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Mobile phones at borders: logics of deterrence and survival in the Mediterranean Sea and Sonoran Desert

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ABSTRACT

Migrant death rates at international borders have risen sharply since the 1980s. Through archival research, we analyze the European Union's and the United States' international border infrastructures to illuminate how technological developments may have contributed to this spike in death rates. Based on an analysis of archival materials, we show how the mobile phone has emerged as an inadvertent identification technology at two border sites - the Mediterranean Sea and the Sonoran Desert and how this technology supports survival in increasingly dangerous border-crossing experiences while also leading to death, detention, and deportation. We find that mobile phones have become identification technologies central to both migrants' survival and border infrastructures' attempts to deter cross-border mobility with profound consequences for human life and agency. We conclude with suggestions for future work to investigate reshaping border infrastructures in ways that do not rely on the galvanizing power of false and dangerous narratives of a symbolic Other.

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Introduction

The Universal Declaration of Human Rights' Article 13 states: 'Everyone has the right to freedom of movement and residence within the borders of each state ... [and] the right to leave any country, including his own, and to return to his country.' Many people exercise this right daily by crossing international borders to pursue safety, economic wellbeing, spiritual freedom, and other motivations, amounting to an estimated 272 million international migrants worldwide (UN, 2019). More than half of these persons reside in Europe or North America.

Despite this ideal, international migration has become increasingly deadly: In the 1980s, approximately 100–200 known persons died during migration journeys, but more than 56,800 such deaths were documented globally between 2014 and 2018 alone (Hinnant & Janssen, 2018). According to the International Organization for Migration, most of these deaths happened in the Mediterranean Sea, followed by the second highest number of deaths in the Sonoran Desert which spans the US-Mexico border (International Organization for Migration, 2019a, p. 32). Prior work has investigated

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these larger patterns, offering disturbing and detailed accounts of the loss of human life at these border sites (De Léon, 2015; Jones, 2016).

Building on this work through archival research, we offer a focused analysis of how and why mobile phones have become part of the infrastructures that perpetuate life and death in the Mediterranean Sea and Sonoran Desert borders. Drawing from news articles, international agreements, legal and government reports, and non-governmental organization (NGO) reports and websites, we describe how and why mobile phones emerged as an identification technology central to both migrants' survival and border infrastructures' deterrence of cross-border mobility. Our study focuses on a specific kind of migratory experience – those of persons attempting to cross borders without detection – that is exceptionally risky and highly politicized, which fosters a particular manifestation of borders unevenly experienced by people trying to migrate to Europe and the US. For this migratory experience, the mobile phone becomes a site of interaction and tension between survival and deterrence desires with profound consequences for human life and agency. We conclude by discussing avenues for reshaping border logics in ways that do not reflect and reproduce deadly tensions between deterrence and survival logics.

Border infrastructures

To understand life and death at borders, we engage with theoretical constructs concerning technologies, actors, and notions of the symbolic Other. We refer to the technologies and actors that determine whether migrants can cross a border into a society combined with those logics that define relationships between actors and technologies, as border infrastructures (BI). *Infrastructures* refer to deep abiding and underlying logics of a given society, existing in its fabric and constructed with a specific aim (Carse, 2016). Ideas around a symbolic Other motivate some of these logics in border contexts. As actors' behaviors with technologies – in our case the mobile phone – come to reflect and create these logics over time, studying how and why they emerge offers us ways to understand life and death at border sites.

Technologies

Carl Mitcham and Eric Schatzberg (2009) conceptually define technology as 'human behavior ... involved with the systematic making or using of artifacts.' This definition suggests that human behavior is central to technology and complements Langdon Winner's proposition that, 'the adoption of a given technical system actually requires the creation and maintenance of a particular set of social conditions as the operating environment of that system' (Winner, 1980, p. 128). Of special importance at borders are technologies that identify people. Applying Mitcham and Schatzberg's definition of technology, we can think of the human behavior involved in identification technologies as the desire to identify people, and the artifacts involved as the physical hardware that enables identification behaviors. Both of these components together make up identification technologies, which as per Winner, are then maintained by the persistent social desire to identify people.

