Document Version
Publisher's PDF, also known as Version of record

BIG
DATA
& SOCIETY

An alternative planetary future? Digital sovereignty frameworks and the decolonial option

$ Sage

Sebastián Lehuedé[1,2] (iD)

Abstract

The frameworks of cyber, technology and data sovereignty have become some of the most influential alternative technological imaginaries. Developed by states and civil society groups, such frameworks are seducing a broad range of actors seeking to reassert their autonomy and self-determination in relation to digital technology and infrastructure. Against this backdrop, this article interrogates the alleged transformative character of digital sovereignty. Do these frameworks support alternative planetary futures, or do they involve a mere change in the actors who are privileging from the technological status quo? To answer this question, I examine the rhetoric and realisation of digital sovereignty frameworks by the Chinese state, the European Union (EU) and Latin American civil society in light of Walter Mignolo's decolonial option. The decolonial option gets inspiration from decolonial praxis and aims at enabling polycentric, noncapitalist and nonanthropocentric planetary futures. As I show, there is some degree of alignment between digital sovereignty frameworks and the decolonial option in the sphere of international politics, but less so in the world economy and the environment. While in some areas the formulations by the Chinese state and the EU can exacerbate coloniality, the Latin American civil society one constitutes a promising attempt at appropriating digital sovereignty from below and promoting peaceful forms of coexistence with the environment although needs further development.

Keywords

Sovereignty, governance, decolonial, coloniality, data, world order

This article is a part of special theme on Big Data & AI in Latin America. To see a full list of all articles in this special theme, please click here: https://journals.sagepub.com/page/bds/collections/bigdataandaiinlatinamerica

Introduction

The frameworks of cyber, technology and data sovereignty constitute some of the most influential imaginaries when it comes to the development and governance of digital technologies. Going mainstream after the adoption of cyber sovereignty by the Chinese state more than a decade ago, digital sovereignty frameworks have started to circulate widely in international and activist circuits, especially in the Global South, as an alternative to the 'internet freedom' paradigm supported by the US state (Ortiz Freuler, 2022).

Existing formulations differ substantially, but a shared goal of digital sovereignty frameworks is that of ensuring that different actors can assert their autonomy and self-determination in the context of a datafied society (Couture and Toupin, 2019). This autonomy is usually predicated upon a rejection of external hegemony, such as the control held by the US over the Internet of Things (IoT), telecommunications and Artificial Intelligence (AI) industries. In practice, sovereignty frameworks encompass varied initiatives revolving around the design and governance of digital infrastructure and the circulation of data: the

[1]Department of Digital Humanities, King's College London, London, United Kingdom
[2]Centre of Governance and Human Rights, University of Cambridge, Cambridge, United Kingdom

Corresponding author:
Sebastián Lehuedé, Department of Digital Humanities, King's College London.
Email: sebastian.lehuede@kcl.ac.uk

development of the so-called Chinese Firewall, which allows the state to selectively control flows of information; the construction of data infrastructure, as in Europe's Gaia-X project; and literacy programmes in Latin America which question the assumptions underpinning digital technologies.

In this article I explore the extent to which digital sovereignty frameworks encompass a truly transformative planetary future. This is an urgent question as progressive actors from the Global South and the North are considering the adoption of such frameworks.

With the above aim, I interrogate digital sovereignty frameworks by turning to what Argentinian linguist Walter Mignolo (2011) calls the decolonial option. Inspired by discussions about coloniality in Latin America, the decolonial option represents a transformative planetary future opposing the matrix of power that took shape during European colonialism in the fifteenth century. In normative terms, the decolonial option seeks to enable polycentric, noncapitalist and nonanthropocentric worlds. Mignolo advanced his reflections in the aftermath of the failed invasion of Iraq by the US (2003) and the Wall Street financial crisis (2008), two events that eroded the international leadership of the US and left room for countries such as China to emerge as world hegemons. While such events took place decades ago, more recent developments support Mignolo's argument. Former US president Donald Trump's slogan 'Make America Great Again' and ongoing controversies between the US and China regarding 5G infrastructure show that the geopolitical conjuncture discussed by Mignolo is still relevant today.

This article analyses the rhetoric and realisation of digital sovereignty frameworks advanced by the Chinese state (cyber sovereignty), the EU (technology sovereignty) and Latin American civil society (technology sovereignty). This purposive sample reflects the diversity of emphases and actors pushing for sovereignty-inspired frameworks. When it comes to the *objects* of sovereignty, I follow the relevant literature (Becerra and Waisbord, 2021; Couture and Toupin, 2019; Fischer, 2022; Guerra González et al., 2022) and use the term 'digital sovereignty' as a shorthand to refer to articulations between sovereignty and digital technology, data and infrastructure. I utilise the noun 'frameworks' to acknowledge the plurality of visions, emphases and goals underpinning such articulations. As per the *actors* at stake, these three cases attend to different continents (Asia, Europe and Latin America) and groups (state, supra-state entity and civil society). This choice enables a comprehensive perspective on digital sovereignty, but at the same time makes comparisons difficult as it encompasses what an attentive reviewer of this article called 'differences in kind'.

Herein I take a planetary-scale approach. At a domestic level, the Chinese formulation has mobilised notions of sovereignty to undermine online dissent. While this concern is uttermost relevant, I also find it important to ask whether digital sovereignty frameworks' reassertion of self-determination from external actors, which tends to generate more sympathy, can bring about a substantial transformation. Importantly, I employ the term 'planetary' instead of 'global' to reject the vision of the world as a frictionless surface sustaining data flows (Spivak, 2003: 72) and to make room for questions regarding the environment. Echoing Mignolo's emphases, I focus on the spheres of international politics, the world economy and the environment. In empirical terms, I mainly draw on existing literature and research, but my insights on the Latin American formulation have also been informed by fieldwork I conducted in 2022.

This article makes an original contribution to the *Big Data & AI in Latin America* special issue and to the literature on digital sovereignty by foregrounding an original formulation emerging from Latin American civil society. At the same time, I highlight the environmental stakes of digital sovereignty, an aspect that has been ignored by previous literature and that especially affects peripheral countries providing raw materials for technology development. In terms of theory, I draw on conceptual formulations that reflect longstanding concerns in Latin America regarding the world system imposed by the Portuguese and Spanish empires in the fifteenth century (Escobar, 2018).

The next sections proceed as follows. First, I discuss the decolonial option and refer to research on the coloniality of data. After that, I unpack the methods employed and introduce the digital sovereignty frameworks formulated by the Chinese state, the EU and Latin American civil society. Next, I analyse instances of collaboration and contradiction between digital sovereignty frameworks and the decolonial option in the spheres of international politics, the world economy and the environment. While there are synergies between the analysed frameworks and the decolonial option in relation to international politics, in the conclusion I argue that this is not the case when it comes to the world economy and the environment. I also state that the Latin American civil society's framework offers an opportunity to rethink digital sovereignty in a way that aligns with the decolonial option, but that further development is required for this formulation to gain prominence in the discussion.

