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Policy Analysis Report

Time As Violence

A User-Centric Approach to Digital Migration Management

About the author

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Executive Summary

If improperly implemented, new digital migration management systems can foster the development of opportunistic economies that capitalize on both the protracted waiting periods that people on the move face and the information precarity that they experience in transit. The digitalization of migration management strategies often correlates with technical glitches and opaque selection mechanisms, thereby creating a specialized body of expert knowledge required to successfully navigate such systems. This knowledge allows some individuals to capitalize off the difficulties many people on the move face navigating new digital tools by offering their 'expert services' in incipient opportunistic economies.

Despite the lauded infallibility of the algorithms driving digital migration management tools, refocusing on a user-centric approach to the experience of individuals using these tools illustrates the failures of the assumed neutrality of technology. The enforced waiting periods and in-built randomness intended to confer greater equality in these bureaucratic tools may allow actors in opportunistic economies to profit off of the lost time and delayed life projects that the users of these digital policy tools experience. Given the importance of time for people on the move and the costs associated with waylaid journeys and enforced stagnancy, people frequently hope that purchasing services from opportunistic economies will speed up their interactions with digital migration management tools. For newly implemented digital migration management tools to serve as part of a growing Digital Public Infrastructure and provide transferable benefits for digital governance in other contexts, government actors would be wise to consider how the timeliness of digital systems influences the propensity for their intended users to participate in these systems.

This analysis roots itself in the socio-legal examination of individuals' experiences purchasing migration-related services from service providers in the opportunistic economy while navigating migration policy instruments. The findings of this analysis hold relevance for all types of digital pre-border processing systems, ranging from asylum to labour migration instruments. This research culminates in the development of clear criteria by which policymakers can counteract the emergence of illicit economies based on their migration systems, with benefits both for users navigating these systems and for states seeking to achieve the uniform and non-discriminatory implementation of their migration policies.

Keywords: *Digitalization; Digital Borders; Digital Governance; Waiting; Temporal Borders; Information Precarity; Illicit Economies; Asylum; Digital Public Infrastructure; Biometric Data.*

Contents

Introduction: Analyzing the Intersection of Digital Migration Management and Opportunistic Economies from a User's Perspective

Digitalizing migration management presents government actors with the alluring idea of radically expanding border policy apparatuses without incurring the costs associated with hiring the personnel traditionally needed to staff mammoth bureaucracies. While the advancing progress of digitalization is in many ways inevitable, the rise of digital borders means that now many people on the move carry borders in their pockets, contained within a small square app on their phones. Inefficiencies in these digital migration tools open the door for the emergence of opportunistic economies that exploit slow digital processes and opaque selection mechanisms, meriting consideration during the design phase of digital migration tools before their widespread implementation. If people are to use new digital systems, government actors must ensure that such tools are attune to their intended users' specific needs and challenges. These digital tools must emphasize equitability and expediency, so that opportunistic economies do not turn digital migration policy tools into a pay-to-play system.

The primary way in which government actors can design digital migration management tools that do not create new opportunistic economies is to approach these tools in a user-centric manner that is responsive to the context-specific dynamics where they intend to implement these digital tools and the unique needs of the populations they target. Government actors contemplating new digital strategies for migration management can take warning from the way in which the implementation of the CBP One™ by the United States targeted at people on the move through Mexico engendered the appearance of opportunistic economies that profit off the long waiting times, frequent errors, veiled operating logic, and lack of effective redress experienced by people using this new digital tool. Designers of digital migration policies and platforms in Europe and across the entire Prague Process region – far beyond North America – will benefit by learning from these failures.

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This article, based on fieldwork with people on the move in four migrant shelters in the Mexico City area conducted between August 2023 and March 2024, **provides a theoretical context for understanding the digitalization of migration management and the way in which individuals' time lost using such digital tools should be understood as a form of violence.** After defining 'opportunistic economies', analyzing the example of the CBP One™ app's implementation illustrates how opportunistic economies emerge, how errors reinforce the strength of such opportunistic economies, and how the design of tools such as the CBP One™ app allows alternative authorities to benefit from purported specialized knowledge. Drawing from these examples, the article concludes with ten criteria that empower government actors to proactively design their digital migration management tools in a way that adopts a user-centric approach and impedes the emergence of opportunistic economies.

1. Digital Migration Management and Border Bureaucracies

From delivering more rapid status determinations to streamlining the costs of colossal bureaucracies and algorithmically-guaranteeing unbiased selection mechanisms, even a cursory glance at the ever-accelerating tempo of migration governance's digitalization appears to offer tangible benefits to both the state governments implementing innovative migration governance tools and the people on the move using these new digital policy instruments.

Two decades ago, scholars began predicting that the same potential governments first saw in New Public Management's promises of increased efficiency and reduced costs would naturally progress to imbue those same hopes in digitalization. These initial predictions, while recognizing the uncertainties and disruptive potential of digital governance, remained hopeful, with aspirations that the impending the rise of digitalization "...holds out the promise of a potential transition to a more genuinely integrated, agile, and holistic government...".[1] The logic behind such ambitions for digital governance lay in its forecasted potential to simplify people's interactions with complicated bureaucratic institutions, automate and expedite many routine government services, engender more rapid governmental adaptation to better reflect changing realities on the ground, and endow people with greater individual agency to access state resolutions to their personal problems. However, upon reviewing more than twenty years of examples from the digitalization of government services, government actors would be wise to eschew the rose-coloured glasses of techno-optimism when considering the ancillary effects enacted by digital migration management tools. Failure to do so will diminish state authority and give rise to the emergence of opportunistic economies that capitalize on digital migration tools' inefficient and opaque implementation.

Digital Public Infrastructure for Migration

The platforms and tools used to deliver digital migration governance constitute a part of an emerging Digital Public Infrastructure (DPI), which is best understood as the digital networks that enable people to interact with other people, businesses, and their governments. Although DPI itself is not digital governance, the building blocks that DPI provides support the realization of digital governance. Much as physical infrastructures expedite the circulation of goods and people, **DPI represents the underlying digital systems that expedite the provision of "essential, society-wide functions and services in the public and private sectors".**[2] The United Nations Development Programme lists DPI as an enabler of governance and a key facilitator of governance's digital transformation.[3] Commonly referenced forms of DPI include platforms that enable unique digital identity, the storage and transfer of data, and digital payments. The components of migration governance that hold the greatest potential to contribute to DPI are the digital identities of people on the move when accessing migration tools and the way in which government actors store and transfer data related to their migration procedures.

