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The Quick Response Border: Pandemic Biopolitics, Affective Complicities and Flexible Technologies

Abstract

For nearly three years, the COVID-19 pandemic had wrought disruptive border closures and network dissolutions in mobility systems of all kinds. Forwarding the concept of the Quick Response (QR) border, this paper examines two technological interventions by which mobilities were ultimately revived. First, the removal of quarantine measures often assumed the rapid and mass vaccination of all. Second, the sorting of populations involved the pervasive and seductive use of QR-enabled digital ‘health passes’ to automatically confer and confirm biosecurity. Drawing on Singapore as a case study, the paper argues that the remedial logics sparked by COVID-19 both mirror previous iterations of biopolitics, and breathe new intensities in them. In the context of our study, two characteristics of the Quick Response border stand out: one, the heavy reliance of (this) biopolitics on affective consent and public cooperation; and two, the proliferation of trans-scalar and multi-purpose applications due to QR’s flexible automation. The paper discusses the implications of these developments for the future of biopolitics and our complicities.

Keywords: quick response border, biopolitics, affect, technology, COVID-19 pandemic, automation

Introduction

For an extraordinary period of about two to three years, the COVID-19 pandemic had wrought significant disruption to all kinds of mobilities and at various scales. Hard (state and international) border closures, onerous quarantine regimes, neighbourhood cordons and a patchwork of inconstant rules with regards to staying home had dented the appetite for travel, while sapping consumer (and labour) demand for a protracted period of time. These developments did not just affect travel industries—such as air transport, which, being the vehicle of COVID-19’s global spread, had clearly suffered a debilitating collapse—but had also spilled over into and upended everyday movements of the more local kind: from going to work to shopping to simply socialising (Linder, 2022). While relatively short-lived compared to other emergencies and insecurities (e.g. terrorism), the pandemic—fuelled by all of COVID-19’s infectiousness and epidemiological novelty—had nonetheless precipitated a world stoppage that was truly unparalleled in scope, size and speed.

This article is not so much interested in the magnitude of the pandemic’s traffic-stopping capacity, as it is in the series of technological and automated efforts it took to end the (im)mobility crisis. At stake was not just the convalescence of a badly-stricken global economy that was unable to circulate smoothly, but also the fine-tuning of mobility regimes such that entire populations across the planet—albeit with varying degrees of success—would adopt similar postures in a short time. Specifically, a peculiar combination of two technoscientific gestures—especially in the Global North—had become the primary means of this crisis’s management. On the one hand, remedial actions often assumed a high dependency on ‘new’ messenger ribonucleic acid (mRNA) vaccines, whose development was, itself, enabled by the use of swift, automated data review processes during efficacy and safety trials (Businesswire, 2021). On the other hand, proof of (valid) vaccination was almost exclusively testified through software-enabled ‘vaccine passports’ or ‘health passes’, most commonly in the form of computer-generated Quick Response (QR) codes that doubled as travel passes and certificates. We argue that these twin measures represented both an extension of existing biosecurity infrastructures, as well as a bold experimentation with an immediate and everyday form of ‘data colonialism’ (Couldry and Mejias, 2019) that rallied the participation of large swathes of the global population in unprecedented fashion.

To be sure, the management of populations through statistical analyses, risk assessments and other biopolitical calculations and classifications is not new. In the prominent domain of border security, governments have, since 9/11, devised a sophisticated infrastructure of interoperable machine-readable passports, and, later, biometric ones, to create a unified data framework for governing people flows across international borders (Adey, 2006; Amoore, 2006; Salter, 2004). In the arena of health surveillance, global and national registries have likewise relied on personal health records and declarations—organised into shared databases and the globally recognised International Certificate of Vaccination or Prophylaxis—to make managerial decisions on the admissibility of persons (Budd et al., 2011; Collier and Lakoff, 2008). To stretch the imagination of biopolitics further, Dillon and Lobo-Guerrero (2008: 268) have even extended the securing of populations to the Sainsbury’s ‘customer’, citing user profiling, targeted promotions and Nectar shopping cards as belonging to the same field of ‘everyday security practices’ that now saturate people’s lives. Accordingly, the technocratic classifying and identifying risky bodies at the height of the COVID-19 pandemic must also be contextualised within this history of precedents. This is not to say that there was a direct replication of methods, but that the above genealogy could not be discounted from the emergence of what we call the Quick Response (QR) border.

Yet, perhaps because of the pandemic's urgency to reach 'anti-crisis' state (Roitman, 2013), the QR border also offered something different, breathing new speeds, intensities and collective techniques into biopolitics. The first key feature pertains to its repeated use of affective appeal and complicities to get the public onboard. Indeed, to suddenly expect the masses to embrace novel mRNA vaccines, antigen rapid tests and summative health verdicts on their ability to move and access public life would prove to be a big ask (as seen in some sectors of society), even if these mechanisms promised to deliver an efficient, if simultaneously crude, distinction between 'safety' (i.e. the vaccinated) and 'threat' (the unvaccinated). As such, there was a heavy reliance on a nifty (self-)scanning technology that was intuitive, agency-conferring and 'seductively' engaging through one's smartphone (see Bissell et al., 2012), Willing to lower the threshold and friction to interfacing with users (Ash et al., 2018), the said solution laboured toward what was tantamount to gamifying personal health administration, records, and entry authorisation, allowing for the quick generation and harvesting of data from the 'bottom up' (Abdelrahman, 2023). Notably, these operations predicated on the cooperation of the governed, resulting in a very particular brand of biopolitics that drew emphatically on people's heartstrings and willing consent. It was this leaning on *affective* complicities that afforded the health measures a fresh veneer.

