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The extractive infrastructures of contact tracing apps

ABSTRACT

The COVID-19 pandemic will go down in history as a major crisis, with calls for debt moratoriums that are expected to have gruesome effects in the Global South. Another tale of this crisis that would come to dominate COVID-19 news across the world was a new technological application: the contact tracing apps. In this article, we argue that both accounts – economic implications for the Global South and the ideology of techno-solutionism – are closely related. We map the phenomenon of the tracing app onto past and present wealth accumulations. To understand these exploitative realities, we focus on the implications of contact tracing apps

KEYWORDS

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and their relation with extractive technologies as we build on the notion racial capitalism. By presenting themselves in isolation of capitalism and extractivism, contact tracing apps hide raw realities, concealing the supply chains that allow the production of these technologies and the exploitative conditions of labour that make their computational magic manifest itself. As a result of this artificial separation, the technological solutionism of contract tracing apps is ultimately presented as a moral choice between life and death. We regard our work as requiring continuous undoing – a necessary but unfinished formal dismantling of colonial structures through decolonial resistance.

In *Open Veins of Latin America*, Eduardo Galeano (1997) uncovers the historical crimes and violence of European 'explorers' who legitimized their 'discoveries' as a decree from God. They mobilized support from investors by claiming technological superiority. A familiar assertion.

2020 is not 1492. But there is no present without a history, and the next history is also made in the present. The COVID-19 pandemic will go down in history as an episodic crisis with major ramifications. The magnitudes are expected to be cataclysmic, including calls on the global stage for debt moratoriums, with particularly gruesome effects in the Global South.

From the onset of the pandemic, a new technological application would come to dominate COVID-19 news across the world. Contact tracing apps are intended to measure and keep record of physical proximity as a proxy for potential exposure to the virus. They deploy technological methods to capture everyday interactions and in the process turn manual contact tracing – a labour intensive care and surveillance activity, into an engineering problem. We map this phenomenon onto the past and present extractive infrastructures and exploitative realities of the immense wealth accumulation that Galeano identified.

As feminist writing-in-public, we bring attention to the ways in which contact tracing apps extend extractivism, from the mining of rare minerals for smart phones to the extractivist models of cloud-based services and the extension of Big Tech into the markets of care. To do so, we build on a body of literature pointing out the *continuing* geopolitical make-up of imperial and colonial power in the development of infrastructural technologies. Ali (2016) argues for a decolonial approach when designing, building or theorizing about computing phenomena and an ethics that especially decentres Eurocentric universals. Chakravartty and Mills (2018) offer to think decolonial computing through the lens of racial capitalism. This is important because according to Robinson ([1983] 2000) mainstream political economy studies of capitalism do not account for the racial character of capitalism nor for the evolution of capitalism to produce a modern world system dependent on slavery, violence, imperialism and genocide. Capitalism is 'racial' in the very fabric of its system (cf. Bhattacharyya (2018)).

Building on theories of racial capitalism, we focus on the implications of contact tracing apps and their relation with extractive technological infrastructures. We embed our work in a view that requires continuous *undoing* – a

necessary but unfinished formal dismantling of colonial structures by decolonial resistance.

CALLING ATTENTION TO EXTRACTION AND INFRASTRUCTURES

To call attention to the multiple ways that extraction and infrastructures are woven into the tapestry of contact tracing apps, we filed a 'bug report' on the Github repository of the Decentralized Privacy Preserving Proximity Tracing (DP3T) (Aouragh et al. 2020). For over a century, inventors and engineers have used the term 'bug' to refer to mistakes and errors in a system. A 'bug report' in that tradition documents an intended functionality that fails, or even mishaps in code, that return errors or stall a technical system (Pritchard et al. 2020). Bugs and their reports are a fundamental part of making, frustration and re-imagining the making of a system. Yet, where do we file a bug when what is being reported on is the problem itself? Or, what if this system in the making is part of a bigger problem, like reproducing racial capitalism, or when it relies on the Application Programming Interfaces (APIs) of extractive infrastructures (Snodgrass and Soon 2019)?