The decolonial option, planetary futures and digital technologies

The decolonial option as introduced by Walter Mignolo (2011) comes in handy to analyse the planetary politics of digital sovereignty frameworks due to this concept's transformative approach to questions over the world order.

A first relevant question when it comes to the decolonial option concerns why it would be necessary to speak of 'decolonial' when most of the formerly colonised countries in regions such as Africa and Latin America have already

undone their formal ties with the empires. As Latin American decolonial thinkers argue, the processes of decolonisation in the nineteenth and twentieth centuries did not manage to dismantle the matrix of power imposed during European colonialism and that still shapes planetary relations to this day. We still live in coloniality (Quijano, 2007), which is the 'darker side' (Mignolo, 2011) of modernity and represents an 'ensemble of processes and social formations' (Escobar, 2007: 185) structuring the 'present organisation of life' (Lugones, 2007: 187) on a planetary scale. Three foundations of coloniality are: (1) the imposition of a capitalist world system based on the extraction of raw resources from the periphery; (2) a Eurocentric rationality that considers itself the only valid form of knowledge; and (3) an anthropocentric ontology that considers nature as separate from, and as inferior to, culture. As the endurance of these patterns show, rather than a concrete period of history, coloniality is alive and kicking. For Mignolo, the hegemony of the US has contributed to sustain coloniality as this country has acted as a mere manager of the colonial matrix of power after Spain, Portugal, Holland, France and England (2011: xviii).

Compared to related strands of thought, decolonial thinking provides a holistic lens from which to discuss world order issues. Whereas postcolonial theory has its origins in critical literary studies, Latin American decolonial thinking focuses on issues of epistemology and culture but also draws to a great extent on Marxist-inspired frameworks (Bhambra, 2014). The latter also provides a fruitful source for imagining alternative futures as it has a strong normative and activist appeal.

Mignolo's decolonial option, in particular, bridges conversations between coloniality and the world order. This is because the decolonial option represents a planetary future aimed at overcoming the world that took shape around 1500 with the invasion of the Americas. Before this tragic event, many civilizations coexisted, with none of them being able to impose their will over the rest and each of them holding different economic systems and forms of relating to nature. Hence, before 1500 there was a *polycentric*, *noncapitalist* and *nonanthropocentric* world order in place. However, around 1500 an important event took place: Western civilisation 'emerged not just as another civilisation in the planetary concert, but as the civilisation destined to lead and save the rest of the world from the Devil, from barbarism and primitivism, from underdevelopment, from despotism and to turn unhappiness into happiness for all and forever' (Mignolo, 2011: 28). Such an unprecedented development, along with the imposition of an extractive economic system and the will to dominate nature, turned the world monocentric, capitalist and anthropocentric.

But things are changing. Five centuries after the invasion of the Americas, around the year 2000, the series of crises experienced by the US due to its failure in Iraq (2003) and the collapse of Wall Street (2008) is bringing about a polycentric world order again, challenging the hegemony of that country in the international landscape and giving way to the rise of non-Western powers such as China. However, unlike prior to 1500, this polycentrism is tied to a single interconnected economic system, namely world capitalism, based on the creation of peripheries for exploitation and extraction. As Mignolo explains:

> You can say that US capitalism is not the same as European or Chinese capitalism but the fact remains that the differences are superficial, not of the deep structure; the economic rules and principles continue to be oriented to the horizon of accumulation of wealth (2011: 32).

These changes, to which we can add the Anthropocene, suggest that we now live a polycentric, capitalist and anthropocentric world order.

The decolonial option supports polycentrism but rejects capitalism and anthropocentrism. More broadly, it rejects any form of imposition, whether in the sphere of international politics, in the economy or in the relationship between society and nature. Ultimately, the decolonial option does not aim at going back to the situation before 1500, as some critics argue. Instead, it seeks to enable alternatives to modernity, hence the use of 'option'. As the Zapatistas from Chiapas, Mexico, would say, the aim is to bring about 'a world in which many worlds coexist' (as cited in Mignolo, 2011: 273). Thus, decoloniality is not an 'everything goes' type of ideology, as liberalism would be, but rather a struggle that rejects hegemony and extractivism and enables the flourishing of political, epistemological and ontological systems.

One aspect not discussed by Mignolo concerns the role of digital technologies in coloniality. As a decolonial turn in the study of data and technology shows, data-intensive technologies are particularly relevant when it comes to the sustainment of coloniality. For Couldry and Mejias (2019), capitalism and colonialism are entering into a new phase marked by the extraction of the life of individuals through data. Both liberal- and state-led market societies, such as the US and China respectively, participate in data colonialism. For Paola Ricaurte (2019, 2022), this form of violent extraction extends to other areas of social life and violently forecloses alternative ways of thinking and being, although resistance is being advanced by activist groups making data systems work for social justice. Looking at data workers in Venezuela, Julian Posada (2022) argues that the offsetting of the labour involved in data work represents a two-fold form of coloniality encompassing material extraction and epistemological imposition. In my research on the governance of astronomy data in Chile, I discuss how the use of vast volumes of data can bring about new forms of epistemic obedience (Lehuedé, 2023) and enter into conflict with Indigenous forms of relating to nature (Lehuedé, 2022b). Similar insights can be

drawn when looking at other Global South contexts. In Africa, for example, US digital multinationals are exercising imperial control over digital architecture and private initiatives are being presented as philanthropic ones despite their extractive character (Oyedemi, 2021).

Based on the above literature, in this article I bring together decolonial research on planetary futures and technology to interrogate the transformative potential of digital sovereignty frameworks.

Methods

As I introduced earlier, this article analyses the formulations of digital sovereignty emerging from the Chinese state (cyber sovereignty), the European Union (technology sovereignty) and Latin American civil society (technology sovereignty). These three formulations represent a maximum variation sample allowing for a panoramic view, incorporating distinct geographical, political and economic contexts. At the same time, however, this choice limits the possibility of drawing comparisons as it involves differences in kind. Following a case studies approach, this article does not aim for generalisation but rather for understanding what is unique about the cases studied and what can be learnt from them.

Importantly, it is highly likely that digital sovereignty frameworks have evolved in dialogue; however, a depiction of their co-evolution is outside the scope of this study. Furthermore, there are relevant frameworks not considered here, such as Russian cyber sovereignty, Indigenous data sovereignty and African digital sovereignty.

Echoing Rogier Creemers (2020), I analyse digital sovereignty frameworks by attending to their rhetoric and realisation, namely by considering both how these frameworks have been introduced by relevant actors as well as by looking at initiatives associated with them. Also inspired by Creemers, I refer to policies and initiatives that are not necessarily part of any digital sovereignty framework. This move allows me to highlight how the visions and impact of such frameworks exceed technology itself. Finally, the three spheres considered (international politics, world economy and the environment) reflect the emphasis put by Mignolo (2011) on discussions over the world order.

The material employed in the analysis consists of academic literature as well as media articles. The insights I provide on the Latin American technology sovereignty framework have been informed by fourteen interviews I conducted and four workshops I co-organised with digital rights groups in Chile, Costa Rica and Mexico in 2022.