A second, and related, embellishment of biopolitical procedures brought by the QR border concerns its relatively low-cost and flexible set-up that had allowed for its application to be quickly exploded outward to a *mélange* of trans-scalar and multi-purpose uses. Indeed, the QR border did not stay within the realm of international aviation very long, but was soon extended to all sorts of public spaces, such that *all* (travelling and non-travelling) bodies must constantly present themselves—down to the act of visiting a restaurant or grocery-shopping—as 'safe'. Portable and cheap-to-produce, the QR border's familiar pixels—as found in financial payments, marketing surveys and all sorts of consumerist activities—intertwined everyday banalities with the problem space of international air travel, and vice versa, for the first time, giving Pöttsch's (2015) imagination of the 'iBorder' a boost and fostering a communal culture of continuous border work. It was this widespread proliferation, galvanised by a breakdown between sovereign control and everyday commodification, that made the QR border unlike previous irruptions of biopolitical governance. It took occasion of an existing vernacular infrastructure (Perkins and Rumford, 2013)—though one that was not very popular before COVID-19, except maybe in China—to morph into a system that almost took the securitisation of life to a state of omnipresence.

In short, while QR borders are not entirely new, we argue that their affective and everyday motifs make them a key instrument in, and complement to, the arsenal of border and mobility policing today. To elaborate on what is at stake, the rest of the paper will proceed as follows. In the next section, we review work on borders and mobilities over the past decades that has explored how mobile populations are rendered knowable, differentiated and bordered. In particular, scholars have long relied on Foucauldian ideas of biopolitics to illuminate the dynamics of flow management (Manderscheid et al., 2017; Sheller, 2017). This is followed by section three, which addresses recent literature that has drawn increasing attention to the use of digital technologies in arbitrating and automating such borderings (Abdelrahman, 2023; Amoores, 2021). Here, we discuss how the Quick Response border can further advance these understandings of biopolitics, by dint of its ability to seduce and enact citizens' complicities. Following a methodological note, section four continues with a case study on the recovery plans of a major air hub, Singapore, in mid-2021, when air borders were—with not a little affective fanfare—prised open after 18 months of isolation. Section

five then interrogates what this global reopening meant for the local population. The final section concludes with some reflections on the (dis)continuities and futures of the Quick Response border.

Bodies, Biopolitics and Border-Making

Over the past decades, scholars have taken increasing interest in the topic of borders and mobilities. They have examined how mobile populations in the modern world are being differentiated, sorted and managed in highly uneven ways (Oswin and Yeoh, 2010; Sheller, 2017). These concerns have spanned crossings of all kinds—in the air, over land, and across seas—and have been observed in both ‘regular’ and ‘irregular’ journeys (Iaquinto et al., 2023; Martin, 2010; Pinkerton, 2019; Sparke, 2006). Of note, common to many of these accounts is the salience of Foucault’s concept of ‘biopolitics’, which he defines as a ‘new art of government’—a manner of stretching things, caricaturing truths and rendering populations knowable and actionable internally (Foucault, 2008: 28). Such a government functions not by direct control, but with techniques that turn human beings into subjects and attributes to be structured relationally to one another (Dillon, 2010: 63). And it is this structure of relations—or power/knowledge—that allows for particular possibilities and problematisations to be defined in a population.

Of course, no government would pursue biopolitics simply for the sake of it. Foucault (2009) makes clear in *Security, Territory, Population* that this form of power is exercised as a particular kind of response to ‘security’ threats, and to changes in the economy. To stave off challenges to power, biopolitics works by formulating an apparatus (*dispositif*) of security that works not by punishing or correcting every errant case, but by establishing ‘an average considered as optimal on the one hand, and, on the other, a bandwidth of the acceptable that must not be exceeded.’ (Foucault, 2007: 21) Appositely to this paper’s discussion, Foucault (2008) goes on to exemplify the rise of a new mode of disease management in the eighteenth century (of smallpox), whose ‘fundamental problem’ is no longer the imposition of corrective orders, but ‘the problem of knowing how many people are infected with smallpox, at what age, with what effects, with what mortality rate, lesions or after-effects, the risks of inoculation, the probability of an individual dying or being infected... despite inoculation, and the *statistical effects on the population in general.*’ (Foucault, 2007: 24; emphasis added). Thus, while biopolitics is attuned to micro-bodily tendencies and conditions of the human species, its chief strategy is to distil ‘truths’ at the macro level, and work toward safeguarding the whole.

Health management regimes like this continue to prevail today, firmly displacing older, more disciplinarily inclined models characterised by quarantines (from the term *quaranta giorni*, or the anchoring of ships offshore for forty days, invented in fourteenth-century Venice to staunch the spread of the plague) (Conti, 2008). Indeed, most modern migration controls today do not outright bar all entrants, but choose to place risk-based restrictions on individuals who are (potentially) carriers of diseases—e.g. AIDS, tuberculosis, yellow fever—employing measures like health screening (especially on the poor and migrants), vaccinations and/or targeted quarantines (Amon and Todrys, 2008; Bashford 2002; Welshman 2006; Yeoh and Lam, 2022). Concomitantly, the control of infectious diseases has evolved into a more pluri-local system, involving health surveillance measures that tend to be globally aligned and coordinated (Aaltola, 2012; Ali and Keil, 2010; Budd et al., 2009; 2011). For these reasons, Collier and Lakoff (2008: 8-9; original emphasis) echo Foucault in using the term ‘biosecurity interventions’ to capture the re-spatialisation of epidemiological

control, signalling changes not just in the way pathogens are traced and documented, but also in ‘the *forms of expertise* and the *knowledge practices* through which disease threats are understood and managed’ around certain target groups. Notably, this set-up has allowed nations to come to a uniform definition of problem spaces in global health issues, and, by extension, those of economic health.