Contact tracing apps align many of the extractivist moves of Big Tech to take hold of public infrastructure. We are specifically referring to the socio-politico-economic practices of extraction as seen in mineral and fossil fuel production, temporary processes often involving landgrabbing. Disguised as 'progress', they allow profits to be made elsewhere and are followed by devastated habitats. They limit the possibilities for livelihoods, resulting in the displacement of indigenous peoples and 'wasted lives' (Bauman 2004). As Jingzhing Ye et al. (2020) notes, '[e]xtractivism [...feeds] itself by ruthlessly exploiting (and depleting) the resources it controls [...and] grabbing new resources in order to continue its operation'.

The tracing apps extend the operation of resource-grabbing to control and deplete public infrastructures such as public health care. In the context of COVID-19, Big Tech is figured as the progressive, high-tech saviour of public health, as the protector of economies and reproductive labour, the welcome collaborator of nation states. Yet, this is a project of extraction that allows governments to dispose of their responsibilities. Companies use this 'sneaky moment' (Aouragh et al. 2015) to finally gain control of health infrastructures for future accumulation and exploitation of ever-more quantified populations. This creates huge profits that do not return to the depleted sites of extraction. It is a movement similar to 'the boom-bust cycle' in mineral extractivism (Veltmeyer and Bowles 2014).

THE GLOBAL CALCULUS OF EXTRACTION

While contact tracing apps are proposed in a mode of rapid response, we pause and ask: what calculations are being made here? What values are placed on lives and exposures? As the epicentre of the pandemic crosses continents, we see how risks and losses are not equally shared across the world. For example, in much of the Global South, neo-colonialism (the 'structural adjustments' by institutes like the IMF and WB) meant the privatization of water, turning it to a profit commodity and therefore a source of conflict. To advise people to wash hands regularly with running water and soap while in many places water is sometimes itself contaminated and causing diseases is a cruel irony (Kamau 2020).

We use the term Global South to refer to Africa, Latin America and Southeast Asia to complicate the periphery/centre binary and embed our analysis through a capital/inter-imperial approach that accounts for the contradictions of capitalism across and within these poles. The capitulation of many parts of the Global South is a colonial manufactured dependency, sustained by foreign interventions. These include actions that impact healthcare, markets and social welfare systems of states. Countries are eventually forced to borrow from richer countries, mostly their previous colonizers, amassing greater debt. Moreover, colonial dependencies produce wealth and territorial powers, which are the abstractions made possible by raw and material commodities. The scale and scope of metals, crops, minerals and people that have been subject to these extractive processes is staggering. Today, much of the digging and bare-hand scraping of metals is for mobile phones, the same devices used for contact tracing (Byrne and Edwards 2018).

The multinational tech-companies that are responsible for implementing contact tracing apps build on this global extractivist model and make easy profits within and outside the Global South due to hegemonic trade arrangements that are purposely programmed to ease capital flight and tax evasion. Efforts to undo these dependencies, for example, by introducing measures to strengthen intra-African continental trade and assert some agency, such as the Africa Free Trade Area agreements (AFCFTA), have repeatedly failed. Contrary to its decolonial ambitions, this agreement has ended up between a rock and a hard place, or simply aid and charity.

ABSTRACTING EXTRACTION

Once turned into artefacts for computing, the story of extraction moves to another level of abstraction. Since the 2000s, the software industry has moved away from providing devices as materialized in 'personal computers', towards systems with applications whose main computation processes are run on a server elsewhere. 'Services' or 'software as a service' has enabled yet other forms of accumulation and exploitation. In a sense, their designs and conceptualizations serve to conceal the relation between these new forms of accumulation and more traditional forms of extractivism. Specifically, software production has become a process for the optimal management of operations and extraction of value. Where computing fails in operations, humans have been called in (Ekbia and Nardi 2014). Crowdwork platforms consider humans and computer processor calls practically interchangeable: getting workers to do not-yet-computable work, while instrumenting their actions so that their work can eventually be optimized through abstraction and automation (Gray 2019).

The crowdwork that sustains people and business to continue during COVID-19 is a manifestation of the centrally controlled extractive labour practices that are the linchpin of computational infrastructures (Doorn et al. 2020). Companies have externalized the risk of delivering services to workers who are stripped of labour rights and are made to carry the risk of health costs, lack of demand and damages. These crowdworkers are often already racialized and globalized and are likely to be subjected to more surveillance, including using contact tracing apps.