Digital sovereignty, criticism & the environment

A few decades ago, common sense indicated that, in order to bring about benefits for all, digital data had to be allowed to flow as freely as possible (Lehuedé, 2022a). Pushed by US governments in internet-related governance fora such as the International Telecommunications Union (Ortiz Freuler, 2022), this paradigm held sway in the nineties and was tied to the idea that the internet's protocols and architecture made this network impervious to external regulation. Under this vision, state sovereignty would simply not apply when it comes to the governance of networked digital technology.

However, a series of events are putting into question such a libertarian paradigm. A landmark in this regard were the Snowden revelations, which laid bare the sophisticated system of mass and targeted surveillance undertaken by US intelligence agencies and companies (MacAskill and Dance, 2013). In parallel to this, a previously decentralised internet started to become increasingly concentrated in the hands of a handful of technology companies based in the US (Ortiz Freuler, 2022). In the aftermath of these events and trends, it is not surprising that the libertarian paradigm of digital governance started to lose its appeal as it seemed to be mainly benefitting the US.

Against this backdrop, digital sovereignty frameworks aim to 'assert some form of collective control on digital content and/or infrastructures' (Couture and Toupin, 2019: 2308). At the moment, it is difficult to come up with an overall definition since states, international organisations, activists and other actors are articulating this concept in relation to different instruments, technologies and horizons.

The use of sovereignty is not absent of criticism. Tied to the rise of the nation-state in Europe in the seventeenth century, 'sovereignty' points to a form of exercising power that assumes a centralised and unique locus of power. For Rita Segato, sovereignty seeks 'to annihilate equivalent attributions in others and, above all, to eradicate the power of these as alterity indexes or alternative subjectivities' (Segato, 2010: 74). The exclusion of people on the move (migrants, refugees and asylum seekers) from digital sovereignty claims proves the extent to which such frameworks are tied to a racialised and colonialist notion of nation-building (Mejias, 2023). Indigenous communities have been particularly critical of notions of sovereignty, although the rise of Indigenous data sovereignty represents an attempt to re-signify this concept (Kukutai and Taylor, 2016).

An important contribution of this article is to bring into view the environmental dimension of digital sovereignty. One of the mainstays of coloniality has been the vision according to which technology is the opposite of, and a means of control to, nature (Ensmenger, 2018). At the moment, digital and data-intensive projects are promising to 'fix' the current environmental crisis; however, technology itself contributes to environmental degradation through different means, such as the production of electronic waste, the consumption of vast amounts of energy and water and the large-scale extraction of raw minerals (Taffel, 2019). As Julia Rone (2023) argues, digital sovereignty frameworks have not yet incorporated debates with relevant environmental stakes such as the democratisation of infrastructure allocation.

In the following sections I conduct an analysis of digital sovereignty frameworks' relation to the decolonial option by looking into the formulations by the Chinese state, the EU and Latin American activism.

Cyber sovereignty in China

The Chinese formulation of cyber sovereignty is perhaps the most famous and influential one. Set out for the first time in a 2010 document (State Council Information Office, 2010), the exact meaning and boundaries of this framework have not been properly formulated. Still, the words by the Chinese President Xi Jinping makes it possible to understand what cyber sovereignty is all about. A state, argues Jinping, should have the right 'to choose its online development path, its network management model and its public Internet policies, and to equal participation in international cyberspace governance' (as cited in Creemers, 2020: 114). Thus, cyber sovereignty in China has a clear global orientation although it can have consequences at the domestic level. Cyber sovereignty has mainly been advanced in relation to internet governance, especially protocols and standards, although China has also been involved in discussions regarding data sovereignty, surveillance and privacy (Polatin-Reuben and Wright, 2014).

China's cyber sovereignty brings under a single framework a number of objectives and concerns held by the Chinese state (Creemers, 2020; Zeng et al., 2017). First, cyber sovereignty aims at controlling internal dissent. A policy in point is the so-called 'Great Firewall', which grants the state the capacity to filter the content that makes it to the country by controlling international internet gateways. Information such as support to the Tibetan or Uyghur causes, or criticism of the ruling Communist party, is blocked in this way. Second, cyber sovereignty is also a means for asserting state security and autonomy vis-à-vis the US state and companies' control over digital data. The Snowden revelations, technology bans by the US and other developments explain China's decision to decrease its dependency on foreign technologies. Finally, cyber sovereignty also aims at supporting the local technology industry and flagship companies such as Huawei or Tencent. Support for education in the field of Artificial Intelligence (AI), the Digital Silk Road involving the development of data infrastructure in Global South countries and technical interoperability are expected to transform China into a relevant actor in the technology industry. There are more initiatives associated to cyber sovereignty, but the ones I just mentioned provide a general idea of the broad range of rationales and instruments at stake.

The EU's technology sovereignty

Notions of technology, digital and data sovereignty have been circulating within activist and policy circuits in Europe for more than a decade. In Spain, for example, civil society and academics have relayed on notions of sovereignty and autonomy to call for users' control over technology through free software (Haché, 2014), foreground the democratic affordances of digital technologies (Calleja López, 2017) and criticise the state's anti-democratic push for privatisation of the digital industry (Cancela and Goikoetxea, 2023).

For analytical purposes, in this article I analyse the framework of technology sovereignty that has gained prominence in European Union institutional settings (Pohle and Thiel, 2020). This framework has been even less formally developed than the Chinese cyber sovereignty, and other notions such as strategic autonomy have been privileged in some instances. As Julia Pohle (2020) explains, the content and contexts of technology sovereignty in Europe are quite different from the Chinese one. First and foremost, EU documents and speeches focus on increasing the competitiveness of Europe in a technological context marked by the US and Chinese hegemony. This involves both the development of infrastructure and the generation of skills that can help reduce dependency to foreign companies. A second aim, which is particularly strong in the case of Germany, is that of improving the capacity of individuals, consumers and users to make choices in the digital environment. A third distinction from the Chinese formulation is that digital sovereignty at the EU is usually accompanied by the rhetoric of protecting European values, such as that of democracy, which are considered to be in danger by the primarily commercial values pursued by transnational technology companies. As the European Commission's president Ursula von der Leyen expressed, technological sovereignty points to 'the capability that Europe must have to make its own choices, based on its own values, respecting its own rules' (von der Leyen, 2020: 24). Finally, a crucial consideration for this article is that formulations of digital sovereignty are taking place in parallel to initiatives aimed at fostering the development of 'green technologies' at the EU level (e.g., European Commission, 2023).

Technology sovereignty in Latin America

Much less discussed than the Chinese and European digital sovereignty frameworks has been the Latin American one. This is not a coincidence as the latter region has usually been presented as a mere source of cheap labour and raw materials rather than a relevant agent in the imagination, development and governance of technology (Medina et al., 2014). However, there is a rich legacy of sovereignty visions in Latin America criticising technology-related forms of external dependency (Grosfoguel, 2000).