David Lyon (2007, p. 125) situates the origins of identification technologies in societies' attempts to develop stand-ins for 'forms of trust that were previously sustained

(or challenged) by the face-to-face relation.' These 'tokens of trust' took shape in biometric data and identification cards, for example. Though they appear to represent a person's identity, these tokens are reductionist proxies for a person's complex identities. Converging surveillance systems operate by 'abstracting human bodies from their territorial settings and separating them into a series of discrete flows' of information that are reassembled into 'data doubles' or tokens that can be targeted for interventions like policing, population management, or targeted advertising (Haggerty & Ericson, 2000).

Data doubles may represent a *specific* person or people with *features of interest*. Depending on an actor's motivation, it may be sufficient to identify a type of person rather than a specific individual. For example, for an advertiser trying to expand their market of apple-buyers, identifying people having the feature of being located in particular geographic areas where it is difficult to grow apples (e.g., IP addresses and their associated geocoordinates) may be appropriate. For a government trying to issue tax returns to a particular individual, they may use unique identifiers like a US social security number as a data double to identify a specific individual. Identification technologies produce either kind of data double depending on an actor's motivations.

Decisions made with data doubles can benefit some and harm others. For example, in the 1880s Francis Galton formalized a biometric identification technology – fingerprinting. At the time, fingerprinting was a eugenicist project to identify 'superior' humans as distinct from 'inferior' humans (Breckenridge, 2014, p. 13). The South African state began using fingerprinting to make data doubles of South African persons' who it perceived as non-White. Apartheid South Africa used fingerprints to perpetrate atrocities on these persons (Breckenridge, 2014, pp. 15–16). In the 1980s the South African state extended fingerprinting to people that it perceived were White. In 2002, the state used data doubles produced by fingerprints to connect pension services with those 14 million people that they identified (Breckenridge, 2014, p. 26). This example shows how an identification technology can enable extreme violence against persons based on their data doubles, yet also provide essential services using the same data doubles.

Identification technologies embody a complicated tension: being identified renders one susceptible to control by the identifier's issuer, not being identified means potential exclusion from benefits. In some instances, susceptibility to surveillance and control is no longer a choice, but is rather rendered a necessity to survive (Eubanks, 2018). Identification technologies like passports or fingerprints that identify specific individuals are central to BIs' decisions about who gets to cross a border and who does not. Faced with increasingly selective BIs, some migrants see their only option to cross a border is to evade these technologies. BIs in turn use other identification technologies that can identify features of interest to detect people crossing borders. A prominent feature of interest is a migrant's geolocation data double produced by a mobile phone: an inadvertent identification technology. The concept of identification technologies used to identify features of interest, shapes how we understand mobile phones' role in BIs.

Actors

For this article, we think of actors as humans who decide when, how, and why to make or use technologies (Breckenridge, 2014). In BIs, actors decide which features of a person crossing a border an identification technology will detect and encode as that person's

data double (Browne, 2015). These actors build data doubles – fingerprints, passports, geolocation data produced by a mobile phone; decide whether the human that it represents should be permitted to or prevented from crossing into the BI's society and decide how to enforce that decision. Actors in BIs can include policymakers who decide what to do when a certain data double is detected, private contractors who develop technologies supporting border policies, individual border patrol personnel, humanitarian organizations, and others. Migrants can also be actors as they seek to reclaim agency over their data doubles' use by coopting identification technologies for their own purposes. However, a profound power imbalance between migrants and other actors shapes how each can relate to identification technologies.

Logics & construction of the 'Other'

While technologies and actors constitute components of a BI, BIs' logics describe relationships between these components. Haggerty and Ericson have described these logics as desires, for example, desires for 'control, governance, security, profit and enter-tainment' (Haggerty & Ericson, 2000, p. 609). For BIs, these logics or desires are often motivated by various constructions of migrants as undesired Other (Tong & Zuo, 2019).

