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Symposium: The Ethics of Border Controls in a
Digital Age

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An infrastructural approach to the *digital* Hostile Environment

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ABSTRACT

This article delves into the ongoing consequences of UK ‘Hostile Environment’ policies, notably the Windrush Scandal and the challenges of techno-solutionism in migration governance. There is an exploration of how borders have permeated the internal boundaries of the UK and pushed private citizens and institutions to become new border agents. In this article there is a reflection on the infrastructure that has become reinforced, made visible and technologically upholds Hostile Environment policies. This article investigates the Home Office’s new case working system, Atlas, to illuminate the intersection of border policies, technology and ethics. Through disentangling the political promises placed into the new case working system, this article argues the technological solutions to unjust policies are doomed to repeat and reinforce historic racialised practices. This article argues that technology projects in development, like Atlas, offer an opportunity to identify new private actors responsible for maintaining internal borders within the UK, private technology consultancy groups. Tracing the privatisation of border technology crystallises the new power dynamics introduced through technological projects developed to translate the goals of the Hostile Environment into operational technology used by the Home Office.

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Infrastructures; digital borders; databases; Hostile Environment; migration governance

Caroline Flint (Member of
Parliament, United Kingdom):

‘I know that some cases are resolved quite quickly, but I have to say that some have taken years’. Part of it is about getting a Department or organisation to listen to what you are trying to say rather than say, ‘Computer says no’.

Vernon Vanriel:

Well, exactly (Public Accounts Committee 2018).

Introduction

The above encounter between Caroline Flint and Vernon Vanriel is from a committee meeting addressing the United Kingdom’s (UK) actions to rectify the Windrush Scandal. In 2017, the first reports emerged of UK citizens, primarily of Caribbean descent, being

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informed by the Home Office, the governmental department responsible for immigration, that they no longer had the legal right to be in the country. Over the next three years what would be called the Windrush Scandal, after the HM Windrush Ship that arrived in the UK in 1948 with commonwealth citizens aboard planning to settle in the UK, would leave an estimated 15,000 persons affected by the Home Office's immigration policies (Williams 2020). In May of 2018 the Home Office attempted an apology and pledged to offer compensation to the victims. As of November 2021 only 5% of the victims have received funds or support.

Lagging support and insufficient change to the policies which resulted in the racialised consequences of the Windrush Scandal are articulated by MP Flint. The above statement by MP Flint lays out the tensions that this article will cover: firstly, the Home Office's failure to swiftly or compassionately compensate Windrush Victims; and secondly, a pattern of the Home Office deploying technical solutions to overcome past mistakes of migration governance. The woes of techno solutionism are reflected by MP Flint in her concluding remarks. Vanriel was asked by the committee to give testimony to how the Hostile Environment policies personally affected him. Vanriel was stranded in Jamaica for thirteen years after travelling to the country on holiday, and then found himself unable to board a plane back to the UK due to the policies of the UK Home Office (the department to which Caroline Flint, above, refers). The above exchange grounds the focus and purpose of this article in the exploration of the aftermath of the Windrush Scandal, and the longevity of the ethos of the Hostile Environment.

Flint's comment unearths the role technology plays in legitimising the Home Office's decisions and policies, as she states the department prefers to project authority onto the 'computer'. Dissecting the infrastructure of what the 'computer' is that Flint refers to is the focus of this article. The growing literature on digital bordering highlights a range of unethical technologies operating at the border (Maguire 2012; Broeders 2007), but exploring the duality of infrastructure offers an opportunity to interrupt and examine the problematic political objectives being projected at the border. Infrastructure is both an object and a series of relations (Larkin 2013). Technologies not only frame reality and facilitate decisions, but are upheld by infrastructure, through systems of cables, electricity or software. Through a focus on bordering infrastructure, I present how ongoing digital projects are poised to perpetuate the racialised outcomes of what the Government itself referred to as a policy promoting a Hostile Environment.