Interestingly, there have not been substantial initiatives incorporating the notion of cyber, technology, data or digital sovereignty in Latin America. As Becerra and Waisbord argue, 'both leftist and conservative governments largely eschewed cybernationalism and national sovereignty

and instead followed a pragmatic approach that basically con-formed to the dominant presence of US companies' (2021, p. 6). There are exceptions, though, as for instance the notion of data sovereignty did circulate in Brazil after the Snowden revelations (Polatin-Reuben and Wright, 2014).

What Becerra and Waisbord do not address, however, is that in the past decade frameworks of digital have indeed cir-culated in Latin America, although in a grassroots fashion. In that region, it has been free software and digital rights activists, as well as Indigenous, peasant and worker groups, who have mainly been thinking about technology sovereignty (Guerra González et al., 2022). For example, in 2017 digital rights activist Loreto Bravo reflected about her experience in the con-struction of autonomous telecommunication networks with Indigenous communities in Oaxaca, Mexico (Bravo, 2017). Acknowledging the circulation of the concept in technical cir-cuits, she argues that technology sovereignty could be helpful for hackers, but that it would need to be deconstructed in order to speak to the reality of local communities. Bravo proposed marrying sovereignty, which focuses on nation-states and indi-viduals, with the Latin American notion of autonomy, which emphasises communities and assemblies, as a means to reflect the beliefs and struggles of Indigenous people in the region. In addition to this example, the notion of technology sovereignty has also permeated other fields of activism. La Via Campesina (2021), which groups peasant organisations that developed the concept of food sovereignty, is now finding it necessary to incorporate notions of technology sov-ereignty in their work[1]. In Brazil, the Homeless Worker Movement considered technology a crucial dimension in their struggle 'to secure our sovereignty, and the ability to decide four ourselves which paths are effectively emancipa-tory for our people' (2023: 7). In practical terms, the construc-tion of autonomous infrastructure and popular literacy programmes illustrate the types of initiatives carried out along the lines of data, digital and technology sovereignty in Latin America (Guerra González et al., 2022).

In Latin America, thus, frameworks of technology sovereignty are emerging organically among civil society organisations who find it necessary to assert their self-determination and autonomy in relation to corporate-owned dominant tools.

Digital sovereignty and the decolonial option

Having introduced the digital sovereignty frameworks relevant for this article, in the following paragraphs I analyse their rela-tionship with the decolonial option in the fields of international politics, the world economy and the environment.

International politics

Where does the Chinese cyber sovereignty stand when it comes to international politics? Would it support a polycentric or monocentric world order? The answers are not simple. In broad terms, China has presented cyber sover-eignty as a means for *any* state, that is, not only China, to sustain its self-determination in the development of digital infrastructure. In the words of Xi Jinping: 'No country should pursue cyber hegemony, interfere in other countries' internal affairs, or engage in, condone or support cyber activ-ities that undermine other countries' national security' (as cited in Creemers, 2020: 114). As Roger Creemers argues, the prin-ciple of 'sovereignty equality of states in Internet governance' (2020: 115) supported by China and Russia has proven popular among states unhappy with the status quo. In internet governance, China's cyber sovereignty translates into a support for multilateralism. For example, China has called for adopting multilateralism in the Internet Corporation for Assigned Names and Numbers (ICANN), the instance that coordinates the domain name system (DNS). As of today, ICANN operates through a multistakeholder governance model that includes private actors and civil society.

From one angle, China's cyber sovereignty aligns with poly-centrism as, if realised, there would be no actor holding the cap-acity to impose its will when it comes to the governance of digital technologies and data. This is particularly relevant when it comes to challenging US hegemony. Cyber sover-eignty, however, has mainly been presented in relation to multi-lateralism, a governance principle that focuses on states and state security. Such an excessive focus on the state, as I explained earlier, is tightly linked to the exercise of violence within a given territory. Multistakeholderism, a governance model supported by the US that grants participation to corpora-tions and civil society, also presents relevant limitations as it favours a 'balancing' approach where radical visions and inter-ests tend to get watered down (Cammaerts and Mansell, 2020). Leaving aside discussions of multilateralism and multistakehol-derism, cyber sovereignty might imply a step forward towards polycentrism as it challenges US hegemony and allows for a broader set of actors (at least states) to have a say in decisions regarding digital and data governance.

The EU's technological sovereignty has been less out-spoken when it comes to international politics. This formu-lation has mainly pointed at improving the competitiveness of Europe but, unlike China's performance in instances such as ICANN, this has not translated into advancing an alternative agenda in internet governance fora. When it comes to the international sphere, the position of the EU has been one of aiming at defending 'European values'. Such a statement, however, has not been accompanied with concrete initiatives in relation to the digital technolo-gies. In fact, Europe has been hesitant, sometimes aligning with the US and in other cases showing openness towards China. For example, while politicians in the US have denounced the alleged security risks associated with the growth of the Chinese platform Tik Tok, Europe has treated it as any other platform (Clarke, 2023). On other instances, however, Europe has acted in coordination with

the US. For instance, the US has successfully pressured European countries to ban Huawei phones for security reasons (Cerulus and Wheaton, 2022). While the EU's interest in supporting European values might suggest an intention of diversifying the range of actors at stake (polycentrism), there does not seem to be a clear intention of challenging the US or Chinese hegemony and opening a 'third way' in practice.

The international politics of the Latin American formulation of technology sovereignty have mainly been presented as an attempt at appropriating digital technologies from below. A relevant shared idea is the fact that most of the digital technologies employed in that region have been designed and developed elsewhere, usually the USA or China. Against this backdrop, technology sovereignty implies questioning the extent to which these technologies' ingrained values and politics can speak to the needs and visions of the local context. For Sursiendo, a digital security and rights organisation based in Mexico, technological sovereignty points to 'the freedom to move, use and make sense [of technology] based on what we really need and want, not on what comes imposed' (as cited by Guerra González et al., 2022: 234). In the words of the Brazilian Homeless Worker Movement: 'We need to be able to build and maintain tools that meet the needs of our people without being at the mercy of the rules and terms of use of foreign agents' (2023: 9). To ensure this sovereignty, this group created a Technology Sector formed by people with expertise in technology that creates tools and offers programming courses.

Sursiendo (Guerra González et al., 2022: 234) and Bravo (2017) argue that a particularity of Latin American technology sovereignty is its association with technological autonomy. Autonomy, or *autonomía*, is a concept circulating among Indigenous and activist communities supporting worlds that, unlike the one imposed during European colonialism, are not extractive, patriarchal, anthropocentric or racist (Escobar, 2018). Instead of a world dominated by states, autonomy aims at fighting the state's colonisation of different spheres of society. What is interesting about the emphasis on autonomy is that it coincides with Mignolo's assertion that the decolonial option has its 'domain of action and interaction in the political society' (2011: 34). Technological sovereignty in Latin America, thus, challenges the Westphalian world order, not by advocating the end of the state but by expanding the range of actors who can exercise sovereignty. Although more explicit formulations would be appreciated, this position leaves technology sovereignty in Latin America closer to the decolonial option than the Chinese and EU formulations.