In recent times, the biopolitical motif is even more prominent in the management of a ‘pathology’ of a different kind—that of ‘alien’ bodies, and their frequent associations with terrorism and crime. To be sure, the distinction between citizens and non-citizens is a longstanding feature of the modern state, but, in the last two decades, there has been a shift toward a more draconian and heavily securitised ‘homeland’ politics, in the aftermath of 9/11 (Cowen and Gilbert, 2008; Graham, 2011). The result is a heavily militarised border that not only creates heightened senses of difference and exception (Dillon, 2010), but also justifies itself through perpetrating violence (punish) against ‘unwanted’—or negatively attributed—mobile bodies such as asylum seekers, refugees and other racialised and gendered groups (Pickering, 2011; Hodge, 2015; Rosas, 2019). Consequently, Perera (2006: 638) describes border-zones as tantamount to ‘a space of terror where war [is] waged in our names with the aim of protecting and securing a national geo-body’. At its most extreme, Tazzioli and De Genova (2020: 870) liken such heavy-handedness to ‘a necropolitics of disregard and abandonment’, where some categories of migrants are not only subjected to ‘active containment’, but are even, in some instances, ‘left to die’.

Notwithstanding the violence biopolitical sifting is capable of, contemporary borders are more often encountered, by the majority of people, as, again, a managerial form of mobility surveillance. As Paasi (2012: 2306) writes, ‘borders, border-crossings, and border-crossers’ are monitored today ‘by increasingly technical devices and practices... [that] are related not to “people” but to population and circulation: that is, biopolitics’. Flanking out from the US, and eventually the UK, Europe and the rest of the world (albeit with varying degrees of adherence), this modality is characteristic for its focus not on human complexity or stories, but on sorting through large swaths of (anonymous) mobile bodies based on pre-conceived ideations that associate certain profiles with particular (imagined) tendencies and, hence, different degrees of admissibility. In response to the paradox of capital’s desire to facilitate free business travel on the one hand, and, on the other hand, a wariness of security threats posed by the masses (Adey, 2006; Sparke, 2006), borders are configured to ‘operate like filters’, so that they may be able to ‘sort out and block the mobilities of those subjects that are considered as threatening or suspected of irregular migration’ (Bellanova and Glouftsiou, 2022: 167), without crimping the travels or speeds of kinetic elites.

Against this backdrop, the COVID-19 pandemic had momentarily raised some pressing questions for the problem space of securitising global mobilities-gone-awry. This is not only because of the stealth and swiftness with which the SARS-CoV-2 virus spread and killed, but, more importantly, because existing systems suddenly could not cope or identify the presence of threat at a speed and scale never seen before. While the solutions subsequently implemented could not be seen as a complete departure from biopolitics—for it was population management measures that restored the global order of healthy (biological and economic) circulation—there were also some technological innovations, digital cross-overs and novel ways of (self-)presenting power/knowledge that are noteworthy. It is to these incremental advances and methods that we now turn.

Digital Biopolitics and the Quick Response Border

Central to COVID-19's resolution had been the clever use and re-appropriation of (existing) digital technologies to iron out the frictions in global mobilities. In early-2020, the twinning of Radio Frequency Identification chips, algorithms and machine learning with biopolitical management had already been well entrenched, but, in their current forms, they still could not prevent the unravelling of the world. Then, China's (and others') unilateral call for snap lockdowns contradicted the US's (and business interests') preferred approach of containment through scientific evidence; but, more intriguingly, it initiated a return to Foucault's (2007: 24) 'plague' model of blanket quarantines and bans. What was it that caused existing systems and technologies to fail? What knowledge was lost, or irretrievable, in the process? How did these technologies have to adapt to make them work again?

The answer to these questions requires a revisit of recent literature that has, for a while now, closely examined the use of digital technologies in arbitrating and automating borders, along with their characteristics, and, ultimately, incompatibilities. First, scholars have argued that existing architecture depends heavily on the 'mapping, profiling patterning and probabilistic analysis' of reams of data and information (Dillon and Lobo-Guerrero, 2008: 281). Take the example of biometric passports that tag and translate people (in)to their digital credentials for efficient sorting. In the 'biometric border', the system works by ascribing technical values of 'safety' and 'admissibility' to travellers based on attributes such as nationality, race, age, parental lineage, address, occupation etc. (Amoore, 2006: 348)—effectively gleaning knowledge beyond the physical border itself (Paasi, 2012). This creates a composite sketch, a body double, or an 'alter ego', of the migrant/traveller that then becomes a stand-in for their character and probable futures (Amoore, 2009; Graham, 2011). Yet, the same architecture meant little to the pandemic where 'knowledge' was reshuffled. In fact, outside of China, it was the tourists, business elites, and the Sophie Trudeau and Tom Hanks of society that first contracted the disease.

A second characteristic that became ineffectual was the fact that the 'structure of relations' could no longer be grasped and conjectured by authorities from the top down. Advancements in machine learning had no doubt turbocharged biopolitics, by engaging in what Amoore (2021) later calls the 'deep border'—i.e. 'intelligent' borders capable of learning from, and generating meaning based on, its exposure to data in all the world. As she reflects on this expansion of biopower, the 'deep border explodes and scatters biometric data so that they are no longer primarily connected to characteristics as such, but rather gather together with a multiplicity of data features in a deep learning model that renders all data equivalent' (Amoore, 2021: 2). Yet, even these abductive logics and warped realities could not make sense of themselves amid an explosion of, not data but, scenarios, where travel histories, (local) places visited, time spent in close contact, incubation periods, symptomatic (non)display, infectiousness over time, immunity from past infections, waning of antibodies, viral mutation all meant different things for different people. The impossibility of projecting trajectories—à la the 'deep border'—augured that even spurious stories could not be spun, but must defer to a new set of individualised relations and parameters.