In 2012, then Home Secretary Theresa May, declared the UK sought to create a 'really hostile environment for illegal immigrants'¹ (May, quoted in Hill 2017). Creating the Hostile Environment policies required: internalising borders via weaponizing welfare; restricting access to health care, housing, banking, education only to those who could prove a legal right to reside in the UK; and formal labour being reserved only for those with proof of legal status (Griffiths and Yeo 2021). Internalising borders refers to placement of the filtering power that is often at the exterior of sovereign boundaries *within* the nation state. Simply, the checks and security that travellers face at entry and exit points (airports, ports or other geographical borders), where one must prove their status through passports or biometrics, are used in everyday life in the UK. The result of internalised borders was a dissolution of social ties and an increasing racialisation of

the politics of belonging (Yuval-Davis, Wemyss, and Cassidy 2018). Beyond disintegrating invisible social ties the Hostile Environment deployed blatantly racialised targeting including the Home Office driving vans with signs saying 'Go Home' into predominantly South Asian boroughs of London (Jones et al. 2017), and policing based on the appearance of people (Parmar 2019). This article is grounded in the racialised policies of the Hostile Environment to argue that the visible and invisible power dynamics of borders are crucial to unpack the technological projects of the Home Office.

The structure of the article is as follows. The first section begins with an explanation of the infrastructural theoretical framework. There will then be a contextualisation of the UK's current migration governance landscape, focusing on Hostile Environment policies. This contextualisation highlights a pattern of techno-solutionism: using technology to 'solve' social dilemmas (Morozov 2014). Aspects of techno-solutionism operating in the UK migration context will then be explored and problematised in a discussion of the ongoing development of a new Home Office case-working system called Atlas. This article argues that using an infrastructural lens to understand Atlas captures the reality that technology can never be neutral and avoids the trap of the technological fallacy: that if there are 'fairer' or more 'transparent' tools, there will be equity. To grapple with this duality, I conclude this article by examining digital borders through a more holistic view of infrastructures, focusing on critically assessing what is being built *for the future*. The purpose of this article is to experiment with how infrastructure can be used theoretically to grapple with the (temporal) complexities of technologies, borders and equity. If we focus on the technology in isolation from the infrastructure upon which it depends, and which it simultaneously reinforces, efforts to address the violence of bordering practices will be in vain.

An infrastructural theoretical lens

Focusing on the infrastructure of borders and technology is not new. The theoretical lens utilised in this article is informed by Dijstelbloem's (2021) work on borders as infrastructure, which pairs migration contexts with Science and Technology Studies (STS) to 'navigate the materiality and movability of borders' (57). Materiality here refers to the tangible constructions of the border (fences, databases, surveillance equipment, detention centres and airports) alongside the relational elements produced by human and non-human actors which uphold the institutional and political negotiations of bordering. Borders viewed through the infrastructural lens are seen as moveable, in that they carry sentiments, political hierarchisation and prioritisation of subjects. Borders move as migrants move – but this movement may not necessarily be noticeable. Border infrastructure is simultaneously visible and invisible in its tangible and political constructions, to individuals whose passports determine the ease or difficulty of regularised travel within a global visa regime (Aygül 2013). Passport holders from the Global North do not often encounter the same violent infrastructure of visa requirements to cross borders, and instead operate under the assumption that air travel, for example, is relatively seamless. Situating border technology as both made of and making border infrastructure, which rests on unequal access to mobility, allows for a richer investigation of the construction of digital tools dictating migration governance.

We often only notice infrastructure, and its relational nature, when it breaks (Berlant 2016; Star 1999). For example, water not flowing through the taps raises awareness of the aqueducts that flow through cities which usually deliver water at the turn of a handle. Larkin (2013), however, rejects the idea infrastructures are only visible when they break. 'Infrastructure as invisible' is informed by relative privilege: for some, features of electricity, pipes, and borders are hyper visible. Inspired by Larkin (2013) I untangle how a technology which is shaped, and shaping, border infrastructure can inform the future of UK migration governance. Such an approach problematises key infrastructural technologies as racialised tools even *before* there are harms to migrants' ability to live, thrive and survive in the UK. We are not, in other words, limited to retroactive diagnoses of harms to mobility, but can use the infrastructural lens to examine the future – or coming into being – of borders.

