling a network called “The Wood Wide Web”. This network consists of fungi that provide nutrients difficult for trees to obtain and vice versa (Popkin, 2019), fostering a mutually beneficial, symbiotic relationship. Using grounded theory as an artistic methodology, I concluded that making the invisible visible was essential. The goal is to offer viewers a new way of perceiving communication between fungi and plants, inspired by the interdependence principles found in resilient communities in the Global South (Joneja et al., n. d.).

2 Methodology

In the following work entitled “Ecological Ensemble”, threads stretch from one pillar to another, as shown in Figure 1. These threads contain the fungus *Rhizopus stolonifer* spores, commonly known as bread mold. The piece reveals the symbiotic interaction between fungi and trees, an interaction that often goes unnoticed beneath our feet. To create this installation, I delved into my past and memories. In 1986, the Internet arrived in Nuevo León, Mexico, through a project led by the technology department of the Monterrey Institute of Technology and Higher Education (TecScience, 2023). A few years later, on November 26, 1991, I was born in Atlixco, Puebla, a town 30 minutes from the city of Puebla. At the time, Atlixco did not yet have Internet access, and telephone lines had only been introduced a few years prior. Interestingly, as early as 1914, Atlixco’s political leader and the Puebla city council sought to establish telephone services in the region (Reyes Zamorano, 1999).

According to data from the International Telecommunication Union (ITU), Internet penetration in Latin America and the Caribbean is around 77%, compared to 87% in Europe and 96% in North America (ITU, n.d.). Today, only 46.3% of Atlixco’s population has access to the Internet. In rural areas of the Global South, Internet connectivity is still far from universal, meaning that communication methods are often rooted in practices other than digital connectivity (Atlixco…, n.d.). When I was a child, my father told me there were no telephone lines when he first moved to Atlixco. Along with others, he worked to bring telephone connectivity to different parts of the town. In many areas of the Global

South, such as rural communities in Mexico, communication networks are organized around families and communities. In Atlixco, for instance, families have built support structures and communication networks that rely more on direct interaction than technology. From markets to community festivals, local networks serve as hubs for exchanging information. Face-to-face communication remains highly valued, and physical gatherings often replace digital tools, which resist digital hegemony (Reyes Zamorano, 1999).

These quantitative disparities contrast sharply with the levels of connectivity in the Global North, where high-speed Internet and 5G mobile networks are standard. Such disparities have fostered the emergence of innovative, creative forms of communication in the Global South that do not depend exclusively on advanced technology. For instance, when I was 13 in 2004, my family still had no Internet connection at home, even though it was already common in households in other parts of the Global North. This is why fungi have inspired me to explore alternative forms of communication. Community radio is another notable example of alternative communication methods, particularly in rural areas of Mexico, Bolivia, and Brazil. These radio stations act as communication platforms, enabling communities to access local news, services, and education, providing connectivity for those without Internet access. In Puebla, for example, the community radio station *La Voz de Atlixco* has become a space where rural communities actively participate in information dissemination, functioning as an accessible forum for all (Municipios Puebla, 2015). In a context where only 46.3% of Atlixco's population has Internet access, these tools serve as essential and efficient alternatives for those living beyond the reach of digital connectivity.

Grounded theory was pivotal in guiding this research and creative process. I asked questions such as: How did we communicate in the 1990s? At what age did I first access the Internet? How do other species communicate? How do trees communicate? How do fungi communicate? As I searched for answers, more questions arose, leading to the idea of understanding how fungi help other species communicate.

I refined my research approach by investigating and exploring diverse communication methods. Collecting and organizing data in specific ways was crucial for realizing the *Ecological Ensemble* installation. This data helped me develop categories that prompted additional questions, such as: How can I present these underground connections in an artistic space? How can I visually represent the symbiosis between fungi, plants, and trees? What materials can I use to create this installation? Empirical observation also played a vital role in the development of the piece. Through this process, I studied the symbiotic interaction between fungi and trees. Ultimately, grounded theory was the most significant aspect of mymethodology, which provided the creative flexibility needed to experiment.