People who cross boundaries or borders – like migrants – are often perceived by societies with anxiety (Douglas, 1966, p. 44), revulsion (Kristeva, 1982, p. 4), or as pollutants (Turner, 1967, p. 97). Such a person may provoke anxiety or a feeling of danger among their receiving society when the receiving society is unable to recognize or define their identities using existing categorization systems (Douglas, 1966, pp. 119–120). This perceived danger reflects social reliance on categorization to survive. Humans perceive things that they cannot categorize as threats to their survival (Lakoff, 1987). Receiving societies often assign people that provoke these fears a symbolic role as Other, a category typically imagined as not belonging to the receiving society.

Many BI technologies and actors are tied together by their desires to keep this symbolic dangerous Other out. For example, relationships have been increasingly defined by pre-emptive and punitive desires to keep migrants out of the US (Walsh, 2010, p. 115), reinforcing narratives of border-crossing persons as adversarial threats to the US (Gray, 2013, p. 793). Concurrently, relationships between migrants and identification technologies are defined by the desire to *enter* receiving societies. A receiving society's position to grant or not grant passage defines the relative power of these desires, constructing power asymmetries between actor types. We study actors' behaviors, the mobile phone as an identification technology, and the logics (desires) that tie them together.

The role of the mobile phone

Typically, people acquire and use mobile phones because of the benefits they derive from the technology (van Biljon & Kotzé, 2007), yet mobile phones also carry the risk of identification by producing records of a person's movement and locations (Carpenter v. United States, 2018). Records of movement can be used as data doubles to identify people with a particular feature of interest to border actors: physical presence in border zones. This feature is often used by border actors as a proxy for migrants. Their ubiquity and people's intimate relationships with them make mobile phones an abundant source of data doubles. Existing work shows us that the mobile phone supports survival in increasingly dangerous border-crossing experiences while also supporting detention and deportation. We review this literature before interrogating underlying reasons for this phenomenon by looking at archival resources that help us understand *why* and *how* this dualism emerged.

Mobile phones to survive border crossing

Mobile phones have become vital for navigating complex migration contexts (GSM Association, 2017; UNHCR, 2016). Migrants use mobile phones to seek information on migration routes, financial assistance, and access news (Frouws & Brenner, 2019; Xu & Maitland, 2016); to document and report human rights violations (Gregory, 2015); circumvent oppressive situations (Briskman, 2013); and provide or receive emergency response services during migration (Stierl, 2015). Mobile phones also foster communication with transnational and local friends and family (Platt et al., 2016) supporting migrants in feeling a reason to continue their journey (Collyer, 2007), and addressing feelings of loneliness or isolation during migration (Harney, 2013; Schöpke-Gonzalez et al., 2020). Mobile phones are integral to physical and psychological survival strategies during border-crossing journeys.

Border infrastructures' use of mobile phones to deter migrants' entry

While mobile phones provide a lifeline for migrants crossing borders, they also create risks of identification by BIs. BIs use data doubles produced by mobile phones in order to identify migrants' physical locations, allowing BIs to detain or deter migrants. BIs can geolocate migrants with a cell-site simulator, in collaboration with mobile phone service providers, or silent SMS. Cell-site simulators fake a mobile network base station and radio tower by producing a very strong signal. This signal causes nearby phones to connect to the simulator rather than an actual base station that is part of a carrier's mobile infrastructure; thus, enabling BIs to find phones nearby using signal strength, signal arrival angle, and time-based measurements (Caffery & Stüber, 1998). By collaborating with mobile service providers who keep track of which phones are connecting to which cell towers (Russo, 2004) or, in the case of satellite mobile phones, a phone's regularly updated position, a BI can identify the registered owners or operators of nearby phones (Kim, 2015). BIs also collaborate with mobile network service providers to send so-called 'silent SMS' to a known target phone number that triggers a response by the phone, if turned on, to all cell towers nearby (Androulidakis, 2016). The BI can then deduce the phone's location using the response's return trip time to its three closest cell towers (Croft, 2012). In these ways, using mobile phones puts migrants at risk of identification, as well as subsequent detention, and potential deportation.