Borders are often imagined as locked geographical entry and exit posts, continuous lines that perfectly cut through a two-dimensional cartographical representation of a nation-state. In reality, borders are not fixed, nor do they divide or apprehend individuals equally (Johnson et al. 2011; Kolossov and Scott 2013). Rather than stopping all movement, borders filter, rank, and characterise migrants as excluded or included (Andrijasevic and Walters 2010; Aygül 2013). Changing the social imaginary of borders from securitised gates, border patrols, and visible features to a fluid and dispersed apparatus of devices and actors allows for a greater appreciation of how power arises from the socio-political dynamics in which immigration status becomes relevant.

Conceptualising borders as infrastructure connects the technological and socio-political power dynamics arising from the contemporary governance of bordering and directs attention to how digital tools operate as interlocking 'political constellations' and as connected informational databases, algorithms and datasets (Dijstelbloem 2021, 66). In other words, an infrastructural lens captures how borders are interconnected systems of digital, social, and political relations. Borders organise the inside and outside of states. This exclusionary politics is mediated through technological devices. An infrastructural approach to understand border technology, whilst appreciating that digital tools are poised to replicate and reinforce racialised and gendered outcomes (Angwin et al. 2016; Buolamwini and Gebru 2018) deepens the scope of devices that can be exposed.

An appreciation of the infrastructures within which technologies are placed, built and poised to reinforce social bias, is often missing from STS literature (Bandy 2021). Audits of technology often propose that discrimination perpetuated by machine learning systems can be deterred through increasing transparency of the logics of the technology. However, in the context of borders, dissecting the source code – as often advocated for – does not itself address the historical, political and social infrastructure which enable such technologies to perpetuate hierarchical orders. Migration Studies reveals the complex ways in which technology contributes to the racialisation of mobile subjects (Moffette and Walters 2018). There needs to be an approach that looks beyond opening the 'black box' of code and programming to critically dissecting how the infrastructure of the technology is infused with political false promises. Projects such as Atlas thus provide an opportunity to explore how the root system of the Home Office's border control operations is being constructed. By researching a tool in development, Atlas, we can shift attention from chasing discriminatory results *after* a technology has been deployed, to

foregrounding the ways in which ongoing technological projects can reveal the political negotiations and compromises as they come to be embedded into the border infrastructure intended to function into the future. The fluidity of how border policies can reach into different temporal planes, the past, present and future is crystallised in the actions of the Home Office that resulted in the Windrush Scandal.

The UK context

In the context of the Windrush Scandal, borders reached into the past to 'expose' individuals who did not have the legal documents to prove the right to reside in the UK. The 1971 Immigration Act, which came into force in 1973, set out the new positions of citizenship that were bestowed to 'commonwealth citizens' who, in the post-war period, were considered 'British subjects' (Gentleman 2019). The Windrush Scandal highlights the outcome of the retroactive actions of the Home Office using data analytics to 'find' individuals who do not have the papers to prove their status in the UK. People like Vanriel consider the 'UK as home' and themselves 'British', but Vanriel had no way of returning to the UK for thirteen years after a trip to Jamaica (Public Accounts Committee 2018). Issues arose regarding individual ability to prove status, particularly for those who arrived before 1973. Individuals struggled to locate passports, landing cards, and ferry tickets that were lost over the course of 50 years of residing in the UK. An estimated 15,000 individuals were impacted by the hostile retroactive border practices of the UK. The power dynamics emerging in the Hostile Environment are not new but are a transformation of a long-existing apparatus of technologies used to control, discipline and racialise bodies (El-Enany 2020; Wemyss 2018). Border internalisation relies on technologies to conduct border checks within the public sector.