The explosion of scenarios furthermore resulted in the inadequacy of a third characteristic in preponderant frameworks. Specifically, modern digital biopolitics tended to work in highly circumscribed situations, and played mostly discrete functions. Whether it was the biometric border (for immigration purposes), the 'securing' of a loyal customer in commerce (Coll, 2013), or the insurance of risk (Lobo-Guerrero, 2010), data did not usually commute easily across domains or industries but generally stayed within their respective

silos. As Dillon and Lobo-Guerrero (2008: 268) elaborate in relations to their Sainsbury's example, 'life is distributed, weighed and valued, across a shifting terrain of contingent formation', entailing a capitalisation of 'life' unto risk, and risk unto tradable assets manifested as 'a complex array of changing mechanisms'. However, during the pandemic, this complex array of silo-ed parts must for the first time be harmonised and integrated; for what happened in, say, the grocery store could have dire implications for workplace continuity, household healthcare costs and even—via air travel—the contingencies of life of strangers living halfway across the globe. Put succinctly, a new model that shared information more freely was needed.

Thus entered in the QR border, which sought to promote an incrementally different type of digital biopolitics that was speedier (in knowledge formation), administered cooperatively (in data generation and acquiescence), and more flexible across multiple purposes and scales. Predicated on a single element of vaccination (typically, though not always, based on the gold standard of mRNA technology, which itself was developed in record time through a series of biopolitical deductions with the help of artificial intelligence), the QR border needed to be able to simplify COVID-19's endless possibilities into a single, universally recognised variable. Once the few vaccine candidates were identified, policymakers then equated such vaccinations with the security of bodies, to the point that this status became post-political. As Žižek (1999: 28) explains, 'post-politics' unsettles the tension between the 'Universal' and 'Particular' normally seen in political struggles, by foreclosing antagonistic politics (thus staking a claim on the Universal), and regulating particularities (thus subsuming the Particular within the first claim). Disagreement, according to Swyngedouw (2010: 192), 'is allowed, but only with respect to the choice of technologies, the mix of organisational fixes, the detail of the managerial adjustments and the urgency of their timing and implementation'. In one stroke, the basic premise of power/knowledge was thus re-established for biopolitical deliberation.

While uncertainty was expunged, the managerial task of sorting populations remained challenging. The sheer number of newly minted 'safe' bodies needed an efficient way of self-identifying for data management. Rather than prevailing by happenstance, QR codes provided the answer for a couple of unique reasons. On the one hand, the mass adoption of an intrusive biologic solution to differentiate bodies was bound to face opposition—and it did. (Segments of) the population had challenged their control, by outright contesting their identification as such, or changing their behaviour to evade detection (cf. Scheel, 2013; Walker et al., 2021). Consequently, there had been a concerted effort to render QR identification—and vaccination itself—palatable: through attractive, typically rapport-building app designs to reduce 'friction' (Ash et al., 2018); seductive hands-on engagement via smartphones to grant a sense of autonomy and choice (Bissell et al., 2012); and techniques of gamification (Abdelrahman, 2023), such as personal digital wallet cards, flashing colour codes and expiry date countdowns. Indeed, QR bordering brought to life Pötzsch's (2015: 110) 'iBorder' and more, pointing to 'a series of technologically afforded tendencies... that interconnect subjects, operations, and machines' through 'hip'/pop interactivity, tasteful personalisations and, ultimately, affective complicities.

On the other hand, the QR border also needed to appeal by being highly interoperable and versatile, given the overlaps in life's contingencies. An efficient automated infrastructure of record keeping had to be set up to tell apart the vaccinated from the unvaccinated across multiple domains, leaving no room for doubts or imperfect knowledge at different borders (Glouftsiou, 2021). Of prominence, the European Union (EU) had then led in administering

the world's largest unified digital certificate system, joined by 51 other non-EU states. Commonly stored as QR codes on personal devices such as smartphones to be 'scanned', these health passes quickly emerged as multi-jurisdictional—and indeed multi-purpose—proofs of the logistics of moving people both globally and locally. While 'moments of discontinuity' (Allen and Vollmer, 2018: 27) did surface from time-to-time, requiring 'maintenance' practices (Bellanova and Glouftsiou, 2022) such as visual sighting and inspection, the QR codes by-and-large offered a nifty and commercially familiar format with which individuals, vendors, stores, restaurants, companies, schools, and transport operators could easily become (co)managers of their own biopolitical 'safety'.

Unlike previous irruptions of digital biopolitics, the QR border thus bore several subtle departures, thriving through mass appeal and seduction, easy proliferation and flexible insertion. In the following, we will touch down on one case of the constitution of the QR border, through the example of Singapore. It is not that the city-state was somehow unique or exemplary in this respect, but its position as a late subscriber to, and oftentimes cautious adopter of, Western science/approaches to re-opening the economy can better reveal, almost in slow-motion, the thinking behind COVID-19's biopolitical remediation, and capital's policy mobilities from the US and Europe. In addition, the Singapore case followed an unusual timeline of strict isolation for 18 months (from March 2020 to September 2021), before a period of progressive reopening that lasted another 17 months (till 13 February 2023). These idiosyncrasies offer an opportunity to take biopolitics beyond its usual European and North American contexts. To flesh out this case, we survey documents produced from the start of the pandemic to when restrictions and protocols were largely abandoned in the city-state in early 2023. Two types of documents are used: first, government documents including the regulations themselves, press releases and instructions to the public; and, second, state-directed media productions such as mainstream news articles and popular/social media.

Bordering Without

A city-state with a variegated population of 5.7 million people comprising citizens, residents and migrants, Singapore, like Renaissance Venice, has long been an open economy driven by people traffics several times its own size (Oswin and Yeoh 2010). Not only is the city-state reliant on aeromobile traffic for tourism, business and labour, it has also conducted these flows through highly calibrated border controls, which make precise biopolitical distinctions—by age, income, nationality, health status etc.—between different types of travellers (Baas, 2017; Yeoh and Lam, 2022). Notwithstanding these filters, Singapore's location in the heart of Asia, had made the city-state one of the first countries to suffer the fallouts of the COVID-19 pandemic. Despite early vows not to shut its borders, Singapore was seen to reluctantly move toward tightening domestic and international mobilities, ultimately culminating in broad-based 'circuit breaker' restrictions between April and June 2020 (Gov.sg, 2023). Like many other countries, the increasing inadequacy of existing border controls to properly assess population risks culminated in the city's lockdown.