While this literature helps us understand *that* mobile phones carry dual roles in survival and deterrence, we know less about why this dualism exists and the extended consequences of these roles on life and agency at borders. Our analysis provides insight into *why* and *how* this dualism emerged in the US and EU BI contexts.

Methods

With case studies of two particular border sites grounded in archival research, we offer specific insights about how and why the mobile phone's dual role contributes to migrant death rates at international borders. Archival research allowed us to reach back in time to understand aspects of how BIs have come to be, and how the mobile phone came to feature in them. Since most deaths have been documented in the Mediterranean Sea and Sonoran Desert, our archival investigations focused on unpacking patterns at these two primary sites.

In both cases, existing literature points to the early 1990s as an era in which contemporarily technologized BIs began emerging (De Léon, 2015; Jones, 2016). For the US this literature also indicates that the border between El Paso, Texas and Mexico was a geographical catalyst for technologization. We thus began exploring archival materials by searching ProQuest's Global Newsstream database for 'el paso' and 'border'. Based on references to laws, judicial proceedings, organizations, and reports made in returned archival results, we expanded our search to include these documents. This process allowed us to identify Operation Blockade as a specific catalytic event for BIs that would ultimately feature the mobile phone in its dualistic role. In order to identify where the EU BI's contemporary border approach comes from, we began by searching ProQuest's Global Newsstream database and Google News' database for coverage of Mediterranean Sea migration tragedies. Based on references in these articles, we traced policies and technology development further back in time to the Tampere Agreement as a catalyzing moment for the EU's contemporary infrastructural approach featuring the mobile phone.

Ultimately, we analyzed news articles, international agreements, legal and government reports, and NGO reports and websites. News articles offer a direct historical record of what different actors were thinking and what was happening at particular points in time. International agreements, legal, and government reports help to understand state actors' relationships to border technologies. NGO' reports and websites provided further insights about key NGO actors like human rights organizations and border-crossing assistance organizations, and important events referenced in other primary source documents or literature. For both cases, we found that some scholarship engaged in primary source documentation through ethnographic or interview studies, reported on specific border technologies otherwise undocumented by news articles, or pointed to primary source documentation like legal agreements or border technologization programs. Given some of these works' roles, we include them in our analysis.

Based on the three key theoretical constructs discussed above – mobile phone technologies, actors, and construction of the Other – we analyzed each document by first coding for the appearance of these categories. We then used an axial coding approach to identify relationships among them (Charmaz, 2006). We identified relationships defined by deterrence logics and survival logics. These relationships emerged over time, becoming clearly visible as different actors responded to constructions of the Other in an escalating back and forth between deterrence and survival, with the mobile phone becoming an identification technology which at once embodies and produces both logics.

In the following sections, we illuminate *how* and *why* contemporary tensions between survival and deterrence logics emerged by chronologically discussing actors'

technologically oriented responses to particular moments in time where underlying logics seemed to shift. We describe how mobile phones reflect and produce tensions between deterrence and survival that define relationships between technologies and actors in US and EU BIs. By placing these geographic sites and logics alongside each other, our analysis reveals how and why the mobile phone's mortally consequential dualistic role emerged at contemporary border sites. Citations throughout these sections refer to archival sources.

US border infrastructure: deaths in the desert

On 19 September 1993, El Paso Border Patrol Chief Silvestre Reyes implemented Operation Blockade (Montes, 1993). This Operation repaired holes in the El Paso border fence and stationed 450 officers along El Paso's 20-mile border. People desiring to cross the El Paso border were immediately turned back to Mexico if they did not have documents like short-term visas (Garcia, 1993). The Operation turned what had been a neutral border zone across which thousands of persons crossed daily, predominantly for work or shopping, into an impossible border-crossing site, marking the emergence of what we today understand as a strategy of preventing migration to the US through deterrence.