The world economy

Having discussed data sovereignty's position when it comes to international politics, I now turn to discussions about the world economy. Do digital sovereignty frameworks support a capitalist economic system, or do they enable alternatives to capitalism?

In this sphere, the Chinese cyber sovereignty differs significantly from the noncapitalist alternative supported by the decolonial option. Broadly speaking, the technology sector has been key in China's economic growth over the last decades. Companies such as Alibaba, Tencent and Huawei are world leaders in the field, and China self-reports to be the world's main host of unicorns[2] with many of them in the technology sector (He, 2019). State support for the construction of digital infrastructure overseas, as in the Digital Silk Road initiative (Shen, 2018), as well as the growing popularity of China owned social media app Tik Tok in the West (Clarke, 2023), reveals that this country has become a key player in the world digital economy.

But despite the alleged socialist orientation of the Chinese government, the growth of this country's sovereignty-fuelled technology industry is not challenging world capitalism's accumulative and extractive ethos. First, the Chinese fossil fuel-driven industrialisation has been pretty much based on the European model characterised by an undermining of other forms of coexistence with the environment (Davidson, 2021; Huber and Pedersen, 1997). Not only this, but China's technology manufacture industry also has transformed this country into a prominent extractor of raw resources, representing the first importer of manganese ore (68%), cobalt (36%) and copper (30%) (The Atlas of Economic Complexity, n.d.). Finally, China is a crucial actor in the new stage of capitalism and colonialism called data colonialism (Couldry and Mejias, 2019). That country's 14th 5 year plan designated data as a national asset due to its relevance for the national economy (Yin, 2021). Chinese platforms are collecting and processing vast volumes of personal data. WeChat, whose parent company is Tencent, offers frictionless mobile and bill payment, food delivery and social media services in a way that allows it to capture relevant information about its users. Overall, these insights evidence that, rather than working towards a different economic system, the Chinese cyber sovereignty is contributing to intensify world capitalism through old (e.g., resource extraction) and new (e.g., data extraction) means.

The EU's technology sovereignty encompasses a similar case. In terms of rhetoric, this framework's strong emphasis on competition and consumer rights aligns with capitalist values. At the same time, the focus on skills development and literacy programmes does not necessarily encompass addressing the structural asymmetries between extractive technology companies and their users. In fact, Europe's regulatory drive, as expressed in data protection initiatives (European Commission, n.d.) and the Declaration on European Digital Rights and Principles (European Commission, 2022), has not challenged the business model of technology companies. Another issue when it comes to European technology sovereignty and the world

economy concerns initiatives that, despite having been introduced as supporting sovereignty, might be working towards the opposite direction in practice. The Gaia-X project, for example, was envisaged as a data sovereignty initiative by Germany and France for the development of an infrastructure that would allow European countries to store information in a secure, safe and rights-complying environment, with a goal of privileging European technologies to avoid dependency on foreign ones. In 2021, however, the project incorporated US companies Microsoft, Google/Alphabet, Amazon and Palantir and the Chinese ones Huawei and Alibaba as full members, raising concerns that the very goal of providing an alternative to existing US and Chinese infrastructure would not come to pass (Gloujard and Cerulus, 2021). Both from a rhetorical and practical perspective, moving away from capitalism has not been a goal nor can be seen as an indirect outcome of the EU's technology sovereignty.

The framework of technology sovereignty emerging from Latin American civil society encompasses a different economic horizon from those of the Chinese cyber sovereignty and the EU technology sovereignty I described earlier. First and foremost, this framework has not been formulated on the basis of support to the technology industry. Instead, Latin American technology sovereignty challenges this industry's monopolisation of the technological imaginary. As Guerra González et al. argue, technology sovereignty in Latin America is linked to supporting *technodiversities* (Guerra González et al., 2022: 239) rather than a single industry. The case of autonomous cell networks constructed around 2013 in Oaxaca, Mexico, which Bravo (2017) discusses as a case of sovereignty and autonomy, is a concrete illustration of this point. In this case, an alliance between hacker and Indigenous communities made it possible to create a legal framework and develop technological equipment so that local communities, organised under an association called TIC A.C. (Community Indigenous Telecommunications), could become operators of their own mobile phone networks. As Bravo reflects: 'This [project] created important precedents at a national and international level to defy the hegemonic commercial model of doing telecommunications, as it considers citizens not as client-consumers, but as subjects with fundamental rights' (2017: 122). For Bravo, such a community-oriented form of ownership draws on the principle of *the communal*, a form of ownership and organisations wherein individuals are conceived of as part of the community and territory. Likewise, the Brazilian Homeless Worker Movement's considers discussions over digital sovereignty a challenge to the influence of multinational companies from a perspective that is 'generated for and appropriated by the collective organisation itself' (2023: 8).

For Mignolo (2011: 275), communality aligns with the decolonial option in that it proposes a form of organisation that enables alternatives to capitalism. As in the field of international politics, the Latin American framework of technology sovereignty offers a promising option when it comes to challenging world capitalism in the sphere of the digital.

The environment

As I discussed earlier, existing formulations of digital sovereignty have remained disconnected from discussions over sustainability. However, I consider that the complicity of mainstream technologies with the environmental crisis makes it necessary to think through the connection between these two dimensions.

The Chinese state's cyber sovereignty framework does not explicitly address the environment, but an overview of the impact of cyber sovereignty policies shows that the environment has been taken for granted rather than addressed in its full complexity. The push for the local industry supported by cyber sovereignty has transformed China into a world leader in the production of consumer electronics, manufacturing 90% of the world's mobile phones, 90% of its computers and 70% of all televisions in 2018 (People's Daily Online, 2019). Such productivism is making the Chinese state and companies complicit with environmentally harmful forms of resource extraction and accumulation of e-waste. The same could be said in relation to the polluting and water-intensive data processing industry (Mytton, 2021). The Chinese company Alibaba Cloud is one of the world's largest data centre providers (Insider Monkey, 2023). Supported by the Digital Silk Road initiative, that company has constructed data centres in at least 17 locations outside China (Shen, 2018). Paradoxically, China's leadership in electronics manufacturing and data centre construction could be interpreted as a successful accomplishment when it comes to the industrial goals underpinning cyber sovereignty. From an environmental perspective, though, the same figures signal a lack of attentiveness over the relationship between technology and the environment.

Even if not part of the cyber sovereignty framework, it is important to note that China is aiming at 'greening' its technology industry. At the moment, that country produces more than half of the world's battery electric, plug-in hybrid and fuel cell vehicles (Davidson, 2021: 11). However, the development of green technologies still requires the extraction of raw materials and elements usually available only in the Global South such as copper, lithium, nickel, cobalt and rare earths. In some cases, the extraction of these minerals is accomplished only with mass-scale water use and widespread pollution and by making a series of human rights violations (International Energy Agency, 2022: 220). Despite its intentions, this form of 'green extractivism' (Pérez, 2021: 54) goes against the ideal of advancing towards more sustainable futures.