Yet, in a country whose domestic sphere depended heavily on international connections, Singapore could not abandon its open-door policy. By June 2020, the city's airport was already reopened for transit passage, while the country had instituted one of the first 'travel bubbles' in the world for short-term business travel to/from China. Versions of this business scheme were later—and, at times, unilaterally—extended to Australia, Brunei, Malaysia, Japan, New Zealand, Republic of Korea and Vietnam by October the same year.

Such visitors must file an application with the local embassy before their trip, pay for pre-departure and post-arrival COVID-19 tests, be quarantined in a hotel pending their test results and adhere to pre-approved itineraries while in Singapore (Ministry of Foreign Affairs 2020). Additionally, they must accept contact tracing through the use of a so-called ‘TraceTogether’ app, a government-commissioned smartphone tracker launched in March 2020, to record personal interactions with other individuals (Das and Zhang, 2021). Through tracking and containment, Singapore’s policy had thus hitherto been to determine a person’s admissibility strictly based on their proof of non-infection on arrival: an objective, though costly, way to nip the disease—and any onward transmission—in the bud by ruling out that possibility/capability. Limiting visits to populations from low-caseload countries further served as an arithmetic safeguard to keep viral importation low. However, this model also spelt an anaemic recovery in aeromobilities, with a meagre 3.1 million passenger movements recorded at Changi Airport in 2021 (compared to 68.3 million in 2019) (Changi Airport Group, 2022).

An inflection point came in early-2021, when it became increasingly obvious that a successful vaccine had been found. With Europe already trialling a new set of ‘colour-coded’ air travel policies (Ledsom, 2021), the Singapore state likewise banked on vaccine companies’ medical trials, as well as other countries’ re-opening experience (notably Israel), to infer that inoculation—at least of the mRNA type—equated ‘safety’. To combat (initial) vaccine hesitancy for the new technology, public relations campaigns were launched in earnest to goad citizens to change their mindsets, including: Singapore Airlines’ widely publicised inoculation programme for all its staff (Tay, 2021), and the prospects of finally being able to, in the words of the Health Minister, ‘travel [as a family]’ upon vaccination on live television (Chong, 2021). In July 2021, the government released a ‘Together, towards a new normal’ YouTube jingle, featuring local influencer Annette Lee dressed as a flight attendant (and backdropped by the Rain Vortex waterfall at Changi Airport Jewel), proclaiming ‘Hey Singapore, a warm welcome aboard. There’s no better place than our little red dot. Please give us your attention for this safety briefing, cause’ we’re going on a journey to a whole new beginning’. True to promise, two ‘vaccinated travel lanes’ (or VTLs) for quarantine-free travel were launched with Germany and Brunei by September 2021 (Ramchandani, 2021), followed by a quick succession of expansions to North America¹; selected countries² in Western Europe; North, Southeast and South Asia; as well as Oceania in October and November, when Northern winter outbreaks were surging in some of these places (Kok, 2021). On 1 April 2022, the city-state would roll out the so-called Vaccinated Travel Framework (VTF), effectively abolishing all restrictive protocols for fully vaccinated travellers worldwide (Gov.sg, 2022). While the option to travel was of course voluntary, the re-opening was not done without quite a bit of affective string-pulling and fanfare.

This bifurcation between biologically augmented bodies (through vaccination) and those that were not required an efficient—and preferably automatic—means of telling apart ‘safe’ and ‘unsafe’ subjects before mass air travel could resume. Pre-empting this, Singapore Airlines had joined the International Air Transport Association in as early as March 2021 in piloting a globally interoperable vaccine passport (Singapore Airlines, 2021). However, it was a Ministry of Health and GovTech (Government Technology Agency) joint effort—Notarise—that prevailed, offering the public easy access through an open source QR code

¹ It was reported that American officials had pushed the Singapore government to open a VTL for trade and investment visitors from the US, shortly before the expansion was announced (Mokhtar and Jamrisko, 2021).

² The first six European countries—Germany, Denmark, France, Italy, Netherlands, and Spain—allowed for quarantine-free travel were major markets served by national flag carrier, Singapore Airlines.

that could be generated and printed at home, or stored as a digital wallet card on the smartphone. Although this particular pass would eventually be superseded by the EU's Digital COVID Certificate (EUDCC), it indicated an interest in Singapore to rationalise, and then delegate to individuals their 'health' statuses digitally from the start. Not surprisingly, Singapore became the first Southeast Asian country to connect to the EUDCC digital universe in November 2021 (European External Action Service, 2021), and Notarise certificates were soon after appended with the EUDCC QR codes, linking the city-state with the EU and the other 51 jurisdictions in a unified database. In turn, air passengers only needed to upload or present these, or other similarly digitally-signed QR codes, at online or desk check-in for verification (Immigration and Checkpoints Authority, 2022). By far, online submissions via QR (self-)uploads was most expedient. Taking airline websites only seconds to verify a person's status, the automated procedure enrolled the public to participate in a co-managed infrastructure from scratch, to enable mass travel again.

The openness of this system, coupled with lingering vaccine hesitancy in some quarters, meant that certain analogue proofs were rejected by air operators. At the start of the VTL scheme, carriers—notably Singapore Airlines—gave explicit instructions to passengers that digital certificates were required for smooth check-in, i.e. one that 'contains a QR code for verification'. Passengers that could not produce such credentials were reported to have problems being accepted onto their flights, including returning citizens who were inoculated in US states like Oklahoma that were not enrolled in the American (QR-code-enabled) 'Smart Health Card system' (Low, 2021). Lending further credence to the newfound inadmissibility of such non-automatic documentation, Singapore's Ministry of Health's webpage still contains, as at the time of writing, an oddly phrased instruction stating that foreign holders of 'a digitally verifiable vaccination certificate... may... have [their] records verified and ingested' by the national registry, whereas those with 'a non-digitally verifiable vaccination certificate' must 'take a serology test before having [their] records ingested' (Ministry of Health, 2021c). Analogue proofs of health thus presented a contradiction in this new architecture of automatic and mass verification invented during (and for) COVID-19. Unlike users of the (co-existing) International Certificate of Vaccination or Prophylaxis, bodies vaccinated for COVID-19 were deemed as 'risky' as their unvaccinated counterparts, if without their QR body doubles.