The Windrush Scandal brings into relief what Parmar (2019) and Foxglove, The Joint Council of Welfare of Immigrants (JCWI) and Liberty (2021) refer to as a *Digital Hostile Environment*, which highlights how technologies are components of reinforcing and replicating racialised and biased practices. Under the Hostile Environment policies, the Home Office introduced a series of Memorandum of Understandings (MoUs) with the National Health Service (NHS), the Department of Pensions and Benefits and the Driver and Vehicle Licensing Agency, to set up data exchanges to assist in immigration control (Griffiths and Yeo 2021). While the MoUs with UK departments have changed in scope since their initial introduction, the ethos of control via data remains in the digital infrastructure. The same service that the Windrush generation helped build, the NHS (Bivins 2015), was being weaponised against these communities. The change in the NHS data sharing agreement is an example of the fluid data politics between the Home Office and other UK departments.

After political intervention from the public, due to privacy violations caused by sharing medical data, the NHS ended their MoU with the Home Office. Currently, the NHS will share data for 'serious criminal convictions' under direct request from the Home Office (Campbell 2018). Criticism of the Hostile Environment has often focused on the dispersal of immigration checks to various UK public agencies, but there has been little attention paid to the infrastructure that has upheld the policies. Leaving the infrastructure unexamined creates a gap of accountability for actors to

redeploy similar discriminatory practices through different tools. Technologies which facilitate the sharing of data algorithmically rank individuals and store vast amounts of personal details, creating an infrastructure based on hostile standards of practices. In short, the digital tools needed to implement the Hostile Environment policies have foregrounded a dependency on technologies which are poised to reinforce and reproduce similar social bias into the future.

Technology and the UK border

Technology has been deployed throughout the development of the bureaucratic nation-state. Torpey (1999) described the sovereign as having a ‘monopoly on the legitimate means of movement’ and how passport technology was utilised to control movement rights. Technologies have developed beyond the practices of passports, and borders have increased in the efficiency, predictive power and control that can now be placed on travellers through data collection (Grondin 2020; Glouftsiou 2019). It nonetheless remains that surveilling the border is intimately embedded in evaluations of individual worthiness. I build off work that bridges Border Studies with Critical Data Studies (Allen and Vollmer 2018; Chouliaraki and Georgiou 2022) to offer a socio-political and technologically-grounded account of discriminatory bordering practices.

Borders and technology intersect visibly and invisibly. Facial recognition gates, fingerprint scanners and fences maintain the visible barrier between spaces at airports and land borders. Invisibly, borders and technology create hierarchies of mobility in the back end through automated decision-making, databases and watchlists. Suspicion and (un)worthiness are created before mobility between borders occurs (Amoore and De Goede 2005; Aradau and Blanke 2017). Valdivia and Tazzioli (2023) trace the geological application of technology used at the border to argue that technology can never be race-neutral as it has historically been a method of ‘racialising individuals through categorisation’ (841). There is overwhelming evidence that technology, particularly algorithms and automation, reproduces and replicates racialised pasts (O’Neil 2016; Broussard 2019; Benjamin 2020; D’Ignazio and Klein 2020). Recourse and ethics are applied to technology that, in the past, has already resulted in discriminatory outcomes. For example, one of the UK’s strongest legal repeals for automated decision-making (JCWI 2020) was the Home Office algorithm – the Streaming Tool – being scrapped on 6th of August 2020 (Ozkul 2023) after a call for evidence was issued by Foxglove, JCWI and Liberty (2021). The lawsuit argued that the risk assessment tool used to streamline the workflow of the Home Office caseworkers was using nationality as a *de facto* reason for denying entry into the UK, and thus a violation of the 2010 Equality Act. Nationalities discriminated against were primarily from the West African region (Manji et al. 2019). Rectifying such injustice is vital work. However, rather than simply pointing to the flawed outcomes of technology, an infrastructural lens provides useful critiques of the *future being built by bordering technology* through revealing the logics and rationalities being ‘built in’. The interim technology to replace the Streaming Tool, called ‘Complexity Application Routing Solution’, demonstrates a move of the Home Office away from using ‘nationality as a direct input’ but that still applies machine learning logics in constructing risk profiles (Ozkul 2023). The Home Office did not take responsibility for the technologically discriminatory outcomes of the Streaming Tool (JCWI 2020). The revocation of the Streaming Tool suggests that the

Home Office does not believe its tools to be technologically biased; after a redesign, an infrastructure of biased computational tools and racialised political negotiations remains.