Understanding digital migration governance as a component of this emerging digital public infrastructure allows us to recognize the benefit of investing in the development of digital tools that quicky and equitably deliver services to people on the move. Outsourcing the facilitation of digital migration governance to third-party vendors in the private sector risks creating market distortions by concentrating power into the hands of a few dominant vendors, both reducing these actors' accountability to data protection standards and curtailing governments' abilities to regulate these actors.[4] Rather than adopting a siloed approach that would develop distinct digital tools to connect labour migrants and asylum seekers with members of the state administration and mediate their ability to cross borders, with duplicative costs and varying levels of efficacy, **treating digital migration governance as DPI allows us to envision a shared set of transparent and accountable digital platforms that safely expedite these migration-related interactions between individuals and state governments**.

Emphasizing the principles of user-centricity, privacy, and inclusivity in the creation of migration-related DPI would provide a foundation upon which government actors could build new tools to deliver positive outcomes for people on the move.

When reviewing the potential of DPI, a Brookings Institution working paper by Priya Vora and Jonathan Dolan found that governments often focus too much on the broad potential of digital governance and overlook its impact on individuals.[5] They also found a pervasive lack of existing indicators for official redressal systems to allow individuals to contest and seek resolutions to potential problems tied to the implementation of digital governance policies.[6] **Given that people using digital migration tools are often not citizens of the nations whose tools they access, they may experience severely restricted access to legal recourse, emphasizing the need for standardized and effective redressal systems as a part of any migration-related DPI**. As Vora and Dolan explain, "Digital services and the infrastructure that enable them must be understood as offering new choices and new capabilities. But their presence, no matter how well designed, does not guarantee positive outcomes".[7]

Emphasizing the principles of user-centricity, privacy, and inclusivity in the creation of migration-related DPI would provide a foundation upon which government actors could build new tools to deliver positive outcomes for people on the move. When discussing priorities for digital governance, the OECD recommends that government actors consider adopting "a user-centric approach in the design and delivery of government services".[8] The European Union's eGovernment Benchmark also identifies user-centricity as one of the key dimensions for evaluating the success of nations' digital transitions.[9] Careful attention to the modalities of data collection at the design stage would also allow government actors to ensure that digital migration management tools "embed values of privacy by design, inclusivity, and security into the technology", as prioritized in the Indian government's Digital Public Infrastructure Approach.[10] A key prerequisite for establishing the equitable function of digital migration management tools is therefore the inclusive participation of the populations that these tools seek to serve in developing grievance redressal tools, a point highlighted by the nascent United Nations DPI Safeguards initiative.[11] Without such in-built ability of target populations to address the shortcomings of newly implemented digital migration management tools and rapidly receive remedies for their failures, digital tools risk accelerating the proliferation of 'digital borders'.

The Rise of 'Digital Borders'

Digital borders expand the idea of a border beyond the physical demarcation of sovereign territory to now also include the digital processes dictating both **who** can and cannot move across such borders, and **when** they can do so. Digital borders operate as a power relationship, determining whose mobility and whose time is valuable, and mediating the experiences and trajectories of all people on the move.[12] Combining the capacities of a wide range of technological advances, including video surveillance, drones, thermal cameras, social media monitoring, biometric technologies such as fingerprint and facial recognition, artificial intelligence, and machine learning, among others, **digital borders endow states with a heightened level of discretion to selectively determine who can access their territory through regular migration pathways**. While these technologies alone do not create borders, they operate within broader socio-political frameworks to decide whose mobility and entrance is in the interest of the societies they encircle.[13] By operating at a distance, digital borders also enable states to simultaneously ignore the costly task of addressing underlying catalysts for people's displacement while also avoiding the humanitarian obligation to support global displaced populations. In the labour migration space, digital borders selectively enable the mobility of a small subset of the total population of would-be migrant workers whose skills meet domestic shortages and whose financial resources ensure they would never require state support.