This framework of travel based on digital vaccination proof was not entirely new in biopolitical terms, but there were some interesting features and departures. On the one hand, the model promoted a familiar dual border that distinguished between differently positioned biological bodies, with one stream favouring vaccinated travellers; and another requiring multi-day quarantines and tests—and sometimes denial of entry—for unvaccinated ones. 'Safety' was notably assessed at a population level, as the Transport Minister reassured one month into the VTL programme³, that few infected passengers entered the country through the VTLs, and 'the cross border flows that we're facilitating do not increase the risk that we are taking as a country... significantly at all'⁴ (quoted in Tan, 2021). On the other hand, this was also a biopolitical regime that, for the first time, relied so much on the cooperation and

³ The first month of VTL implementation involved a stricter regime of one pre-departure and three post-arrival PCR tests among travellers.

⁴ Despite the best efforts to institute on-arrival polymerase chain reaction (PCR) tests, the reopening did at least partially contribute to seeding two large waves of Delta and Omicron infections, with the former taking place in September 2021 (coinciding with the first VTLs) and the latter in January 2022 (coinciding with the entrenchment of the Omicron variant in VTL points of origin) [see Ministry of Health (2021b) on details of the first known Omicron 'escape' case from the United States].

acquiescence of its publics, requiring people to buy into its dream of air travel (through vaccination) and self-organising their eligibility (with QR certificates). For a city then-still-unfamiliar with large infection waves, and boasting COVID-19 death rates not exceeding a mere few dozens⁵, this return to normalcy truly tested the government's compact with the governed, involving light-hearted appeals, public demonstrations of vaccine faith, emotional carrots and the creation of easy-to-use digital systems (see Abdelrahman, 2023), to allow Singapore to exit its long-held posture of immobilisation. Given the scale of the task, it was precisely through this shared project of 'quick response' that Singapore's border and, more importantly, the circulations that lubricated business, could be restored.

Bordering Within

Changing tact in the handling of international transmission risk while having a immunologically naïve—i.e., still broadly unexposed to the virus—population augured simultaneous shifts in the *domestic* management of COVID-19 infections. As Singapore's external borders opened up, cases precipitously (and not surprisingly based on prior experiences in other countries) rose within the local (non-travelling) community, necessitating internal interventions too. Almost to tame an extra-sectoral cost of aeromobility (Lin and Harris, 2020), the same principle of QR bordering had to be executed in the domestic sphere as well, intertwining two scales of movements at the same time. This partly explains why the Singapore government was eager to achieve one of the highest vaccine coverages in the world, bringing the percentage to over 80 percent of the population by March 2023 (Gov.sg, 2023).

Early government discourses took care to emphasise that vaccination was a 'voluntary' choice (Ranosa, 2021)—and it was—but this did not stop the state from actively intervening in that choice. Using a national registry that surveyed and tracked the population's vaccination status, politely crafted Short Messaging Service (SMS) texts were automatically disseminated since early 2021 to nudge unvaccinated, partially vaccinated or yet-to-be-boosted citizens to get first or extra doses at set intervals, according to one's age group and vaccination schedules set out by the Health Ministry. A typical message—which continues to this day for boosters—would read “[Reminder] Dear Sir/Mdm, please book your Covid-19 vaccination appointments using this link” or “Dear [Name], you may now bring forward your 2nd dose COVID-19 vaccination appointment if you had previously scheduled it 6-8 weeks apart from your 1st dose. We encourage you to do so, and protect yourself and your loved ones sooner”. These (caring) reminders were accompanied by Uniform Resource Locators (URL) links, or packaged, elsewhere, as nifty QR codes to be scanned for ease of vaccination slot booking. Without needing to sign up to them (nor having the possibility to opt out), they served as background quick response tools that steered and paced citizens' biopolitical choices, according to the nation's vaccine supplies and prevailing expert knowledge about dose gaps and boosters. Seen thus, they formed another piece in Singapore's automated biosecurity infrastructure, this time aimed at appealing to domestic participation in the border-to-come.

With most of the population 'fully vaccinated' by August 2021 (perhaps on the count of the success of such automated encouragements, and also in time for the first VTLs), another kind of affective management emerged to maximise vaccination uptake. Specifically, vaccination differentiated measures in the local population began to make their debut in the

⁵ Until 8 September 2021, Singapore counted 56 COVID-19 deaths (Ministry of Health, 2021a).

city-state. Initially, these measures were aimed at limiting group sizes and discouraging mass gathering among the unvaccinated for their safety. Subsequently, in October the same year, they were expanded to ‘safeguard’ the same group from the ‘dangers’ of accessing everyday amenities such as food and beverage outlets, retail establishments, gyms and shopping centres (Tan, 2021). In January 2022, these differentiations were further tightened to include the workplace, barring unvaccinated individuals from accessing their offices, again in the name of protecting them and the wider community (Ministry of Manpower, 2021). Gradually, a binary distinction between the vaccinated and the unvaccinated was taking shape *within* the city-state in step with air travel’s resumption, as the logics of biopolitical sorting seeped across scales into the domestic sphere of life.