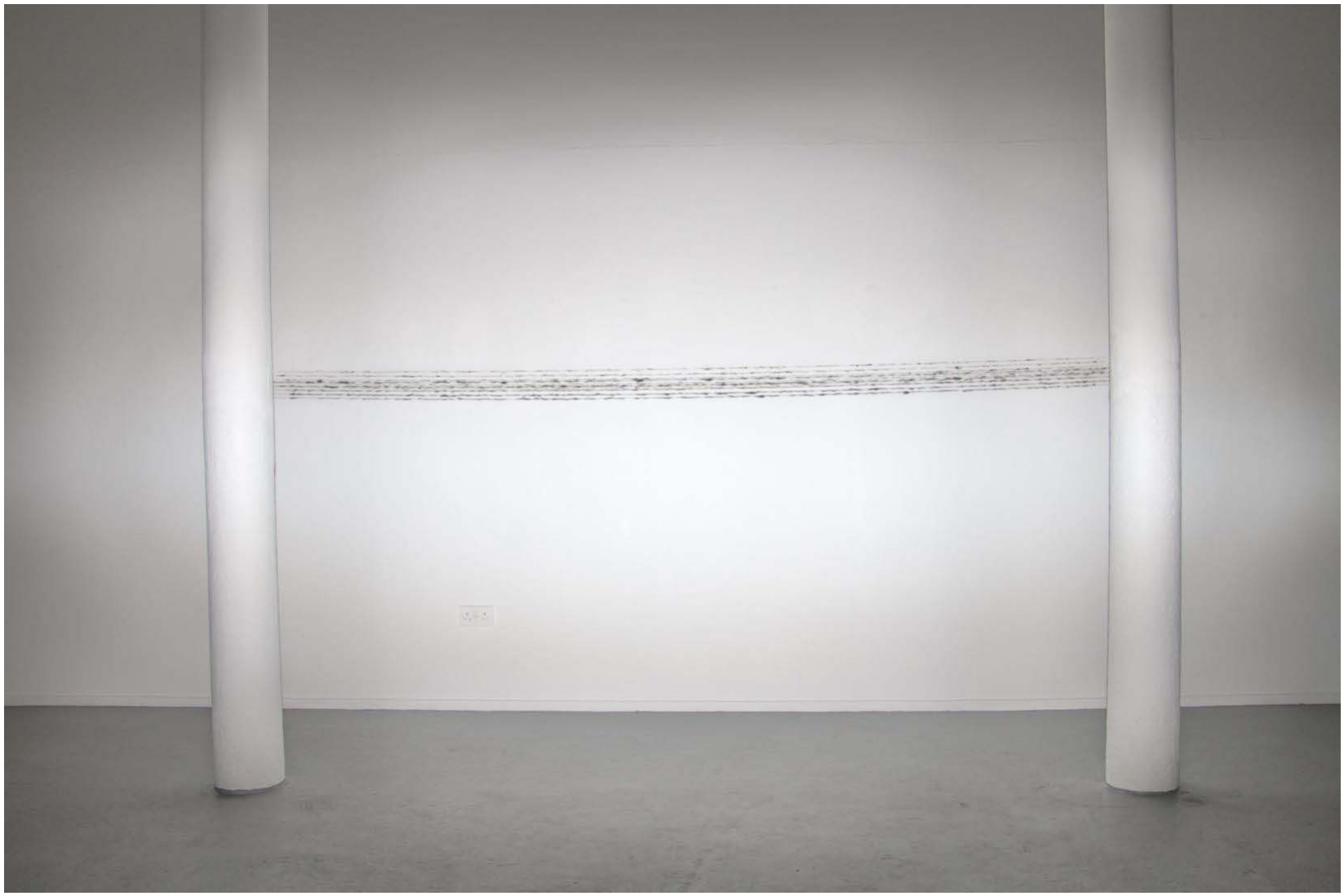

Fig. 1: Ecological Ensemble Installation. Source: Author, 2019.