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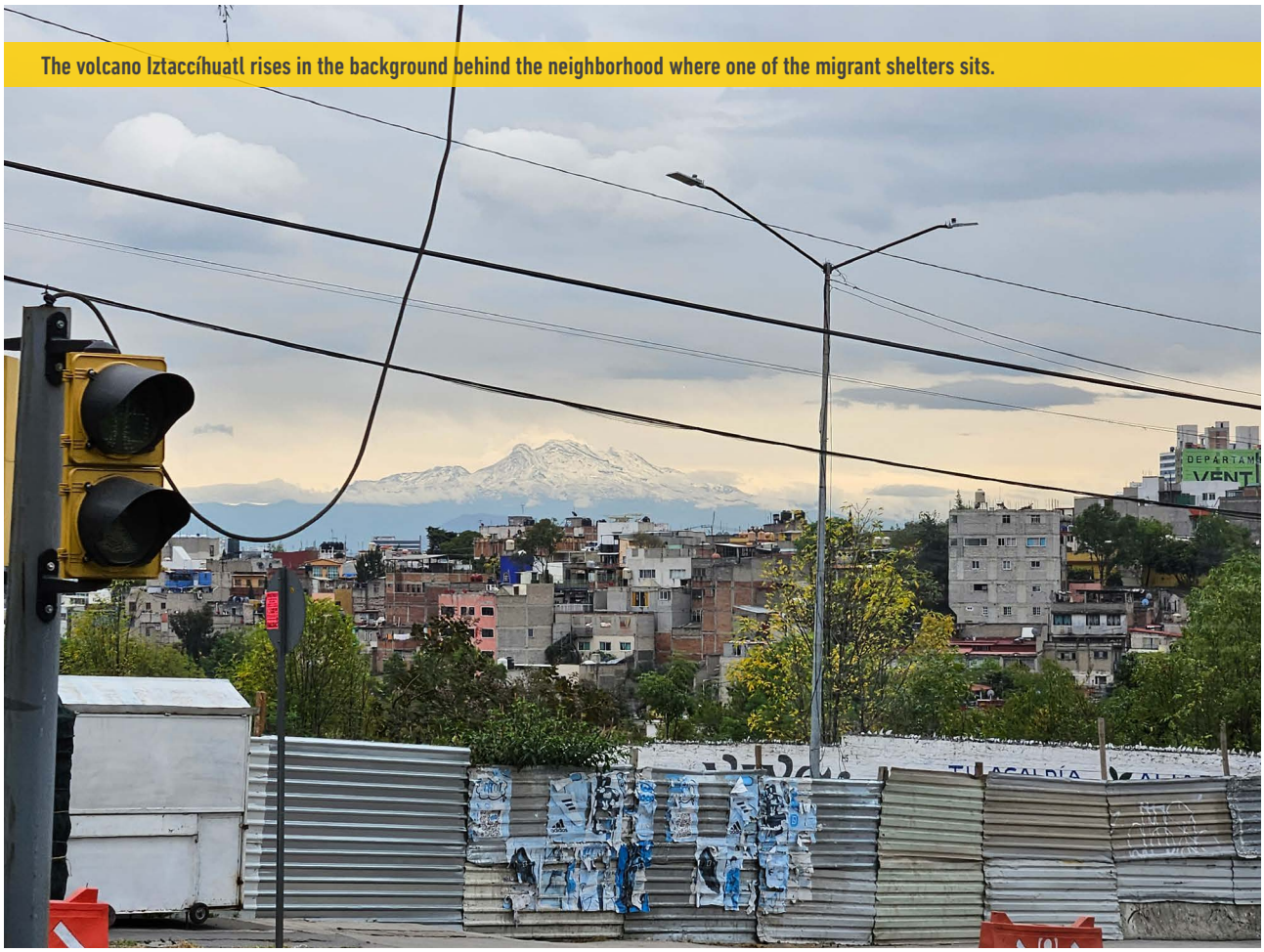
The Collection of Migration Data as an Enabler of Algorithmic Violence

Any effort to digitalize migration management techniques transforms migrants' lives and movements into empirical datasets that become targets for new policies to act upon – numbers that policies can reduce and flows that policies can quell – rendering migration data a key policy objective. The collection of migration data through digital means therefore not only results from policy decisions, but also cocreates **new policies of surveillance and control that understand migrants' movements as predictable, actionable and preventable.** The collectors and cataloguers of migration data abound, extending beyond government actors to also include humanitarian organizations, tech start-ups, and private industries that people on the move purchase services from. Even when government actors themselves do not collect certain types of data due to regulatory restrictions, such data is available for purchase from private data brokers, exemplified by the U.S. Customs and Border Patrol purchasing "commercial telemetry data for the purpose of identifying irregular travel patterns".[14] Enumerating anticipated migratory movements intersects with the introduction of biometric border control technologies to inhibit individuals' movements before they ever depart.

The converging forces of fingerprint databases, retinal scanning, voice and face recognition technology, and the use of artificial intelligence and machine learning result in a critical mass of biometric data related to migration. Amassed on server racks in cloud computing facilities, this **biometric data and its constantly evolving interactions with new technologies are part of an effort to make the individual fit neatly into complex migration policy systems.**[15] The collection of biometric data radically expanded in recent years based on government bureaucracies' and private companies' increasing reliance on it to create a unique identity for the people they serve.



The volcano Iztaccíhuatl rises in the background behind the neighborhood where one of the migrant shelters sits.

Often, the spaces migrants occupy serve as testing grounds and migrants themselves as guinea pigs for the implementation of new and experimental uses of biometric technologies.[16] As early as 2002, the UNHCR began using iris recognition technology in an effort to prevent Afghan refugees from receiving multiple servings of aid, ignoring the potential for false matches in the identification system to entirely prevent people from receiving the aid they need.[17] Current reporting indicates the interest of the United States Office of Biometric Identity Management in expanding the collection of biometric data from migrant children younger than 14 to develop data sets to train artificial intelligence models that support its newly implemented craniofacial structural progression initiative.[18] The correlation between the collection of biometric data and the reliance of digital migration management systems on biometrics is not a spurious relationship. **The lack of clear guidance delimiting permissible uses for migrants' collected biometric data and absence of strong firewalls preventing its transfer and repurposing creates enormous potential for the function creep of biometric data collected through digital migration tools**.[19] Privacy and data ownership are too often treated as secondary in the interest of systematizing and automating the processing of people on the move's biometric data to fit the needs of new digital migration management tools.

Although some migrant data collection may exhibit constructive goals, such as expediting the adjudication of final status determinations, critical data studies elucidates that the conversion of people into data points is not benign. The systematic classification and categorization of people based on select features of their identity markers counterproductively reduces the nuance of their experiences and enables algorithmic violence. As explained by London School of Economics Professors Lilie Chouliaraki and Myria Georgiou, "...datafied systems of border control condense the migrant as a person into one category or the 'other' of a rigid binary of 'risky' or 'safe,' while rendering their origins, biographical narratives, and personal trajectories irrelevant to decision-making".[20] Algorithmic violence occurs through the collection of biometric data en masse even before any data is processed through potentially biased algorithms, illustrating the power hierarchies that skew data's eventual processing.[21] Distinct from the violence involved in the forced cataloguing of fingerprints, digital migration management tools risk engendering a **different form of violence** into the data infrastructure by **offloading the data collection process to migrants themselves and creating the potential for opportunistic actors to profit off the difficulty individuals experience making their lives machine-readable.**

2. Time as Violence: How technology enables temporal borders and forced immobility

It is impossible to understand how people will react to the implementation of digital migration management instruments without understanding how these tools impact the time of migration journeys. The time that people invest in submitting documents and awaiting responses through these systems influences whether intended users choose to use or avoid them. Opposed to the rapid and decisive violent acts involved in forced displacement and border pushbacks, the stagnancy and ambiguity of waiting periods enforced by digital migration management tools is a form of 'slow violence'.[22] This slow violence arises from the inefficiency of digital migration systems, affecting all individuals who use them. The unique individual circumstances of people on the move makes the damage of this slow, systematic violence more acute for people who possess limited financial resources or whose journeys occur under conditions of heightened urgency.[23] Research on carceral geography illustrates that a state of imprisonment can occur both physically and temporally. **People relying on digital migration tools may feel like their time is being held hostage, limiting their ability to realize their life projects**.[24] The subjective experience of waiting influences perceived duration, thereby creating the potential for individuals' awareness of their own wasted time to exacerbate the violence enacted by inefficient digital migration tools.[25] By looking at how digital migration management tools affect their users' time, policymakers can understand both why users will react to the implementation of these new technologies in diverse ways, and how to reduce the potential for opportunistic economies to capitalize on such reactions.