In order to enforce these differentiated rules, the aforementioned TraceTogether smartphone tracker was retooled to make it more attractive as the primary digital pass⁶ to automatically tell apart ‘safe’ and ‘unsafe’ bodies (Shin, 2021). Like a portable identity marker (which could be reset remotely against rolling guidelines; e.g. expiry of vaccination status after 270 days without a booster), the smartphone app incorporated several new features that went beyond its original tracing utility, including handy QR scanning capabilities, automatic status check to access venues (by scanning one’s mobile device on a Bluetooth reader), vaccination expiry date reminders (through popups and grey zones in the mobile app), and an animated authentication insignia to prevent fraud and misuse of the pass (Yong, 2022)⁷. Like the reminders before, the bordering instrument was thus upgraded to become more interactive and participative (Pöttsch, 2015), giving users—especially those who received or wanted to receive vaccination—a ‘hands-on’ experience to navigate life with COVID-19. To further call upon the rights and duties of citizenship, the app was also activated through one’s personal ‘SingPass’—a national digital registry documenting one’s family relations, employment, property ownership, among other things. Notwithstanding the potential for ‘deep’ profiling (Amoore, 2021) beyond COVID-19, TraceTogether bestowed upon eligible (and cooperative) citizens a sense of newfound autonomy and ownership to participate in collective urban life, if at the expense of those who counted themselves out.

To be sure, Singapore was not the only country resorting to such differentiations (see, for example, Canada, France and Germany, and the ire differentiated measures had caused to the unvaccinated populations there). Neither is this to say that Singapore’s bet on vaccination was without merit (Cortez and Mokhtar, 2021)—especially in light of the March 2022 high-fatality Omicron outbreak in Hong Kong, which had hitherto pursued a zero-COVID policy (Cheng, 2022). However, there was also something quite clever and seductive in the way the Singapore state achieved this exceptional form of bordering for banal domestic life—through a mix of positive and negative reinforcements and the magic of a hand-held technology that greatly extended/distended the limits of voluntary self-surveillance. Indeed, here the entire enterprise of domestic bordering became embroiled in a quasi-post-politics built on broad-brushed logics about community ‘safety’ and ‘unsafety’ that was difficult to disagree with (Swyngedouw, 2010). On the one hand, vaccination did contribute toward taming ‘shock

⁶ Those without or unfamiliar with smartphones were issued identity-linked Bluetooth tokens. Entry to venues had to be recorded through TraceTogether’s in-app QR scan function, barcode scanning of identity cards, TraceTogether in-app insignia for visual inspection, or through Bluetooth contact with readers supplied by the government. These various technologies were for a time used in tandem, and provided a QR/QR-like quick scan facility to monitor movements.

⁷ The insignia interestingly took the form of a smiling otter swimming on a water surface, both calling to remembrance an endearing sight in local waterways, and symbolising what one user called a ‘kawaiiification of TraceTogether’ (Yong, 2022)—*kawaii* meaning cute in Japanese.

mobilities' (Xiang, 2020) by reducing the incidence of death and severely ill patients at an aggregate level. On the other hand, the reliance on a binary QR application also risked obfuscating the original cause of the steep epidemiological peaks for this population, which, before this, was so effectively shielded from the dangers of disease importation by strict border management.

Perhaps this explains why acceptance of Singapore's vaccination differentiated measures and Quick Response borders was not exactly total, despite a highly concerned citizenry. To start from a place of near-zero incidence, the policy had in fact received a fair share of criticism, as citizens took to social media to express dissatisfaction with a pace of disease spread they were previously unaccustomed to (Mathews et al., 2021). While the sharp peaks in the epidemic curve elicited the most alarm, attitudes toward mRNA vaccines were also ambivalent in some quarters, especially with regards to their safety. While some flocked to self-paid vaccine alternatives like Sinovac that were, for a while until their sizable uptake, not recognised in the TraceTogether programme (Chen and Aravindan, 2021), others showed their defiance through embracing folklore panaceas, like drinking coconut water, to ameliorate the side effects of unfamiliar mRNA technology (Kaur, 2021). These slippages signalled a discomfort—and at times a reluctance, if not outright resistance—simmering beneath the surface following Singapore's departure from its former zero-COVID policy. They also highlighted a sense among people that the 'biosecurity' (meant to be) instilled by this QR strategy, which, ironically, had to be accompanied with calls for 'non-complacency' and 'personal responsibility', was but an imperfect measure that could not guarantee the particularities of one's relationship with, and vulnerability to, the virus.

More critically, the biosecuritisation of *internal* borders during the COVID-19 pandemic testified to a trans-scalar form of biopolitics, that entangled the problem space of the air border with everyday banalities and activities in very consequential ways. Local communities in Singapore must now contend with both the threat of case importation and, for those who refused securitisation through biological intervention and vaccine conformance, (temporary) exclusion. Ironically, the trans-scalarity of biopolitical expansion in this instance—from international to domestic—had meant shrouding the relations between the two during implementation, keeping the causes apart. This deference of burden and biopolitical transfer of responsibility warrants some reflection, on whether the non-travelling public should be asked to shoulder the collaterals of high aeromobility. In the same vein, other gentler approaches to resolution could perhaps be found, including, as much as possible, the exploration of alternative models for mitigating sharp community spread and promoting internal resilience and care. Of course, alternatives such as prolonging border closures, or increasing the reliance on PCR and antigen tests (e.g. pre-2023 China) would come with their own sets of problems and shortcomings—not least, the restriction of social life, a debilitating economic drag, and the generation of untold amounts of environmental waste. But acknowledging the injustices of mass bordering by 'quick response' to return to normalcy should not be given short shrift either.