3 Experimentation

The experimentation phase to inoculate fungi into cotton thread lasted twenty-seven days. The first step was to grow fungi on bread, as I knew that bread tends to develop fungi quickly, especially in humid and dark environments. I placed a piece of moist bread inside a plastic bag, leaving it slightly open to allow air and, thus, the fungus to enter. The fungus began growing within a week. When I observed that the fungus was rapidly colonizing the bread and that spores had spread throughout the bag, I placed the cotton thread inside the same bag so the spores could gradually colonize the thread, as shown in Figure 2. A week later, I removed the thread from the bag and observed the various colors of the fungus: yellow, green, and a small amount of blue, as shown in Figure 3. Over time, the fungus became increasingly dark as it reached the final life cycle stage. When it came time to set up the installation, the fungus no longer had access to its food source (the bread), humidity, or darkness. I fed it with agar to sustain it, as shown in Figure 4. Agar is a gelatinous solid medium that grows various microorganisms, providing the fungus with nutrients outside the bread bag. The fungus was fed with agar twice daily, once in the morning and once in the afternoon. Similarly, the thread had to be moistened twice daily to maintain the fungus.

4 Results

As seen in the video[1], this process culminated in the installation, part of the REMNANTS exhibition at Patriothall Gallery in Edinburgh in 2019. The purpose of the artwork was to highlight the diverse forms of connection between different organisms. This goal was achieved through the installation, where fungi inoculated into five one-meter threads grew visibly to the audience, referencing the “Wood Wide Web” and the various communication methods used by other organisms. The audience was encouraged to reflect on the idea that other life forms have unique ways of communicating. Being able to physically observe other organisms' growth in real time was fundamental for the audience to witness an aesthetic piece and a living, dynamic process of symbiotic communication. Ecological Ensemble suggests that the Global South could develop its models of communication and technology inspired by collaborative communication systems, not only digital and human but also non-human communication. In this type of communication, we learn from and understand other organisms. Just as the internet and telephony arrived in Atlixco, one day, we may comprehend other forms of communication with other life forms.