Technologies like the Streaming Tool are one level of a complex technical infrastructure upholding migration governance in the UK. Victories against algorithms proven to be racialising are encouraging; however, there needs to be consideration of whether a technology is equitable *before* there are documented, prolonged and detrimental impacts on individuals' lives. I argue that violent results will continue at and beyond the border if there is a continuous search for racialising tools decoupled from a focus on infrastructure. In the wake of the racialised and violent outcomes of the Hostile Environment there is a political grappling by the Home Office regarding their retroactive bordering practices. One tactic utilised by the department to curtail responsibility is to blame the technological systems that were used to deploy retroactive bordering practices.

One aspect that contributed to the Windrush Scandal was the continual disregard for individuals' claims of their right to be in the UK when they could not be 'found' in the database. This article started with a quotation covering this experience of technology being trusted or valued more than the human truth claim. The government's review of the Windrush Scandal claimed that the racially discriminatory results of stripping citizenship rights were not due to digitally recorded data. However, the 'Lessons of the Windrush Scandal' report (2020) noted that the government had ignored the risks of implementing retroactive bordering practices. Implementing policies that would retroactively go through data sources to find individuals who may not have legal status in the UK was a risky policy, one known by the government to be risky, as officials believed there to be a percentage of citizens who did not have the correct documentation (landing cards, passports or identity cards) to prove their status as UK citizens (Public Accounts Committee 2018). The individuals representing the Home Office in the Windrush Generation and the Home Office Committee hearings continuously recognised the issues of data collection and the part it played in the violent and deadly consequences of the Windrush Scandal (Public Accounts Committee 2018). In the transcript of the committee meeting, Sir Phillip Rutman, Permanent Secretary of the Home Office, responded to the question of the quality of Home Office data:

You are right; there are defects in our data, and there are defects in the systems we have to manage that data, which are quite old. I think the casework information database dates back to 1998, from memory. We have a vital project called Atlas to replace it, which is making significant progress (Public Accounts Committee 2018).

This statement offers a moment of clarity on the stakes of the *Digital* Hostile Environment and the continual use of technological projects to obscure responsibility for migration governance. The database becomes the villain and the hero simultaneously. Sir Rutman articulates the political obligation for the Home Office to take responsibility for the unlawful actions taken primarily against the Caribbean community in the UK; he thus suggests that the data quality was poor, and the fix for the problem is a new technological solution, Atlas. Data was the issue and the solution. But where is the examination of the structures which uphold this type of digital border? Discussing Atlas opens two prongs of harmful infrastructure to examination: a faulty techno-solutionist fix to the Windrush Scandal, and the creation of dependency on private actors to maintain, curate and design

border technology. The tensions introduced in the committee meeting referenced above embody how infrastructures are the material locus for making political questions relevant.

Atlas: political promises in a case working system

Atlas is the Home Office's attempt to resolve the old system of the 'Case Information Database' (CID) and will replace all existing case working systems, by late 2023 (Neal 2021). The case working system, Atlas, is the portal that the entire Home Office staff will use to govern and control mobility in the UK. All immigration cases, past and present, asylum and non-asylum will be managed through the Atlas system. Promises of 'new' technology to support the data practices of the Home Office are included in the project plan. One key change is Atlas is hosted by Amazon Web Services (AWS), which offers automated features and a new 'sleeker look' (Home Office Enterprise Services 2021). The Second Permanent Secretary at the Home Office, Shona Dunn, describes Atlas as 'a single system ... As Sir Philip says, it is person-centric, so you can match data across the piece and track a person through the system rather than a series of cases' (Public Accounts Committee 2018). Dunn's comments suggest that the system will be a more pervasive surveillance technology to fill the 'data void' and work on engineering a purposeful, more encompassing database. The Home Office portrays Atlas as delivering efficiency and accuracy through increasing automation within decision-making processes. Once we layer the promises of Atlas over the reality of the Home Office's continuing faulty data practices, themselves over responsibility for racialised policies, we can see a border infrastructure poised to perpetuate hostility.