Conclusions

Spotlighting a small city-state, this article does not presume to have a 'better' solution to the pandemic, neither does it dismiss the benefits of vaccines. It does, however, seek to contribute by questioning the political heart of the Quick Response bordering practices that much of the world had seen in 2021 and 2022, as well as their implications. In an extreme crisis of total immobility, governments' reaction had been to impose a politics—or, better, a

post-politics (Swyngedouw, 2010)—of what counted as ‘safe’ and ‘unsafe’ on the basis of a nearly non-negotiable divide between the vaccinated and unvaccinated. While such biopolitical divides are not new (Collier and Lakoff, 2008; Dillon and Lobo-Guerrero, 2008; Dillon, 2010; Sheller, 2017), the Quick Response border discussed here was characteristic for its involvement of the public (to gain mass subscription within a short time), near-universal scope (affecting nearly all, even those who do not cross borders), technological ease of diffusion (flexibly inserting itself into administration, gate-keeping and records), and troubling simplicity (having little room for appeal). At best, this mode of ‘quick’ governance promoted a tenuous solution that tided humanity through repeated viral flare-ups until endemicity was reached. At worst, it played into the hands of capital eager to ditch the encumbrances of the pandemic to achieve a fast reopening in transport, circulation, trade and consumption.

Looking more closely at their mechanisms, two technoscientific gestures had been key to setting up COVID-19’s Quick Response borders: one, the biological intervention in *all* bodies with vaccination, itself developed in quick time through artificial intelligence; and, two, the managerial sorting of vaccinated and unvaccinated bodies through automatic, software-enabled QR-coded certificates, both internationally and domestically. In tandem, these twin actions allowed for the enactment of dual borders that brought a state of exception to so-called ‘unsafe’ bodies carved out of the general population—not unlike some of the proscriptive measures usually taken against the most oppressed groups in society such as refugees and asylum seekers (Perera, 2006). Indeed, as long as the crisis persisted, those who lacked a positive vaccination status were seen as both a threat to the community and to themselves, to the point that their differentiation from the conveniences of social life, beginning with the luxury of international air travel, was seen as self-inflicted and well-deserved. Problematically, QR bordering served as a double-edged sword here—both making the administration and policing of health easy, but also naturalising a dichotomous regime intolerable of a nuanced and dynamic landscape of different personal, emotional and subjective—and not just capital—risks (see Swyngedouw, 2010: 192).

Notwithstanding these gross exclusions, biosecuring against COVID-19 had been fairly effective on at least two counts. First, there was widespread use of affective rallying and consent to cajole the public into (suddenly) accepting rapid vaccination and the resultant QR borders. As seen in Singapore, the state had very conscientiously poured in resources to make the ‘whole new beginning’ as palatable and seductive as possible: such as by mediatising the benefits of vaccination (albeit, in other places, this was sometimes met with anti-vax protests), designing attractive smartphone apps with connotations of ‘togetherness’ and shared national levity, glamorising travel and giving ‘power’ into hands of the public by engaging their participation and interaction. While most of these epidemiological measures have been dismantled at the time of writing, the pandemic has nevertheless demonstrated how a critical health emergency can so easily be capitalised upon, with citizens’ complicity and cooperation, to establish such a faithful technological following (Roitman, 2013). These bordering practices, pressing each individual for a (so-called) voluntary ‘yes’ or ‘no’ QR answer, ought to raise questions on the compact between state and citizen regarding each other’s civil obligations and choices. More broadly, they should also be interrogated for the appropriateness of such self-evidencing and automatic binary options in the management of a disease, seeing that the definition of biosecurity could be practically so disparate at the bodily scale.

The second factor bolstering the effectiveness of QR bordering was the flexibility with which the scheme was able to insert itself across multiple scales and purposes at the same time. While attempts to diagnose and re-securitize ‘shock mobilities’ (Xiang, 2020) are historically not new, never before had biopolitical interventions been so far-reaching and universally accepted. To contrast with a well-known precedent, the terrorist attacks of 9/11 prompted a similarly draconian raft of surveillance measures represented by the ‘biometric border’ (Amoore, 2006; Sparke, 2006), but these interventions also tend to stay firmly within their domain (for the purpose of immigration); as did shopping cards (Dillon and Lobo-Guerrero, 2008) or even iBorder data surveillance (Pötzsch, 2015). In the case of COVID-19, biosecurity was unto life itself, engendering not only a hardening of existing borders, but also the spontaneous creation of new ones—with the support of the populace—where authorities see fit (cf. Cowen and Gilbert, 2008; Graham, 2011; Paasi, 2012). This pervasiveness with which QR codes infiltrated and determined the quality of life in all aspects—travel, shopping, getting food, work, when to vaccinate again—for so many at the height of the pandemic behoves greater understanding as to what this collapse in the limits of power entails: what did those proliferating borders mean for citizenship; who might have been marginalised or excluded; who benefitted; who made money; and who might have, indirectly, lost their lives. Part of this unboundedness might have been due to the unprecedented dangers of the SARS-COV2 virus, necessitating the reliance on a single blanket ban and black-and-white metrics to judge the masses’ security (cf. Amoore, 2021); but potentially, it could also usher in a new (over)reach in powers justified by a new breed of hasty, easily (re)calibrated QR logics.

Indeed, there are already glimpses of such an over-reach, even as the world leaves COVID-19 in its wake. Many of the lessons presented in this paper are starting to find their legacy in a variety of emerging Quick Response scenarios that are proving just as irresistible for governments to step in, reach out, and ask for public cooperation. From China’s promotion of (voluntary) QR interactions as a guise for digital surveillance to arrest citizen ‘misbehaviours’ (Miao, 2024), to the plethora of new do-it-yourself (and purportedly faster) immigration procedures through smartphone apps and self-generation of QR statuses (e.g. the new US Customs and Border Protection app and Australian Electronic Travel Authority app), broad sweeps of ‘Universal’ Truths, norms and ‘best’ practices enshrined into nifty codes, that determine the parameters of haves and have-nots, at the expense of the ‘Particular’, are actually being practised daily, oblivious to the nuances of life that have been ‘bordered’ away (Žižek, 1999: 28). To be sure, our citizenship is not the same as consumer ‘yes/no’ decisions that these all-purpose QR codes seem to represent or appeal to. Quick Response borders may be high-speed, flexible and convenient, but their greatest danger also lies where we begin to be personally complicit in our own rule.

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