Technology companies ride profits from the chaos that many countries have been thrown into by the COVID-19 pandemic (Waters 2020). To them, contact tracing apps present a golden opportunity to collaborate with

governments as a way to extend their services. For example, apps rely on the increased use of mobile phones managed through cloud services. They require computational infrastructures to capture users' physical interactions with each other while protecting their privacy. These are backed with databases that are integrated into existing health infrastructures (Fitzgerald and Crider 2020). Several countries plan to develop apps that use GAEN, supported by call centres for which thousands of 'to be contact tracers' are hired, trained and tracked through platforms (Anon. 2020). In doing so, both crowdwork and computational infrastructures become an essential part of national health infrastructures. The moment governments commit to their new tech-partners, they subject themselves to the unbundling of their vital institutions through these 'software as a service' companies.

Once slipped into people's pockets, mobile phones increasingly define chances to live and life chances in an economy of disruption and unbundling. Once they reach the limits of their use, these same devices cycle back as waste, pollution and toxicity (Gabrys 2013). What does it mean to develop technologies to combat a virus without considering the larger impact and the extension of extractive economies? It becomes clear that to mitigate these harms requires a public discussion, which also facilitates that communities can design, test and shape methods for protection not from viruses, but from extractive modes of existence.

EXTRACTIVE INFRASTRUCTURES

Had we asked Galeano about the legacy of tracing apps, he might say: 'check out the archives of the London Stock Exchange'. The development of contact tracing apps has made apparent a complacent 'forgetting' of colonial frameworks, an omission to connect the dots of seemingly extraneous matters.

Contact tracing apps are complicit in global cycles of racial capitalism that are not only manifest in their use but also all the way down to their production lines across different scales of extraction. For sure, the invention and promotion of contact tracing apps will increase the reliance on smart phones, which will in turn necessitate an increased extraction of resources and from this increases levels of damage for communities who live with precious metal extraction. These damages include a range of documented environmental and social harms, including human trafficking (Kahhat et al. 2019), exposure to toxins such as mercury (Langeland et al. 2017), toxic waste impoundments (Ureta and Flores 2018), increased air pollution and destruction of ecosystems (Ibrahim et al. 2018). Elizabeth Povinelli (2020) describes this inescapable loop of extraction as 'dig, dump, die'.

For an app that proposes a mode of care and protection, we have to ask who bears the body burden, who will experience more bodily harms from their use? The propositions of the app as the preferred answer to the COVID-19 crisis is a continuation to pursue the expansion of computational infrastructures to protect some lives at the cost of others, resulting in producing and reproducing racial capitalism.

CONCLUSION: CLOSING THE LOOP OF EXTRACTION

If extraction and dispossession were the right and left feet of the first steps of capitalist accumulation, then how do extractive infrastructures stabilize these footings? If we bring together the different parts – contact tracing apps, infrastructure and extraction – it becomes clear that what seems an irrational loop

is a deliberate concealment of rational capital accumulation and exploitation. By presenting themselves in isolation of capitalism and extractivism, contact tracing apps hide raw realities, concealing the supply chains that allow the production of these technologies and the exploitative conditions of labour that make their computational magic manifest. As a result of this ideological separation, the technological solutionism of contract tracing apps is ultimately presented as a moral choice between life and death.

The dynamics of racial capitalism necessitate a multifaceted understanding of extraction, exploitation and oppression. The extraction of material resources and the hard work to fabricate technology in factories in the *South* cannot be understood without exploitation in delivery sectors, staff in health clinics, cleaners at the 'front-line' in the *North*, a workforce overwhelmingly made up of racialized minorities dying in disproportionately high numbers during COVID-19 (Lentin 2020; Petty 2020; Serwer 2020). Too often in debates on extraction, exploitation and oppression, racialized peoples are relegated to an abstract 'there', but the 'there' is also 'here'. Or as Sivanandan (1982) phrased it, and the COVID apps make clear one more time, 'we are here because you were there'.

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