The European Union presents an interesting case when it comes to the environment. First of all, it is important to note

that discussions on technology sovereignty at the EU have not been bridged with environmental concerns. However, more broadly the EU has defined tackling the climate crisis as one of its main pillars of actions; 'building a climate-neutral, green, fair and social Europe' (European Union, n.d.) is one of the EU's top four priorities. Despite call for advancing a 'twin' green and digital transition, the two main policy packages of the EU (the Green Deal and Fit for the Digital Age), do not address the relationship between digital technologies and the environment (Santarius et al., 2023). Furthermore, and as in the Chinese case, a key 'green' technology are electric vehicles, with EU member countries agreeing on banning new nonelectric cars from 2035 (Taylor, 2022). Despite the intention of decreasing gas emissions, green technologies also generate relevant environmental harms, as illustrated by the case of China. Paradoxically, EU reports supporting an industry 'green deal' explicitly call for intensifying the extraction of raw materials from across the planet (European Commission, 2023). As this example shows, EU technology sovereignty has not addressed the environmental damage produced by technology, and parallel 'green tech' policies and initiatives are not tackling the structural causes underlying the environmental crisis.

The Latin American civil society formulation of technology sovereignty also lacks explicit development when it comes to the relationship with the environment. Still, it is possible to identify emerging connections in the reflections of different activist groups. In 2022, the Mexican digital rights organisation Sursiendo published a report titled 'digital communality', an approach where 'hacker ethics and technological sovereignty intersect with permaculture' (Sursiendo, 2022, p. 50). As a principle against endless growth, a permaculture perspective questions aspects such as the vast amounts of energy required to power the management and processing of data. 'In the same way we calculate the environmental footprint associated with our food habits, can we estimate the resources we use through the bytes and kilobytes of information (texts, music, images, videos) we generate and circulate?' (Sursiendo, 2022: 44). In the case of La Via Campesina, discussions taking place over the last few years concluded that technological sovereignty involves fighting against technological dependency to foreign countries and the high degrees of concentration in the digital agricultural industry (La Via Campesina, 2021, 2022). As it can be seen, promising links between technology and the environment are being forged by civil society groups in Latin America under the umbrella of sovereignty. In those visions, technologies do not favour extraction but rather join a broader network of peaceful coexistence between human and non-human actors. One potential explanation for this would point to the endurance of relational ontologies in that region, especially among Indigenous and rural communities (Escobar, 2018). However, these links are still in development so more

work is needed to come up with a vision of digital sovereignty that can support a profound shift in society's relation to the environment.

Discussion: Encounters & contradictions

Having reviewed the frameworks of digital sovereignty by the Chinese state, the European Union and Latin American civil society in the spheres of international politics, the world economy, and the environment, I return to my initial question: are digital sovereignty frameworks and the decolonial options in alignment, or are they in contradiction? Can digital sovereignty enable a polycentric, noncapitalist and nonanthropocentric alternative planetary future? Based on the above discussion, the answer is not simple and would depend on the sphere and the context at stake.

International politics is the area where it is possible to identify more synergy between digital sovereignty frameworks and the decolonial option. The three formulations I analysed have been predicated upon a rejection of different forms of planetary hegemony. In the case of the Chinese cyber sovereignty, there is a rejection of the US's dominance in internet governance. Such a rejection connects with China's pursuit of multipolarity in the international field. In the case of the EU, there is the goal of becoming as competitive as the US and China and of promoting European values in the digital industry. In Latin America, there is a direct challenge to the opaque character of technologies and an emphasis on the role that communities should play in technological development and governance. All in all, and despite their differences, a shared goal of these projects is to challenge the hegemony of the US when it comes to the control of data and its underlying infrastructure. Given that this move would imply moving past a monocentric world order where a single actor can set the terms and content of the conversation, these three formulations align with the decolonial option in that they gravitate towards a polycentric planetary future. However, there is no agreement on the sovereign agent at stake as the Chinese framework tends to focus on the state, the EU one on states and individuals and the Latin American one on communities.

There are more discrepancies between the analysed formulations of digital sovereignty when it comes to the world economy. In the Chinese cyber sovereignty, there is a mirroring of the type of extractive capitalist economic system that emerged during European colonialism as this country's industrialisation paradigm is showing exploitative, extractivist and environmentally harmful trends. A similar point can be said when it comes to the EU's technology sovereignty, where the vocabulary of competition and consumer sovereignty is a mainstay in sovereignty related documents. Furthermore, examples such as the flagship Gaia-X project show that that region is still far from the ideal of developing data infrastructure with autonomy from US and Chinese technology companies. Finally, the Latin American

framework emerging from civil society is much more aligned with the decolonial option when considering that some projects have embraced communality, which represents a noncapitalist model of ownership and governance opening alternatives foreclosed by modernity. Whereas the Chinese and European formulation intensify different forms of extractivism, the Latin American one seeks to develop and govern technologies oriented by communal rather than commercial values.

The environment shows a similar scenario to the one depicted in the world economy, with the Chinese state' and the EU formulations entering intro contradiction with the decolonial option and the Latin American version contributing towards its realisation. Both the Chinese and the European frameworks do not involve undoing resource extractivism, the ever increasing production of digital devices and the environmentally costly processing of big amounts of data. Conversely, there is a growing interest in connecting technology sovereignty with the environment in Latin America, especially when it comes to addressing the extraction of raw resources required to build technologies and the capacity of communities and groups to establish models of development and governance that align with the values of local communities. Despite this, the Latin American formulation still lacks clear references to the connection between technology sovereignty and the environment. Making those connections clear would constitute a relevant contribution to the debate by challenging anthropocentrism, an area as constitutive of coloniality as monocentrism and capitalism.

Conclusion: Shall we embrace digital sovereignty?

In this article I have addressed a rather straightforward question: considering digital sovereignty frameworks' focus on the world order, can such frameworks be said to represent a transformative planetary future? To start outlining an answer, I focused on a seductive promise of digital sovereignty framework: the possibility of bringing about a technological world order where there is no single hegemon in decisions regarding the governance of digital technologies, data and their infrastructure. In addition to this, I turned to one of the most transformative planetary futures, which is that of the decolonial option, to assess whether digital sovereignty frameworks encompass a truly structural transformation. In analytical terms, I examined the frameworks of digital sovereignty formulated by the Chinese state, the EU and Latin American civil society in the spheres of international politics, the world economy and the environment.

Rather than an easy answer, I found that there are instances of both alignment and contradiction between digital sovereignty frameworks and the decolonial option. A space of alignment is that of international politics, where most formulations subscribe to the aim of challenging the US hegemony in a way that opens the room for a polycentric world order. In the world economy, however, the Chinese and EU formulation are intensifying rather than challenging extractivist capitalism. Due to the Latin American focus on communalism, this region's formulation is much more promising when it comes to enabling noncapitalist economic systems. Finally, none of the three formulations have thoroughly linked digital sovereignty with discussions on the environment. However, while the Chinese and EU formulation advance an industrialist and productivist outlook, activists in Latin America are making relevant connections between technology sovereignty and the environment.