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Although individuals' specific temporal experiences relate to the unique circumstances of their migration, the thread uniting all of these times of migration is the capacity for border bureaucracies to artificially extend periods of uncertainty, precarity, insecurity, and ambiguity.[26] While crossing a border for some people occurs in a fleeting few seconds of pressing a passport to an electronic scanner, crossing that same border for others results in years of immigration detention. Stockholm University anthropologist Shahram Khosravi describes this disparity as 'racial time', arising from bureaucratic bordering mechanisms under which subsets of the broader global population are "subject to differential inclusion not only spatially but also temporally through keeping them in a prolonged period of waiting, constantly delaying them, postponing their arrival and future plans".[27] **The affective process of waiting that Khosravi references is precisely what gives rise to opportunistic economies wherein actors profit off of individuals' desire to reduce their required wait times and expedite their experiences navigating digital migration management tools.**

Waiting transpires as both a **temporal** and a **spatial process**. While many people wait for status determinations within host countries, digital migration management tools create the potential to create spatial 'waiting rooms' outside of states' sovereign territory. Bordering practices that rely on the containment of global migrant populations through **the externalization of migration management and regional protection programs perpetuate the lengthy in-betweenness and liminality of migration journeys**.[28] Such exclusionary policies enable governments to selectively filter migrant populations forced to wait within third countries and construct a false dichotomy that valorizes waiting patiently. Only those 'legitimate' migrants who endure the long waiting periods and whose skillsets are deemed economically expedient or who are offered the boon of humanitarian resettlement can enter a country. Those who do not wait and seek to enter by alternative means and claim asylum are deemed 'illegitimate'. In the context of asylum and humanitarian protection, the spatial element of this false dichotomy enables states to maintain physical manifestation of a state of exception. States can avoid accountability for the derivations from rule of law arising from the bureaucratic failures and technical errors that result in long waiting periods, given how states assume no responsibility for

providing official recourse channels or error resolution systems for individuals contained outside of their territory.[29] However, akin to inland immigration detention, **offshoring long periods of waiting does not entirely prevent migration into states**; instead, it acts as a violent hurdle that will deter some people on the move but that others with sufficient resources and perseverance to endure will eventually overcome — at the cost of their time.

Waiting Creates 'Temporal Borders'

The price for territorial access that waiting exacts from people on the move is their lost time, conveying an inherent power imbalance related to who is forced to pay. Political scientists Brett Neilson and Sandro Mezzadra assert that "the deployment of technologies of temporal delay and filtering has become central to the spatial functioning of many of the world's most contested borders", resulting in the construction of what they term 'temporal borders'.[30] **By enforcing prolonged periods of waiting, these temporal borders subordinate individuals to bureaucratic systems that dictate the permissibility of their mobility, but do not allow individuals to challenge the inefficiencies and errors rife within these same systems.**[31]

The way in which waiting delays the realization of life projects for people on the move can be understood as stolen time. The scope of time stolen includes more than the time wasted that could otherwise advance life projects, also encompassing a theft of the time invested in working to earn funds to afford these periods of enforced stagnancy. The time invested in building personal relationships, friendships, and community bonds can similarly be understood as stolen time, for the products of this time spent will dissolve as soon as the waiting ends.[32] Even when in migrant shelters while en route or reception centres while awaiting a status determinations, people describe a feeling of life continuing but not moving forward, as if running in place.[33] University of Bologna Professor Martina Tazzioli advances that **technological solutions to migration policy can act as a carceral mechanisms**, because they not only exert **control over** migrants' time by enforcing waiting periods, but also seek to control migrants' trajectories **through** the reduction of the speed of their journeys and therefore the theft of their time.[34]

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By fixing people into a position where they are permanently in transit, people are forced to confront the decision of aborting their journeys or remaining indefinitely in limbo.[35] **The status of a person 'in transit' both impedes their access to state services in the locations where they wait, and imbues the omnipresent danger of never-ending deportability.**[36] Although speed of processing is clearly possible for those who can afford expensive services such as immigration lawyers and consultants, the only speed experienced by people on the move without significant financial resources is the speed of deportation and removal proceedings that sometimes neglect their right to due process.[37] Opportunistic economies entice their clientele by offering illusory access to the speed usually reserved for a privileged few.

3. Opportunistic Economies Created by Digital Migration Management

For people on the move, opportunistic economies capitalize on state inefficiencies, offering both licit and illicit services that hold the promise of more reliably achieving a desired migration outcome and expediting the waiting process involved by more adroitly navigating complex border bureaucracies. Opportunistic economies become especially pernicious when their profits derive from the urgency that people on the move seeking asylum experience. In this way, **opportunistic economies share some similarities to human smuggling service providers; while human smuggling service providers enable individuals with sufficient funds to hire their service to surpass topographic or political obstacles, opportunistic economies purport to allow those with sufficient funds to navigate border bureaucracies more quickly**.[38] This forces people on the move with limited financial resources to engage in an impossible cost calculation. The costs involved in the prolonged waiting arising from temporal borders may be untenable, yet paying exorbitant fees to actors in opportunistic economies offering supposedly expert services is at best a high stakes gamble. Frequently, the services advertised by actors in opportunistic economies have no bearing on the actual speed at which individuals will pass through bureaucratic processes. Independent of the intentions of state actors designing digital migration management tools, the confluence of the temporal borders arising from digital governance tools' inefficiency and the emergence of opportunistic economies creates a filtering mechanism. Only individuals with sufficient financial resources either to endure the costs of waiting for the result of bureaucratic processes or to muster the funds to pay for professional assistance maneuvering through such processes will ever pass through this filter and cross physical borders. The CBP One™ digital migration management tool implemented by the United States government is an example illustrating how opportunistic economies emerge around digital migration management, providing transferable lessons for government actors all over the world contemplating the implementation of such tools. Digital migration management tools must exhibit the ultimate goal of providing a service that streamlines individuals' interactions with state border policies, not erecting a new temporal and financial border.