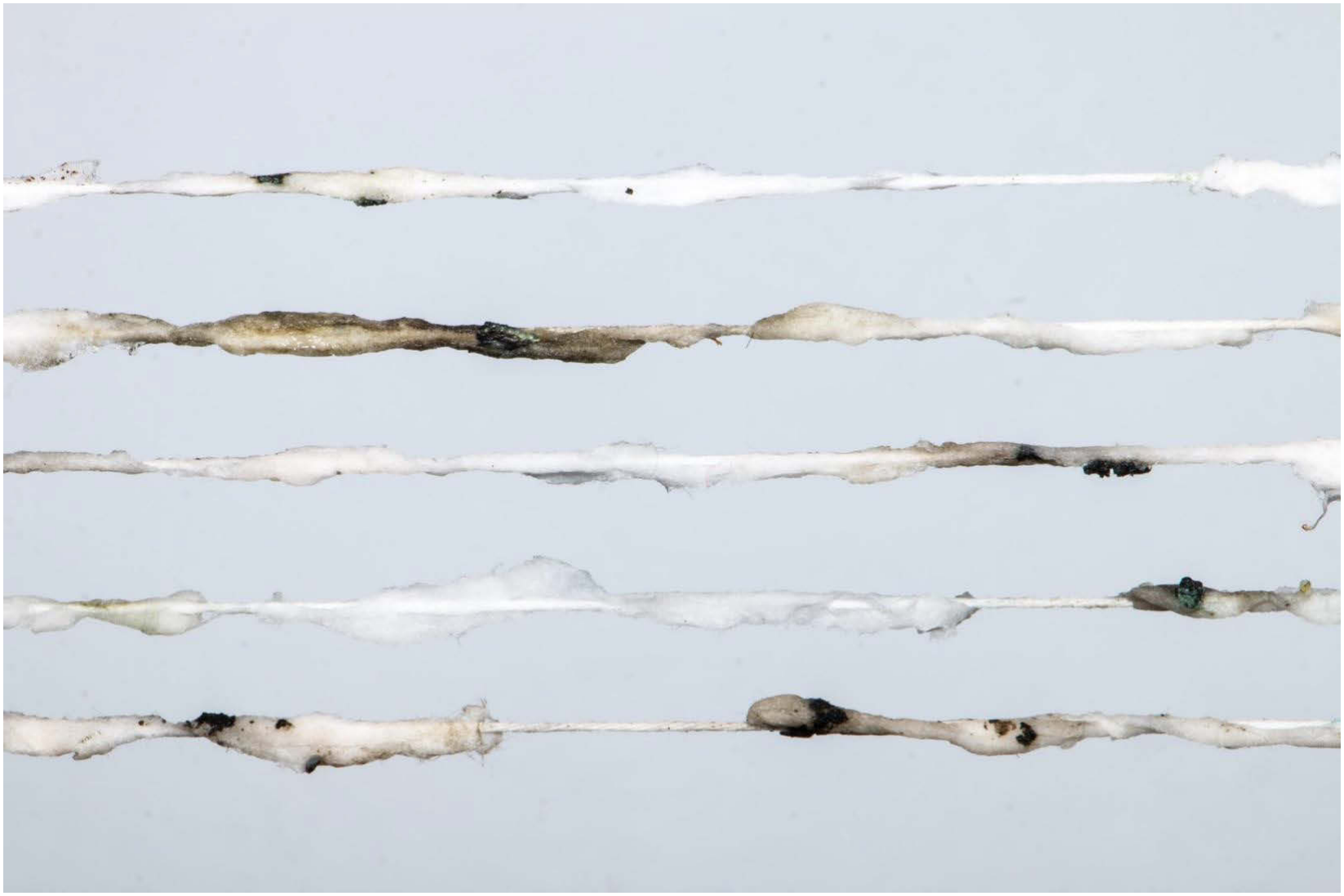

Fig. 2: Close-up of the installation showing the fungi in detail. Source: Author, 2019.

1 Video of the installation “Ecological Ensemble” at *Patriothall Gallery.* Source: Ana Parrodi, 2019. Available at: https://vimeo.com/426203339?share=copy#t=0.

Fig. 3: Macro close-up of the installation, highlighting the colors of the fungi. Source: Author, 2019.