Atlas offers a chance to see why an infrastructural lens is crucial when considering the intersection of technology and the border. Atlas is proposed as a 'fix' for the poor data that played a role in the Windrush Scandal. This displaces onto Atlas, as a socio-political instrument, the political promise not to repeat the illegal actions of racialised discrimination. However, Atlas itself is not able to fulfil such a promise. Rollout of Atlas has been beset by data quality issues with the transfer from the 'legacy' systems (Neal 2023). If the underlying data practices of the Home Office are themselves inherently flawed, then a new case-working system which is reliant on those data practices will likely perpetuate the same problems. Continual data mismanagement reinforces repetitions of discriminatory erasure of individuals' journey.

Home Office employees are the primary users of Atlas and through the infrastructural transition to a new case working system there have been reports of a failure of the technology. The report by the Chief Inspector of Borders and Immigration summarised the concerns of a Home Office manager that 'information will be correct on my spreadsheet but not necessarily on Atlas. Atlas is not great, so we are using workarounds. Atlas is a barrier to removal (of foreign offenders) because the data is not accurate' (Neal 2023). Atlas embodies the socio-technical representation of how border infrastructure is not seamless but full of patches, ad-hoc workarounds and gaps in which the vulnerable are disproportionately impacted. The Home Office reported that 'transferring' the historical data onto the new system has been burdensome and faulty, and presently the system is 'slow' and challenging to manage (Home Office 2022). Despite the Home Office's political promises to correct their past data politics with Atlas, the new system has introduced infrastructural complications which are difficult for users of the technology to predict and

address. Beyond data quality and management issues, however, Atlas as a technological project illuminates the pattern of how the Home Office overcomes technological mistakes: they hire private technology companies, thus further muddying the already murky waters of responsibility and accountability.

Contracting out the border

There is a history of the Home Office relying on private contractors for bordering technology, which has introduced blurred boundaries of accountability. The National Audit Organisation (NAO), a private investigatory body focusing on use of public resources, criticises the waste of funds and the Home Office's reliance on contractors (Comptroller and Auditor General 2020). In 2020, the NAO reported that 88% of the staff responsible for technology at the border were private contractors (Comptroller and Auditor General 2020). Employing private contractors in developing and maintaining border technology inherently blurs the realm of responsibility and accountability: who is responsible when a technological issue arises? The infrastructure contracted out to private actors matters beyond the monetary cost, as there are personal exchanges of power transferred between the Home Office and IT services. Power operates in the ability of private actors to shape how the Home Office visualises and governs the border. The Home Office employs private actors to maintain and fix the technology that is used to govern all migrants within the UK. Through desk research on contracts found primarily on the website [contractfinder.com](https://www.contractfinder.com), I collected 29 Atlas related contracts which are publicly available. The cumulative cost of these contracts is £310,229,854 as of the 13th of July, 2023. While significant, economic cost and the monetary gain of the actors do not offer infrastructural insight into how privatisation is transforming bordering practices. The contracts contain a transfer of responsibility for how Atlas processes, searches and categorises all migrants in the UK. As Valdivia et al. (2022) have shown, the introduction of private contractors producing technology at the EU border has brought with it particular power asymmetries that, I suggest, we can discover at work in Atlas through exploring the contracts for its development and maintenance. I argue that, by using the framework of infrastructure, ethics can be applied to the future of the border, drawing from the present negotiations and focusing less on transparency. Border futures are projected into the services rendered by the contractors, as they are sourced to fix ongoing issues and maintain the systems.