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CBP One™: Background

First introduced in October of 2020, the CBP One™ initially served as a tool for travelers and goods importers to simplify their experience entering the United States through an official Port of Entry. Implemented in the context of Title 42's absolute restriction of access to asylum during the COVID-19 pandemic and building off the foundation of the Enforcement Integrated Database (EID) that already catalogued data collected through the Migrant Protection Protocols, the U.S. Department of Homeland Security introduced the CBP One™ app on 11 May 2023 as the default pathway through which people on the move without a visa to enter the U.S. could register their desire to enter and request an appointment to pass through one of eight selected Ports of Entry. The CBP One™ app is geo-blocked, so only individuals in the Mexico City region or further north in Mexico can request an appointment. Requesting an appointment through the CBP One™ app holds the promise of offering individuals a set time and location to enter the United States through a regular pathway.

By instituting a bureaucratic system through a digital app to restrict how many people per day can cross the U.S. Southern border, this system filters people and identifies perceived risks before they ever reach the border.[39] Opposed to systems that seek to prevent irregular crossings by using new technology to further securitize borders, CBP One™'s new digital border bureaucracy procedurally restricts asylum access by delimiting full access to the right to claim asylum to the limited number of people who enter with appointments allotted by the app, and punishing those who are unable to or chose not to use this digital system.

Requesting an appointment through the CBP One™ app is not an asylum application, because CBP does not adjudicate asylum claims, but the app mediates access to protection by controlling who will gain the territorial access required to lodge an asylum claim. At the time of fieldwork, crossing into the United States without a CBP One™ appointment could result in removal and a re-entry ban lasting for five or ten years, and could also delay people's ability to apply for employment authorization.[40] Since 4 June 2024, the Executive Order signed by U.S. President Biden enacts a de facto closure of the border and restriction of asylum access to only people who entered the U.S. with a CBP One™ appointment.[41]

The allocation of appointments in the CBP One™ app operates based on a supposedly unbiased and infallible algorithm that randomly selects applicants. According to implementing actors, the time when an appointment is requested, the demographic details of applicants, the port of entry selected, and the type of phone used will not influence the algorithm's likelihood of selecting an applicant. **This represents the techno-solutionist belief that an unbiased algorithm alone will create a fair and just system, ignoring the propensity for such digital migration management tools to engender sociolegal reactions in the populations using them that may result in the rise of opportunistic economies.** Despite the official stance that it is impossible to influence the algorithm to improve one's chances of selection, this algorithm is not publicly viewable.

In its current iteration, a total of 1,450 people who were allotted appointments through the CBP One™ app enter the United States each day, distributed across the eight ports of entry using the system, although these ports of entry are subject to unexpected closures.[42] Beyond access to the asylum system upon entrance to the United States, which is currently restricted for spontaneous arrivals who do not use this digital migration management system, a confirmed appointment through the CBP One™ app offers its users two other key benefits. First, although it is not a travel document, a confirmed appointment is accepted in the place of a travel document to allow people with irregular status in Mexico to board flights and thereby circumvent some of the challenges of the northward journey to the border, if they can afford to purchase plane tickets. Second, entering the United States with a CBP One™ appointment can eventually result in a temporary parole status that enables certain qualifying individuals to apply for employment authorization.[43] Based on discussions with members of the United States Departments of State and Homeland Security, roughly 150,000 people apply for an appointment per day. With only 1,450 appointments allotted daily, this results in a slightly less than 1% likelihood of receiving an appointment for applicants. If applicants request an appointment every single day without fail, officials report an estimated average wait time of three to four months; however, anecdotal evidence from people on the move waiting in shelters in Mexico indicates that some people have waited for their appointments for six or nine months.

CBP One™: Opening the Door for Opportunistic Economies

The entire process of completing relatively straight-forward forms remains rife with questions and anxieties when so much rides on the successful navigation of this digital migration management tool. Figure 1 illustrates these abundant questions arising from users of the digital tool.