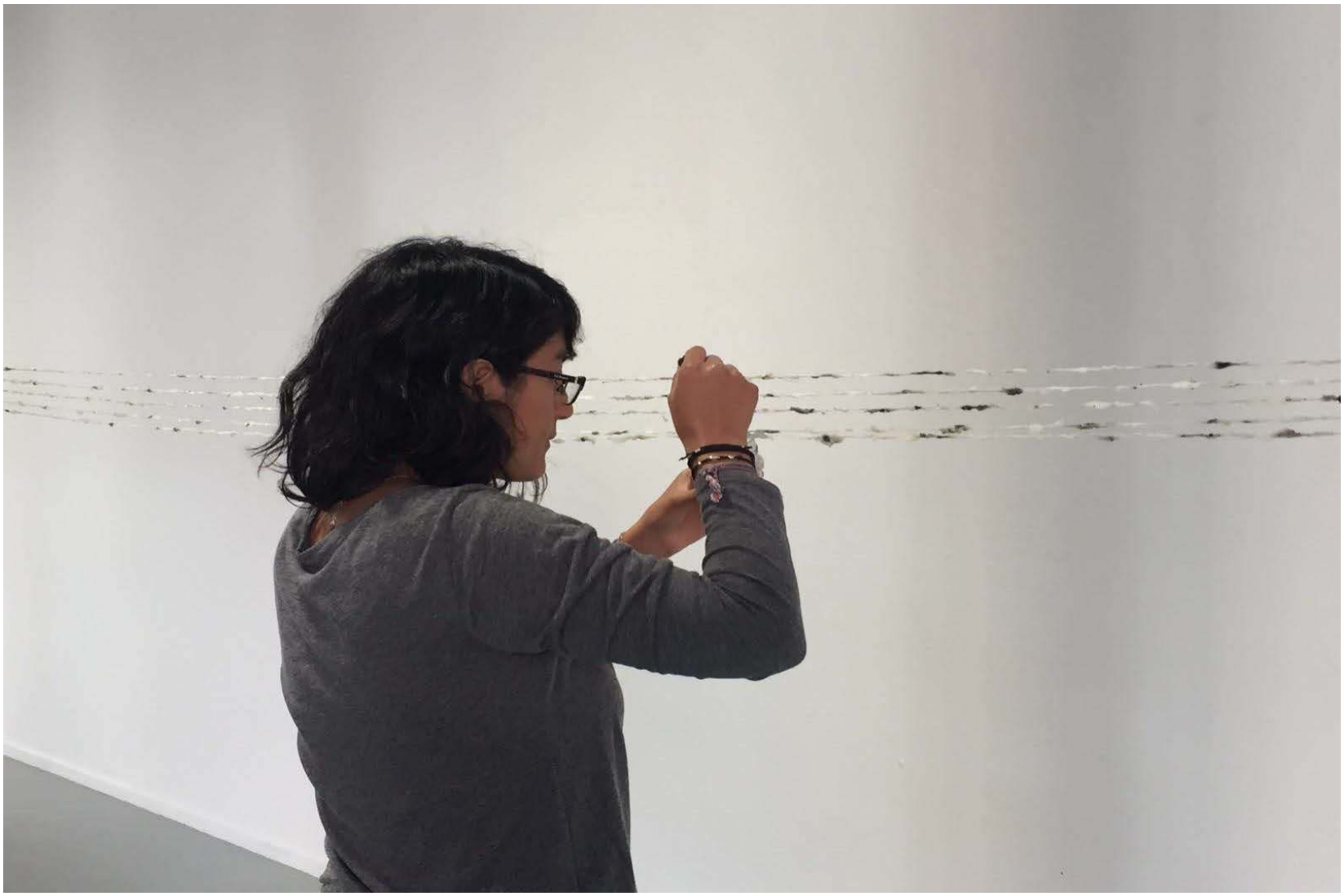

Fig. 4: Feeding the fungi growing on the threads of the installation. Source: Author, 2019.

My piece, *Ecological Ensemble*, is part of a broader work inspired by the "Wood Wide Web" and the symbiotic relationships between different organisms. *The Wood Wide Web* installation is another hybrid and interactive artwork showcasing endangered trees from India and the UK. Through Artificial Intelligence, these trees are brought to life, personified, and given voices to share their stories (*Wood Wide Web…*, n.d.), encouraging the audience to empathize. Similarly, Wood Wide Web's handmade book blends scientific information with ancient folklore (Chedburn, 2019). Its pages feature scans of various trees and fungi combined with texts and images, creating the impression of a glitch on every page. All these works address current global issues, such as the climate crisis and the ecological impact of technology, inviting the audience to reconsider humanity's relationship with non-human organisms in the face of growing disconnection caused by technological advances in the Global South.

5 Conclusion

The piece Ecological Ensemble results from research and exploration into various forms of non-human communication, connecting a personal story with the arrival of the internet in Atlixco, Puebla. The work bridges biology and technology, demonstrating that connections between humans and non-humans are vital for mutual development and survival. The Wood Wide Web and nature teach us that alternative communication methods are possible, showing that different species have developed ways of interacting. While humans have achieved communication through the internet, this does not mean other species lack communication networks. The artwork invites us to broaden our understanding of communication, illustrating how the symbiotic networks between fungi and plants can inspire future technologies that are more resilient, sustainable, and mutually beneficial across species. Continuing to learn from others will be crucial for our future. At a time

when technology dominates our lives, the installation presented at the REMNANTS exhibition in Edinburgh in 2019 invites reflection on communication beyond digital infrastructures. It suggests that, much like in the plant world, there are resilient and sustainable communication networks that could inspire innovative technologies for the future.

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