Mastek, a private equity firm, is transforming the infrastructure of UK bordering. Training material, trouble shooting, and bug fixing are among the services rendered by Mastek under their Atlas contract (Home Office 2022). In a contract between the Home Office and the firm Mastek, worth £21,000,000 and scheduled to terminate in 2025, the transfer of responsibility for the function of Atlas is observable (Home Office 2022). Responsibility for how the border is viewed is transferred from the Home Office to Mastek, via the design of Atlas, through the contractual obligation for the private firm to provide 'stand-alone products' that are responsible for the 'visibility of workflows' for controlling the border. Maintaining and upholding the products sold to the Home Office creates and reinforces the dependency of migration governance on third-party providers. Absent in the contracts between the Home Office and private actors is any connection to the stakes of the technology being developed. Mismanagement of data at the border

comes with violent consequences, such as a migrant being denied asylum or access to mobility due to faulty information from a database. As Atlas becomes the one system for the Home Office it becomes a technology of great infrastructural importance. Incorrect details of an individual immigration history could mean denial of access to the country, deportation or violations of rights. In the Home Office's translation of their technological goals to private actors there is an absence of consideration for the bodily stakes associated with the delivery of service. As Valdivia et al. (2022) argues, it is not what is included but what is not in the contracts that reveal the technology's logic. Ultimately, a key question remains: Who is accountable?

Drawing from the contractual agreements between the UK and private actors reveals that discussions of digital borders require a broader application for what is considered technology. Behind the categorisation of services rendered is an exchange from the Home Office of knowledge, constraints and operative logics, which are transformed into technologies used at the border. Blurring the boundaries of private and public are present in the past, present and, therefore, the future of bordering technology. Atlas disperses the planning, maintenance and quality assurance of the political promises not to repeat the actions that resulted in the Windrush Scandal, away from the government and towards private entities, while simultaneously obscuring responsibility and accountability for the decisions that Atlas will (help to) make.

Conclusion

This article grapples with how applying an infrastructural theoretical lens to digital borders works to build a more compassionate and ethical approach to digital borders. Beginning with the frustrations of the Windrush victim Vernon Vanriel, whose life was violently uprooted due to the combination of the Home Office's unwillingness to 'listen' and their reliance on computational formations of truth. Terms like the *Digital Hostile Environment* are helpful to broaden the appreciation for how political promises are placed into technological infrastructure.

The Windrush Scandal shows how temporal politics contribute to the unethical application of technology at the border. Home Office practices were informed by the aim of the Hostile Environment to root out 'illegal immigrants' and applied retroactive data analytics through the developing digital infrastructure of the state to expose individuals who did not have legal proof of their citizenship. Emerging from this scandal were the Home Office's projections of fault in their 'old technology' and the salvation of building a better future through their new system. However, underneath the promise of the new system sits the continual outsourcing of technology production to third-party actors. Tracing how accountability and responsibility are contractually offloaded to private actors through the production of Atlas, I demonstrate how current debates on past or present technology do not fully encapsulate the idea of the future. Through an infrastructural lens, Atlas emerges as a tool shaping the present knowledge of individuals on the move alongside a future of a new automated border. Adapting the infrastructural theoretical lens to consider technological harms in the future and question what is being built will offer greater insight into how ethics can be applied at the border that moves us beyond discussing past discriminatory mediated harms or attention to broken infrastructure. I offer a new avenue of research to adapt the findings of discrimination perpetuated

by technology at the border to critique the design of ongoing projects. Attention to the legacies, standards of practices and logics that were introduced into the border infrastructure to deploy Hostile Environment Policies can build a richer understanding of steps to build ethical technologies.

Note

1. The term 'illegal' to describe people is inherently derogatory. Humans cannot be illegal. Illegality is produced and maintained as a technology of control to dehumanise people on the move (De Genova 2013).

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Notes on contributor

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