Before launching Operation Blockade, Reyes learned from the El Paso community about three underlying concerns: crime rates (Garcia, 1993), a visually chaotic quality of life (Golden, 1993), and harassment of US citizens by US Customs and Border Protection (CBP) officers (Murillo v. Musegades, 1992). In the weeks following Operation Blockade's implementation, El Paso police reported a drop in petty crime and theft in downtown El Paso (Pressley, 1993), but homicide and burglary rates did not change (Rotella, 1993). El Paso Mayor Francis commented that 'the streetwalkers, prostitutes, transvestites, panhandlers, pickpocketers, [visually chaotic quality of life] all that's down' (Wertheimer, 1993), and others were relieved that they no longer witnessed persons offering to wash their windshields at intersections (Pressley, 1993). El Paso residents further noticed decreased harassment by CBP officers, as the officers were no longer patrolling their neighborhoods but rather placed at fixed stations at the border (Gannett News Service, 1993; Thompson, 1993). People no longer had to see people that they constructed as Other, and also were no longer made to feel like *they* were Other in the aftermath of the Operation.

At the same time, the Operation brought shifts in how migrants manifested their desire to survive. Persons who had traveled daily to their jobs in El Paso instead established more permanent homes in El Paso in order to continue working, often resulting in long-term separation from their families in Mexico (Wertheimer, 1993). Others instead pursued longer and riskier routes. Smugglers' daily rates at the time increased from \$3 to \$40 US dollars to compensate for this additional risk (Rotella, 1993). Seeing community accounts of the Operation's benefits and harms alongside each other reveal the co-emergence of deterrence (response to a fear of the Other) and survival (response to unliveable situations motivating migration) logics. Relationships between various actors, identification technologies like visas, and material obstacles came to produce and reflect these two co-dependent logics.

In the following decades, these logics continued to interact. The 1994 North American Free Trade Agreement created extreme unemployment among Mexican farm industry

workers with the massive influx of subsidized US agricultural products into Mexico, forcing significantly more people to cross the US's southern border from Mexico in search of work (survival logic). As migration rates increased, the US expanded its deterrencemotivated technologized border to force people to cross the US-Mexico border in the Sonoran Desert, 'where the punishment handed out by difficult terrain will save money (or so some foolishly thought)' (De Léon, 2015, p. 6). Humanitarian crises in Latin America over the last decades have also motivated more and more defensive asylum applications in the US, or those filed on arriving to the US when no means of legal border crossing are available (TRAC Reports, 2018, 2020). Meanwhile, the US' refugee acceptance ceiling has declined to one of its lowest rates since the 1980s, meaning that the rejection rate for asylum applications has spiked and many persons are deported to dangerous - often deadly - situations in their origin countries (Krogstad, 2019). Under a Department of Health and Human Services rule responding to the COVID-19 pandemic, persons detained by CBP officers no longer had an opportunity to seek defensive asylum (Health and Human Services Department, 2020). Hundreds of children were deported back to the dangerous situations they fled from without the opportunity to request asylum (Dickerson, 2020). Persons remaining detained faced a heightened danger of COVID-19 infection in confined detention facilities (Jawetz & Svajlenka, 2020). Resulting, '... the deterrence strategy has not diminished migration - it has only increased the suffering and deaths of migrants' as they try to survive (Androff & Tavassoli, 2012, p. 165). Escalating tensions between these logics described by relationships between actors and technologies take deeper root and become consequential for life and death at the US-Mexico border.

As evading identification at CBP-managed entry ports to the US has become increasingly difficult and deportation risk has become increasingly deadly for migrants, they take evermore dangerous journeys to enter into the US without detection. Increased border surveillance has led migrants to rely on smugglers affiliated with criminal organizations because they 'are the only ones that have the technology and the control over the areas where people can cross' (Newell et al., 2017, p. 30). Specifically, news reports suggest that smugglers have used mobile phones to remotely guide migrants since as early as 1999 (Zarembo, 1999). Rather than deterrence, survival logic defines the relationship between certain actors (migrants & smugglers) and a specific technology: the mobile phone.