Figure 1: The CBP One™ Registration & Request Process

Required Steps	User Questions
1. Create Unique Digital Identity • Create a login.gov account, with an email address and password • Select methods of two-factor authentication	Can you use the same email address you used previously if you had a different account? Can multiple accounts share the same phone number for this two-factor authentication? What if you don't have a phone plan in Mexico?
2. Register All Group Members • Take a photo of your face for biometric verification • Enter personal details such as name, birthdate, country of birth, nationality, country of residence, height, weight, etc. • Enter an unexpired identity document (either by entering this manually or using an artificial intelligence tool to scan a travel document) • Enter the names and nationalities of your parents, if they are alive • Enter the date of entry and exit of every country they "traveled to" in the last year • If traveling in a group, provide this same information for each member to complete the registration	Does the photo need to be in front of a blank wall? In front of a white wall? Should you remove eyeglasses or jewelry to take this photo? How do you make a baby look into the camera for the photo? What if you don't know your weight or height? Can you guess on these details? Is your country of residence where you were living before your departed on your journey? Or is it the country you are in when you are filling out the form? Does scanning a document give you an advantage? What if you don't have a travel document? Is a birth certificate an acceptable document? What if your passport expired but you received an official extension from the consulate? What if your child was born while en route so their identity document is from a different country than yours? Will they take your child away from you? What if your parents are alive but you don't know their full name? Or their personal details? Does it count as traveling to a country if you just passed through? What if you don't know the exact dates? Can you estimate? What if multiple people in the same group traveled through countries on different dates? Would this disqualify your group? Does it benefit you to be in a group? Does the order in which members of a group are registered impact your likelihood of selection? Should children and women be registered first?
3. Provide Arrival Details • Enter an address of where you will stay upon arrival in the United States (it is impossible to request an appointment without providing the address of someone who will receive you) • Enter the contact information of someone living at that address • Optionally, you may enter an emergency contact in the United States • Optionally, you may enter the address where you lived most recently outside of the United States	Does the state where this address is located influence your likelihood of receiving an appointment? Will this person be contacted by CBP? What if they aren't a U.S. Citizen? Would it impact their asylum case? What if this person can't speak English? Does the emergency contact person need to be the same as the person who will receive you? Does the emergency contact person need to be a family member? What does it mean when the form asks for the 'description' of the emergency contact? Does the previous address mean your address in your country of origin? Or your address in Mexico? What happens if you move where you are staying after you make your registration but before you receive an appointment?
4. Request Appointment • Applicants must select one of eight possible ports of entry • Request an appointment every day within a set time period	Are any of the ports of entry better than the others? Will the port of entry you select influence how quickly you will get an appointment? Is there a best time to request an appointment? Will the time when we request an appointment affect our likelihood of receiving one? Does your location when you request an appointment matter? Does being closer to the border increase your likelihood of selection?
5. Confirm Appointment • Once an applicant receives an appointment, which is roughly three weeks in advance, they have 24 hours to confirm the allocated location and time of this appointment through a biometric verification process using the phone's camera	What happens if you cannot confirm the appointment within 24 hours? Do all members of a group need to be together to confirm the appointment? What happens if some members of your group cannot come to the appointment at the border? Can other members of the group still cross if other members are missing?

Actors in opportunistic economies profit off assuaging people's anxieties by purporting to know the answers to all of the questions people have while completing digital migration forms. Once a registration is made, users cannot alter their details, with the app only allowing changes to the port of entry requested. If errors in the registration exist, it is recommended to delete the registration and create a new one. Ostensibly, this is to prevent registrations from being sold between different people, yet the permanence of information entered into form fields imbues an extreme pressure to enter information in the 'correct' manner, further allowing actors in the opportunistic economy to profit off the anxieties surrounding this digital migration management tool.

For people facing with months of waiting, with the duress of this stagnancy amplified by the costs of daily subsistence for the majority of people on the move in Mexico who are without accommodations provided by over-extended shelters, opportunistic economies in Mexico offer the tantalizing hope of being able to trade money for reduced waiting time. While officials from the U.S. Department of State confirmed that how an individual fills out the requisite forms in the CBP One™ app will not influence their likelihood of receiving an appointment, **an intense trepidation surrounding the 'correct' way to complete forms and potential negative repercussions for mistakes made filling out these forms pervades the communities of people navigating digital border bureaucracies.** As a result, actors operating in the illicit opportunistic economy profit off this anxiety and the complexity of digital migration management tools by peddling their services to complete the necessary steps. Whether these actors can provide any material benefit or even offer any meaningful expertise is beside the point – **paying for their services, for those who can afford to do it, provides a sense of confidence in the context of abundant insecurity.**

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Official information campaigns seek to address some of the questions and ambiguities that enable the emergence of opportunistic economies. A page of 'Frequently Asked Questions' available on the CBP website takes the productive step of addressing multiple of the questions outlined above, but it also leaves many more questions unanswered.[44] This information emphasizes that the app is free, and that no one should purchase an account, yet this leaves ambiguity related to service providers in the opportunistic economy who support individuals to create their own accounts. In an official livestream to answer questions about the CBP One™ app hosted at a shelter in Mexico City beneath a covering erected to provide shade for a projector made out of emergency blankets usually used by shelter guests to stay warm when sleeping outside, representatives from the Departments of State and Homeland Security reiterated their position that "*es major ser paciente*", "it is better to be patient". At numerous shelters, the use of the CBP One™ app is pushed on guests constantly and portrayed as the only viable option to enter the Unites States.[45] Following the information session, the app's users in the shelter expressed their frustration. They had forgone the wages from a day's work, and they had not received answers to their most pressing questions: How long must they wait? How is it possible to receive an appointment faster? How could they reduce the amount of time they needed to wait?

Through the CBP One™ digital migration management system, the area extending between Mexico City and the U.S. border is transformed into a waiting room. Past scholarship recognized of countries of asylum as 'waiting rooms' for eventual repatriation when access to permanent refugee solutions were lacking.[46] **In the case of CBP One™, the ability to offload state responsibility to provide for the needs of people seeking asylum was offloaded to the humanitarian sector, with the mantle taken up by already overextended shelters in Mexico.** Such a digital migration management system could not exist without the support shelters provide people on the move. This double-edged sword aligns with migration scholars Anne McNevin and Antje Missbach's description that "the humanitarianisation of waiting makes it harder to disentangle the managerial exercise of migrant care from the more pernicious practices of border security".[47] These shelters not only provide material support in terms of food and accommodation, but also provide services to assist individuals navigate complex border bureaucracies, with some people traveling over long distances and waiting for hours to receive support creating CBP One™ registrations from lawyers and university students volunteering at these shelters. While shelters provide a vital role in ameliorating the living conditions of people on the

move, they also risk supporting systems of remote control by acting as a mouthpiece for official state information about the app. This official information may benefit people on the move by cautioning against the opportunistic economy, yet it also is complicit in robbing people's time by encouraging them to use a broken system. The protracted waiting periods enforced by the CBP One™ app resulted in shelters beginning to implement time limits on how long they will support their guests and allow them to remain, in order to make room for new arrivals. One member of the Department of State stated in conversation that "CBP One put Mexico City on the map for migrants", for people expecting long waiting periods could benefit from greater access to work and housing and more civil society organizations.

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Waiting to see if they received an appointment each day and the daily disappointment of not receiving one reorients people's perception of time and heightens their awareness of time spent waiting. Akin to how research found that individuals in immigration detention sense of time became segmented into times when they were more or less likely to receive news about their status determinations, the repeated experience of not receiving an appointment exacerbates the duress of waiting.[48] This violent theft of time is made more difficult by individuals' material circumstances, with many individuals sleeping on the street outside of full shelters in the hope that someone might depart and free up space in the shelter. **This painful waiting opens the door for malign actors to exploit these circumstances, with people explaining that sometimes at night people would come and talk to families sleeping outside of a shelter and offer them $20,000 pesos, or $1,176 USD, to buy their children for unknown purposes**.