As of today, progressive actors in the South and the North are wondering whether to embrace notions of cyber, digital, technology or data sovereignty when approaching digital technologies and their infrastructures. The political advantages of doing so are clear: this imaginary has already become influential and can bring together diverse actors aiming at challenging the US hegemony in the field. However, digital sovereignty frameworks can also be problematic when considering their utilisation by authoritarian countries to justify internal repression as well as its complicity with extractivist capitalism and environmental damage.

But not everything is lost when it comes to digital sovereignty frameworks. Ongoing discussions in Latin America are contributing to appropriate this imaginary from below so as to make it compatible with worlds not driven by monocentrism, capitalism and anthropocentrism. For some civil society groups, technology sovereignty should involve critically interrogating the pre-constructed character of digital technologies in order to make them speak to the needs and visions of the local context. In the economy, technology sovereignty should enable forms of ownership and property developed by these communities and that does not necessarily adapt to extractive capitalism. Finally, an emerging discussion is creating articulations between technology sovereignty and ways of living based on a balanced coexistence with the environment. As I explained earlier, in this article I focused on Latin American civil society, but it can be the case that similar formulations might be circulating in activist circles in other regions as well.

Declaration of conflicting interests

Funding

ORCID iD

Sebastián Lehuedé https://orcid.org/0000-0003-0432-8727

Notes

1. Back in 2014, Alex Haché (2014, pp. 13–14) drew on La Via Campesina to develop his notion of technological sovereignty.
2. A unicorn is a privately owned company worth at least $1 billion.

References

Becerra M and Waisbord SR (2021) The curious absence of cyber-nationalism in Latin America: Lessons for the study of digital sovereignty and governance. *Communication and the Public* 6(1–4): 67–79.

Bhambra GK (2014) *Connected Sociologies*. London, United Kingdom: Bloomsbury.

Bravo L (2017) A Seed Sprouts when it is Sown in Fertile Soil. In: *Technological Sovereignty Vol. 2*. Descontrol, pp. 109–122. Available at: https://sobtec.gitbooks.io/sobtec2/ (accessed 23 February 2023).

Calleja López A (2017) *Since 15M: The Technopolitical Reassembling of Democracy in Spain*. PhD Dissertation, University of Exeter, United Kingdom.

Cammaerts B and Mansell R (2020) Digital platform policy and regulation: Toward a radical democratic turn. *International Journal of Communication* 14: 135–154.

Cancela E and Goikoetxea J (2023) Spanish fake sovereignty: From privatising the nation-state to becoming a digital colony. *Ethnopolitics*: 1–21.

Cerulus L and Wheaton S (2022) How Washington Chased Huawei Out of Europe. *Politico*, 23 November. Available at: https://www.politico.eu/article/us-china-huawei-europe-market/ (accessed 20 February 2023).

Clarke L (2023) TikTok: How the West Has Turned On Gen Z's Favourite App. *The Guardian*, 5 February. Available at: https://www.theguardian.com/technology/2023/feb/05/tiktok-how-west-turned-on-gen-z-favourite-app (accessed 20 February 2023).

Couldry N and Mejias UA (2019) *The Costs of Connection: How Data Is Colonising Human Life and Appropriating It for Capitalism*. Stanford, California, USA: Stanford University Press.

Couture S and Toupin S (2019) What does the notion of 'sovereignty' mean when referring to the digital? *New Media & Society* 21(10): 2305–2322.

Creemers R (2020) China's conception of cyber sovereignty: Rhetoric and realisation. In: Broeders D and van den Berg B (eds) *Governing Cyberspace: Behaviour, Power and Diplomacy*. Lanham, Maryland, USA: Rowman & Littlefield, 107–144.

Davidson H (2021) Is China Doing Enough to Combat the Climate Crisis? *The Guardian*, 26 October. Available at: https://www.theguardian.com/world/2022/nov/11/china-climate-crisis-renewable-energy-goals (accessed 20 February 2023).

Ensmenger N (2018) The environmental history of computing. *Technology and Culture* 59(4): 7–33.

Escobar A (2007) Worlds and knowledges otherwise: The Latin American modernity/coloniality research program. *Cultural Studies* 21(2–3): 179–210.

Escobar A (2018) *Designs for the Pluriverse: Radical Interdependence, Autonomy and the Making of Worlds*. Durham, North Carolina, USA: Duke University Press.

European Commission (2022) Declaration on European Digital Rights and Principles. Available at: https://digital-strategy.ec.europa.eu/en/library/declaration-european-digital-rights-and-principles (accessed 23 February 2023).

European Commission (2023) A Green Deal Industrial Plan for the Net-Zero Age. Available at: https://commission.europa.eu/document/41514677-9598-4d89-a572-abe21cb037f4_en (accessed 20 February 2023).

European Commission (n.d.) Data Protection. Available at: https://commission.europa.eu/law/law-topic/data-protection_en (accessed 23 February 2023).

European Union (n.d.) European Union Priorities 2019-2024. Available at: https://european-union.europa.eu/priorities-and-actions/eu-priorities_en (accessed 23 February 2023).

Fischer D (2022) The digital sovereignty trick: Why the sovereignty discourse fails to address the structural dependencies of digital capitalism in the Global South. *Zeitschrift für Politikwissenschaft* 32: 383–402.

Gloujard C and Cerulus L (2021) Inside Gaia-X: How Chaos and Infighting Are Killing Europe's Grand Cloud Project. *Politico*, 26 October. Available at: https://www.politico.eu/article/chaos-and-infighting-are-killing-europes-grand-cloud-project/ (accessed 23 February 2023).

Grosfoguel R (2000) Developmentalism, modernity, and dependency theory in Latin America. *Nepantla: Views from South* 1(2): 347–374.

Guerra González JT, Suárez Estrada M and Cerratto-Pargam T (2022) Construyendo soberanía digital en América Latina: Un análisis de las iniciativas de cuatro colectivos sociales [Building digital sovereignty in Latin America: An analysis of the initiatives of four social groups]. *Chasqui. Revista Latinoamericana de Comunicación* 149: 227–242.

Haché A (2014) Soberanía tecnológica [Technological Sovereignty]. In: *Soberanía tecnológica [Technological Sovereignty]*. Available at: http://media.espora.org/mgoblin_media/media_entries/1649/libro_soberania_tecnologica_cast_final.pdf (accessed 17 August 2023).

He L (2019) Chinese Report Counts 206 Unicorns. That's More than America. *CNN Business*, 23 October. Available at: https://edition.cnn.com/2019/10/23/tech/china-unicorns-united-states (accessed 23 October 2019).

Homeless Worker Movement (2023) *Homeless Worker Movement in Brazil and the Struggle for Digital Sovereignty*. Available at: https://nucleodetecnologia.com.br/docs/Cartilha-MTSTec-ENG.pdf (accessed 22 August 2023).

Huber T and Pedersen P (1997) Meteorological knowledge and environmental ideas in traditional and modern societies: The case of Tibet. *Journal of the Royal Anthropological Institute* 3(3): 577–597.

Insider Monkey (2023) 5 Biggest Cloud Providers by Market Share in the World. 21 January. Available at: https://www.insidermonkey.com/blog/5-biggest-cloud-providers-by-market-share-in-the-world-1109742/2/ (accessed 23 February 2023).