Humanitarian organizations, another actor, have also attempted to use the mobile phone to realize their desires for migrants' survival. For example, Humane Borders 'negotiated the installation of public safety communications equipment on observational towers mandated by the US Secure Border Initiative ... [permitting] migrants to contact 911 emergency responders – but nobody else – on their cell phones' (Walsh, 2010, p. 121). Organization Coalición de Derechos Humanos' notes, 'If you are still in contact with this person [missing migrant] via telephone, advise them that the only way to trace their location exactly is for them to make a call to 9-11' (Coalición de Derechos Humanos, 2019). Migrants can call for rescue assistance and border patrols can identify them as migrants using the data double produced by the silent SMS mechanism or by the call's signal strength received by a nearby cell tower and recorded by the mobile phone's service provider. These organizations use the same identification technologies which BIs used to realize desires of deterrence, to realize a logic of survival.

Migrants indicate that they and smugglers are aware of this opportunity for identification and survival through mobile phones. Some migrants have talked about guides physically accompanying them in their journeys across the border and 'feeling safer because a guide carried a cell phone, citing a hypothetical case where an injured person could be left on the trail but a phone call to 911 could bring medical responders,' and in other instances that smugglers guided them remotely by mobile phone instead (Newell et al., 2017, p. 30). Without a mobile phone, migrants are susceptible to an even greater mortal risk. However, awareness of detection's consequences – deportation to life-threatening origin contexts and potential inability to apply for defensive asylum if detected and identified – has meant that migrants may often take even greater risks in crossing the Sonoran Desert without a mobile phone.

Archives show how the mobile phone as an identification technology produces and reflects both survival and deterrence logics. While the mobile phone is often the last opportunity of survival in the deadly Sonoran Desert because it can be identified and thus facilitate a rescue, the risk of identification also carries potentially mortal consequences driven by the US' desires to deter entry.

EU border infrastructure: deaths at sea

Early signs of deterrence logics in EU border policies begin with the 1999 Tampere Agreement where the EU articulated its use of migrants' fears of deportation back to known dangerous contexts (desire to survive) to keep them from attempting to cross the Mediterranean Sea (European Parliament, 1999). This deterrence logic responded to EU member states' perceptions of 'illegal immigrants' as criminals, and the consequent desire to keep those criminalized persons out (Koenig & Das, 2001). Italy's 2009 bilateral agreements with Libya during the Gaddafi regime reinforced these principles when Libya agreed to readmit migrants who had been detained in Italy (Triandafyllidou & Dimitriadi, 2014) despite public knowledge that Gaddafi's regime at the time was known for its human rights abuses (Human Rights Watch, 2009). These international agreements marked the articulation of a deterrence logic reliant on migrants' desire to survive to keep them from attempting migration to begin with, the same co-emergence of logics that we saw came to define technology-actor relations at the US-Mexico border.

The EU has since built technologies like walls, fences, border checkpoints, and surveillance devices (i.e., drones, satellites, etc.). Border personnel's (actors) increasingly violent tactics to realize deterrence, motivated by an underlying fear of the Other, define their behaviors relative to these technologies. These behaviors have increased 'chances of injury, death, or deprivation' among persons crossing EU borders without authorization (Jones, 2016, p. 9). Instead of decreasing migration attempts, deterrence has driven migrants to cross the EU's southern more dangerous sea border 'on unseaworthy boats' or 'through ports in the cramped confines of shipping containers' (Jones, 2016, p. 8) to avoid detection on physically safer but now heavily technologically surveilled routes.

At the same time as BIs have manifested a deterrence logic, they have periodically also supported a survival logic. The UN's Law of the Sea (1994) states that anyone with knowledge of persons in distress at sea is legally obligated to assist them. Following this Law, Italy launched Mare Nostrum in 2013 to mitigate migrant deaths in the Mediterranean Sea (Taylor, 2015). Migrants (and smugglers) traveling by sea began equipping boats with satellite mobile phones to be identifiable by Mare Nostrum search and rescue activities (Merelli, 2016; Tazzioli, 2016, p. 576). Mare Nostrum used geo-referenced position data recorded by satellite mobile phone service providers to identify migrants via their locations and rescued more than 130,000 people that way, with the mobile phone a central component of survival logic. Though generally data privacy laws prevent service providers from sharing mobile phone data with law enforcement organizations, this privacy protection has been relaxed in high-risk situations like sea search and rescue operations such as Mare Nostrum (Dimc et al., 2011). The mobile phone acted explicitly as an identification technology, and migrants' data doubles motivated rescue missions, temporarily redefining relations between identification technologies and actors.