The view from underneath the corrugated plastic covering constructed to protect guests sleeping outside on the roof of the shelter when all other beds are taken.

Mexican press refers to actors offering services in the opportunistic economy promising to help people on the move secure appointments more quickly as *polleros digitales*, digital smugglers.[49] Some of the actors advertising their services are physically already across the border in the United States, using their territorial presence to attest to their ability to deliver success, and such service providers are therefore only ever contacted through digital means. The going rate for such services promising to *'sacar una cita'* or 'get an appointment' more quickly is between $200 and $300 USD, with lower costs sometimes offered to the co-nationals of service providers, and with people on the move from other nations paying a premium. This premium increases significantly for extracontinental migrants from Asia or Africa, who are perceived to have greater funds due to the costs they have already endured associated with the length of their journeys. Sometimes debt is involved in the purchase of such services, with half of the cost paid up front, and the other half paid upon receipt of an appointment or entrance to the United States. Individuals' receipt of an appointment is likely entirely independent of whether they did or did not pay for support services when requesting an appointment, however the opaque selection mechanisms behind the algorithm that allots daily appointments enables the emergence and flouring of this opportunistic economy.

When people purchase services from actors in the opportunistic economy, they are sometimes sent a *borrador* or a draft form where they delete the example information populating the form and supply their own personal data to enable the creation of an account that corresponds with them. This enables the actor in the opportunistic economy to complete all the requisite forms on that person's behalf. **Despite the geo-blocking and biometric identity verification mechanisms in the app, numerous individuals in multiple shelters in Mexico received appointments with accounts created by actors in this opportunistic economy.** Once a new account is populated with the information they provide, the majority of people will first receive the log in details of their own account, and will then receive a specific time each day when they are recommended to request an appointment and a specific port of entry at which to request an appointment. Other service providers will take care of requesting the appointment each day, claiming that they are able to improve users' selection potential by requesting appointments for them from a computer rather than from a phone. Sufficient examples exist of individuals and groups of up to 30 members observed successfully receiving CBP One™ appointments with accounts created in this way to argue that this opportunistic economy is not purely a scam extracting funds from the misguided. **While it may not hold any power to influence individuals' likelihood of receiving an appointment, this opportunistic economy provides a service for its customers by navigating the bureaucratic forms in the app and registering their accounts.**

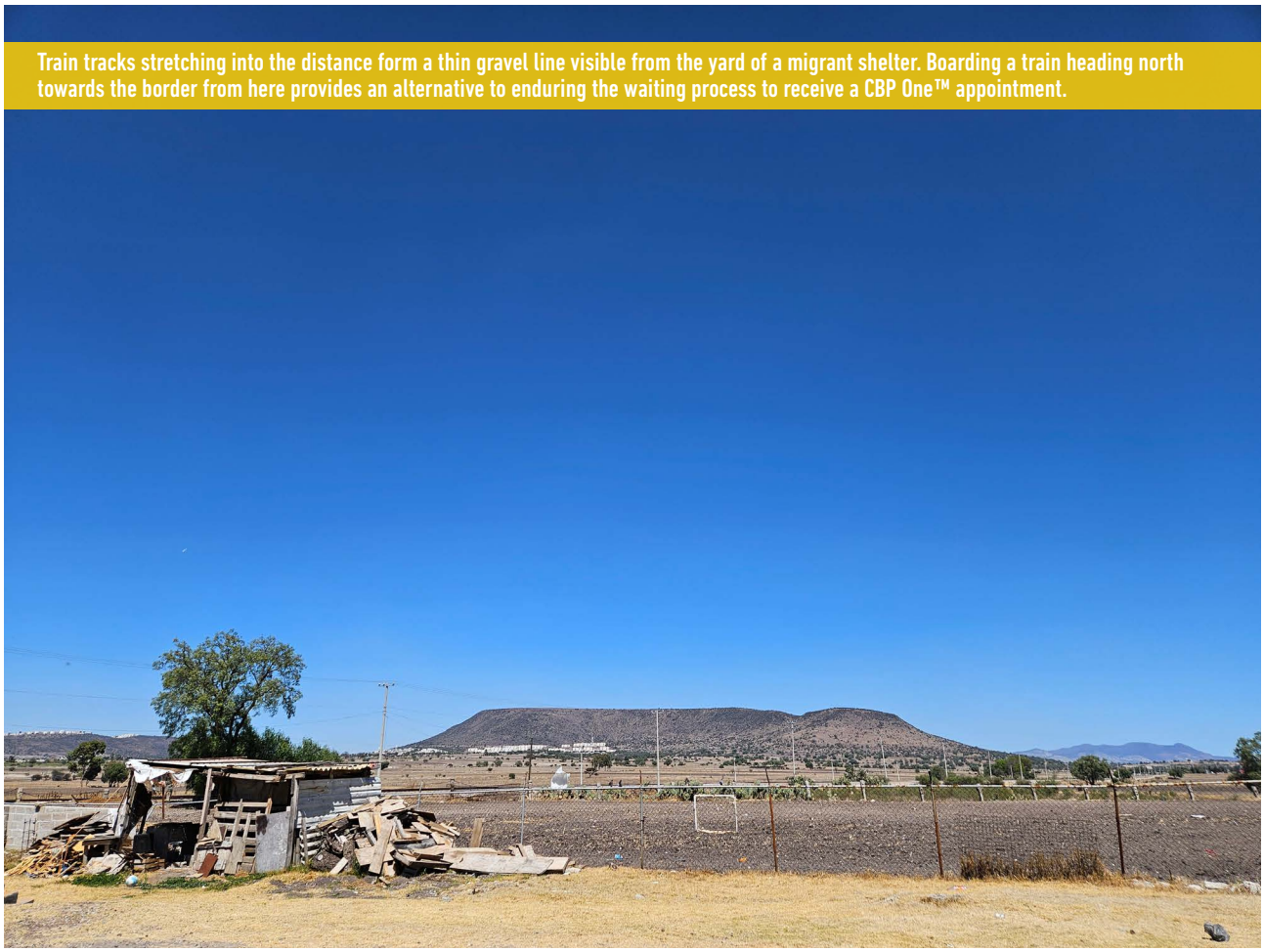
> *Sitting under a corrugated plastic roof at a picnic table perched above the central staircase of a migrant shelter in Mexico City, I spoke with two men who discussed whether or not they should pay for the services of an actor in the opportunistic economy who promised they would receive their appointment if they paid $200 USD each. They discussed how they had been waiting in Mexico for three months already. They understood that there was no guarantee that paying for services in this opportunistic economy would result in receiving an appointment, but,* ***after so much time wasted, the hope imbued in the prospect of paying for a possible advantage in this bureaucratic system could be worth its high cost****. Their decision involved not only weighing their time wasted waylaid in Mexico, but also the months of wages that they and their family members had worked to earn that they would invest in the fleeting hope of increasing their likelihood of receiving an appointment to cross the border more quickly. The same decision involves a different calculus for each individual person on the move, due to their unique circumstances.*