International Energy Agency (2022) *World Energy Outlook* 2022. Available at: https://www.iea.org/topics/world-energy-outlook (accessed 23 February 2023).

Kukutai T and Taylor J (2016) Data sovereignty for indigenous peoples: Current practice and future needs. In: Kukutai T and Taylor J (eds) *Indigenous Data Sovereignty: Toward an Agenda*. Australian National University Press,, 1–24.

La Via Campesina (2021) Las tecnologías en el campo y el agro: Soberanía alimentaria y soberanía tecnológica [Technologies in the Countryside and in Agriculture: Food Sovereignty and Technological Sovereignty]. In: *Coordinadora Latinoamericana de Organizaciones del Campo*. Available at: https://cloc-viacampesina.net/la-produccion-de-alimentos-y-la-lucha-por-la-soberania-tecnologica (accessed 23 February 2023).

La Via Campesina (2022) Culminan las jornadas de comunicación de CLOC-Vía Campesina con sesión sobre seguridad digital y soberanía tecnológica [Encounters on Communication of CLOC-Via Campesina Come to an End with Session on Digital Security and Technological Sovereignty]. In: *Coordinadora Latinoamericana de Organizaciones del Campo*. Available at: https://cloc-viacampesina.net/seguridad-digital-y-soberania-tecnologica (accessed 23 February 2023).

Lehuedé S (2023) The coloniality of collaboration: Sources of epistemic obedience in data-intensive astronomy in Chile. *Information, Communication & Society* 26(2): 425–440.

Lehuedé S (2022a) When friction becomes the norm: Antagonism, discourse and planetary data turbulence. *New Media & Society:* 1–16.

Lehuedé S (2022b) Territories of data: Ontological divergences in the growth of data infrastructure. *Tapuya: Latin American Science, Technology and Society* 5: 1–18.

Lugones M (2007) Heterosexualism and the colonial / modern gender system. *Hypathia* 22(1): 186–209.

MacAskill E and Dance G (2013) NSA Files: Decoded. What the Revelations Mean for You. *The Guardian*, 1 November. Available at: https://www.theguardian.com/world/interactive/2013/nov/01/snowden-nsa-files-surveillance-revelations-decoded#section/1.

Medina E, Marques DC and Holmes C (2014) *Beyond Imported Magic: Essays on Science, Technology and Society in Latin America*. Cambridge, Massachusets, US: MIT Press.

Mejias UA (2023) Sovereignty and its outsiders: Data sovereignty, racism and immigration control. *Weizenbaum Journal of the Digital Society* 3(2): 1–9.

Mignolo W (2011) *The Darker Side of Western Modernity: Global Futures, Decolonial Options*. Durham, North Carolina, USA: Duke University Press.

Mytton D (2021) Data Centre Water Consumption. *Nature npj Clean Water* 4(11): 1–11.

Ortiz Freuler J (2022) The weaponisation of private corporate infrastructure: Internet fragmentation and coercive diplomacy in the 21st century. *Global Media and China* 8(1): 1–18.

Oyedemi TD (2021) Digital coloniality and 'next billion users': The political economy of google station in Nigeria. *Information, Communication & Society* 21(3): 329–343.

People's Daily Online (2019) China Remains World's Largest Producer, Consumer, Exporter of Consumer Electronics. 9 April. Available at: http://en.people.cn/n3/2019/0409/c90000-9564908.html (accessed 23 February 2023).

Pérez A (2021) *Green Deals in a Time of Pandemics: The Future Will Be Contested Now*. Madrid, Spain: Libros en Acción.

Pohle J (2020) *Digital sovereignty: A New Key Concept of Digital Policy in Germany and Europe*. Berlin, Germany: Konrad-Adenauer-Stiftung. Available at: https://www.kas.de/en/single-title/-/content/digital-sovereignty (accessed 4 November 2021).

Pohle J and Thiel T (2020) Digital sovereignty. *Internet Policy Review* 9(4): 1–19.

Polatin-Reuben D and Wright J (2014) An internet with BRICS characteristics: Data sovereignty and the Balkanisation of the internet. *Login* 39(6): 1–10.

Posada J (2022) *The Coloniality of Data Work: Power and Inequality in Outsourced Data Production for Machine Learning*. PhD Dissertation, University of Toronto, Canada. Available at: https://tspace.library.utoronto.ca/handle/1807/126388.

Quijano A (2007) Coloniality and modernity/rationality. *Cultural Studies* 21(2–3): 168–178.

Ricaurte P (2019) Data epistemologies, the coloniality of power and resistance. *Television & New Media* 20(4): 350–365.

Ricaurte P (2022) Ethics for the majority world: AI and the question of violence at scale. *Media, Culture and Society* 44(4): 726–745.

Rone J (2023) The shape of the cloud: Contesting data centre construction in North Holland. *New Media and Society* 1–20.

Santarius T, Dencik L, Dieg T, et al. (2023) Digitalisation and sustainability: A call for a digital green deal. *Environmental Science & Policy* 147: 11–14.

Segato RL (2010) Territory, sovereignty and crimes of the second state: The writing on the body of murdered women. In: *Terrorising Women: Feminicide in the Americas*. Durham, North Carolina, USA: Duke University Press, 70–92.

Shen H (2018) Building a digital silk road? Situating the internet in China's belt and road initiative. *International Journal of Communication* 12: 2683–2701.

Spivak GC (2003) *Death of a Discipline*. New York, New York, USA: Columbia University Press.

State Council Information Office (2010) The Internet in China (White Paper). Available at: http://www.chinadaily.com.cn/china/2010-06/08/content_9950198.htm.

Sursiendo (2022) *Digital Communality: A Permaculture Ethics Perspective*. Available at: https://sursiendo.org/2022/04/digital-communality-a-permaculture-ethics-perspective/ (accessed 23 February 2023).

Taffel S (2019) *Digital Media Ecologies: Entanglements of Content, Code and Hardware*. Bloomsbury.

Taylor A (2022) EU Plans for Only Electric New Vehicles by 2035 'Without Precedent'. *The Washington Post*, 28 October. Available at: https://www.washingtonpost.com/climate-solutions/2022/10/28/eu-electric-cars-2035/ (accessed 20 February 2023).

The Atlas of Economic Complexity (n.d.) Available at: https://atlas.cid.harvard.edu/ (accessed 2 September 2023).

von der Leyen U (2020) Shaping Europe's Digital Future: Op-ed by Ursula von der Leyen, President of the European Commission. In: *European Commission*. Available at: https://ec.europa.eu/commission/presscorner/detail/en/ac_20_260.

Yin D (2021) China is Laying the Groundwork to Nationalise Private Companies' Data. *protocol*, 16 June. Available at: https://www.protocol.com/china/china-national-security-data-exchange (accessed 20 February 2023).

Zeng J, Stevens T and Chen Y (2017) China's solution to global cyber governance: Unpacking the domestic discourse of "internet sovereignty". *Politics and Policy* 45(3): 432–464.