Despite Mare Nostrum's apparent success, it sparked intense debate. Some EU member states argued that rescue activities 'create an unintended "pull factor", encouraging more migrants to attempt the dangerous sea crossing and thereby leading to more tragic and unnecessary deaths' (Taylor, 2014). Other member states worried that Italy's lenient approach would invite potential terrorists (Taylor, 2015). These voices re-articulated deterrence desires. Amid public controversy and declining Italian resources, Mare Nostrum ended in late 2014 while the EU's border protection agency (Frontex) created Triton, a joint surveillance operation among 26 EU member states to prevent migration while providing minimal support for search and rescue (Jones, 2016). Triton relied on similar geo-referenced satellite mobile phone data as Mare Nostrum to identify migrants in the Mediterranean (Heller & Jones, 2014; Tazzioli, 2018), but largely to deter not rescue them. Triton agents have also actively caused migrants' deaths at sea using data doubles produced by mobile phones' satellite references (Smith, 2020). Techniques like towing dilapidated boats back to their origin point at high speed (killing 12 migrants; Greek Coast Guard, 2014) or shooting at swimming migrants with rubber bullets (killing 14; Spanish border patrol, 2014) are known as common 'push-back' operations (Aribau, 2014; UNHCR, 2020). Mobile phones shifted from being an identification technology for survival to a source of data doubles with which actors made mortally consequential deterrence decisions.

Responding to this violence, activists launched WatchTheMed Alarm Phone, an emergency hotline for migrants in distress in the Mediterranean. Alarm Phone uses calls and the same data doubles as Mare Nostrum to notify coast guard officials of persons in distress at sea, relying on the Law of the Sea's entrenched survival logic to ensure coast guard action (Stierl, 2015, p. 10). Despite these efforts, in April 2015 an estimated 800 migrants died when a boat capsized off Libya's coast (Missing Migrants Project, 2015). The EU responded to these losses with a Frontex program in 2016 which 'involved a plan to "rapidly" assess and deport to their origin countries those who did not qualify for political or humanitarian asylum' (European Commission, 2015). Though people were rescued under this program through their data doubles, they were being rescued to be deported at higher rates (151,398 persons in 2018), unveiling a thinly disguised reinforcement of deterrence relationships between actors and technologies (International Organization for Migration, 2019b). Frontex's Themis, Triton's successor program, perpetuated its predecessor's efforts (Frontex, 2020).

Problematically, deportation policies apply to people who do not qualify for asylum. Asylum applications are often inappropriately rejected on the basis of nationality (data double) represented by identification technologies like birth certificates (Schuster, 2011). These persons are often deported to country-of-origin contexts known to be deadly. In one emblematic case, a bombing killed a person less than a week after Sweden deported them to Afghanistan (AFP International Text Wire in English, 2017).

Though Alarm Phone continues its operations to date, to avoid detection boats often no longer carry satellite phones and smugglers often now require migrants to hand over or discard their mobile phones before embarking on their sea journey (Gillespie et al., 2018). Migrants are thus often no longer able to call for support when they need it. Escalating interactions between logics via data doubles produced by the mobile phone perpetuate an ever-heightening mortal risk for migrants crossing the Mediterranean Sea. As in the US-Mexico border case, dangerous deterrence mechanisms have only made border-crossing more deadly and motivate the co-emergence of a survival logic, reflected in and produced by the relationships we see between actors and technologies.

Discussion

Looking at the US and EU BIs as *relationships* between actors and identification technologies reveals how these relationships are defined in both cases by logics of deterrence and survival. While a power imbalance between receiving society actors and migrants might at first glance appear to suggest that deterrence on its own exacerbates death at borders, without a survival logic motivating border crossings to begin with and forcing people into dangerous borderscapes, deterrence logics would not hold their deadly force. It is precisely the co-dependent tension between these two logics that we see conditioning migrants' lives at US and EU borders. We bring together these two border logics, highlighting how they co-emerged over time and have consequently come to co-depend on and co-produce each other in contemporary border technologies like mobile phones. Entrenched in and contributing to an escalating battle between these logics, the mobile phone often becomes the difference between life and death. As more and more human lives are lost and restrictions are placed on human agency, the violence of these contemporary border sites *depends* on tensions between these logics upheld by technologies like the mobile phone.

By emphasizing relationships between technologies and actors in our analysis, we highlight that reducing the violence of US and EU borders requires rethinking the logics which drive actors' relationships with mobile phones, specifically those of receiving societies. The desire to survive by moving across borders is widely recognized through the Universal Declaration of Human Rights' Article 13. This desire will not change. However, receiving societies can choose how to respond to this logic, and deterrence is only one of many possible choices.

Changing behaviors and logics requires reimagining borderscapes. In both US and EU cases, deterrence mechanisms typically do not succeed in actually deterring migration. While deterrence efforts do temporarily placate fears of a symbolic Other, in the longer term, they further galvanize fear by reinforcing symbolic notions of belonging and Other (Tajfel et al., 1979). Feminist scholarship offers theoretical and speculative explorations of alternative approaches to navigating fear of a symbolic Other. For example, Audre Lorde and Donna Haraway's later engagement with Lorde's work offer us Sister Outsider

– a mythological character that thrives in border spaces – as a device with which to imagine relationships among technologies and actors defined by affinity or conscious coalition rather than opposition (Haraway, 1985; Lorde & Clarke, 2007). Gloria Anzaldua offers related imaginations about what a border site could look like where approaches to tensions among desires are not mortal (Anzaldua, 1987). From these solid theoretical and speculative foundations, we can begin to reshape those desires which make up actors' relationships with technologies at borders. By redefining underlying logics, mobile phones would no longer need to reflect and perpetuate mortal tensions between deterrence and survival. They might instead reflect new desires, perhaps freed to fulfill roles like supporting migrants' psychosocial wellbeing.

Scholarship can support these redefinitions by studying existing efforts to redefine border logics. For example, future research could study efforts to turn 'illegal' – a phrase used to define migrants as Other – into 'legal' as has been the case with regularizations (Brick, 2011; Kossoudji, 2013); decriminalizing asylum-seeking by reducing wait times to receive asylum (Meissner et al., 2018; Schöpke-Gonzalez et al., 2020); innovative visa programs (Canada Border Services Agency, 2004; Instituto Nacional de Migración, 2020); and reversing safe haven policies (Amnesty International, 2017; Phillips & Tuckman, 2019). Research could also study efforts to dismantle receiving society fears of migrants at a community level. Current examples of this work include fostering relationships between newly arrived persons and long-time residents of Hamburg, Germany (Migrantpolitan, 2020), and engaging with the arts to cultivate local identities which encompass both long-time residents and newly arrived persons in Athens, Greece (We Need Books, 2019). By studying these topics, scholars can advance thinking around how to realize BIs motivated by generative rather than deadly logics.

Conclusion

Looking at archival materials, we illuminate how and why mobile phones become ambivalent technologies for survival and deterrence logics in the Sonoran Desert and Mediterranean Sea. These logics in tension condition relationships between mobile phones and human life at these border sites. By emphasizing relationships between technologies and actors as the glue that holds BIs together, we show that reducing the violence of US and EU borders requires updates to the behaviors and logics that produce BIs. We offer concrete opportunities for future work to explore efforts which redefine border logics in ways that might reduce deaths at borders.

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14 👄 A. M. SCHÖPKE-GONZALEZ AND F. SCHAUB

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16 👄 A. M. SCHÖPKE-GONZALEZ AND F. SCHAUB

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