While it may not hold any power to influence individuals' likelihood of receiving an appointment, this opportunistic economy provides a service for its customers by navigating the bureaucratic forms in the app and registering their accounts.

The wide variation in the character and delivery of services observed during fieldwork in Mexico illustrates the scale at which border bureaucracies can foster the emergence of migration-related opportunistic economies.

> *At the since closed migrant bus terminal in Juchitán de Zaragoza on the southern coast of the isthmus of Tehuantepec in the state of Oaxaca, where people arrived after entering Mexico and crossing through the state of Chiapas, a woman sat at a folding table and would make registrations in the CBP One™ app for people as they disembarked for 100 pesos, or roughly $6 USD. People could not yet use these registrations to request an appointment while in Juchitán, due to the geo-block, but she earned a profit by preempting potential competition and due to both her relatively affordable price and her strategic location in the bus terminal. Another woman who had formerly been on the move herself resolved to forgo her journey onward and remain in Mexico City, because her business in this opportunistic economy provided her with enough to live comfortably on and she had branched out to also print people's identity documents and boarding passes. Hovering around the monolithic Instituto Nacional de Migración (National Migration Institute) in the wealthy* ***alcaldía*** *(municipality) of Polanco, migration experts dressed in blazers and pantsuits and armed with clipboards dart through the amassed crowd to locate their clients and whisk them through the doors of the building, profiting in a fully legal manner off both their experience with the complicated apparatus contained within and their personal relationships with the migration bureaucrats inside, often bypassing lines and enjoying a level of benevolently lenient treatment not permitted to others.*

These are all examples of opportunistic economies, both licit and illicit, that emerge due to the challenges individuals face navigating the byzantine maze of offices and forms involved in border bureaucracies.



Train tracks stretching into the distance form a thin gravel line visible from the yard of a migrant shelter. Boarding a train heading north towards the border from here provides an alternative to enduring the waiting process to receive a CBP One™ appointment.

4. The Technological Failures of Digital Migration Systems

Digital migration systems fraught with errors and technical glitches invariably extend the amount of time that people on the move spend in transit. The time that people must dedicated to resolving these errors holds their life projects in abeyance, constituting another form of a temporal border.[50] Errors further invalidate and therefore rob the time that people already invested in navigating these bureaucratic forms. Justification for the invasions of personal and biometric data requisite for digital migration management systems to function derive from the logical order and objective decision making that these systems promise to deliver. However, the impact that these errors exert on the lives of people on the move is neither logical nor objective.[51]

Errors consistently confound uses of the CBP One™ app, described by opaque codes such as Error Code 401, 403, 404, 500, and 505. While some of these error codes offer a few words of description, such as 'fraud detected', there is no official guidance on how to resolve these errors, and they are not discussed in the Frequently Asked Questions. If targeted action is not taken to resolve these errors, it could fit what scholars describe as 'governing through disorientation and un-legibility', wherein the constantly changing parameters for using digital migration management systems and the difficulties experience adhering to these systems criteria are intentional methods of containment to restrict people's mobility.[52] Its frequent updates and the propensity for errors to prevent its use makes the experience of people using CBP One™ a cautionary parable for all government actors seeking to implement their own digital migration tools.

Among the many errors in the CBP One™ app, several representative examples demonstrate the disruptive impact of these technical failures. In the absence of official guidance on how to resolve these errors, people who are unable to resolve them independently are forced to seek the services of *polleros digitales* profiting off these errors in the opportunistic economy.

When people create a registration, those who have a valid travel document often use the artificial intelligence camera tool built into the app to scan their document and automatically populate some of their personal information in the form fields. However, upon completing a registration and proceeding to request an appointment, Error Code 500 was observed to appear daily for some people using the app in shelters in Mexico City. The error arose specifically when individuals who had not yet submitted their registration, which would lock in the personal details of all individuals included in the registration, edited the details of a person's registration. This error offered no description of its cause or possible resolution, yet months of observation revealed that the scanning tool would complete the "document type" field in the form in a way that was incongruent with the preset options for document types in the app, causing the error when people edited their details before submitting a registration. This discrepancy in the way that the app's artificial intelligence tool populated the form was not immediately visible to the app's users, as it did not leave the form field blank, it instead filled in a document type that initially appeared correct. However, when a registration was edited, this form field's data would revert to a document type that did not match the form's preset options. Were they to know the source of this error, users could easily resolve this error by clicking the form field for "document type" and selecting one of the available options, yet no official guidance on how to resolve this error exists.

In the absence of official guidance on how to resolve these errors, people who are unable to resolve them independently are forced to seek the services of polleros digitales profiting off these errors in the opportunistic economy.

Even without error codes, other technical glitches impair some people's ability to equitably access the CBP One™ app. *A man aged roughly 60 years old explained that when he tried to take his photo as is required for the app's biometric identity verification, he was presented with just a camera screen frustratingly reflecting his own image back at him.* Through extended observation, a pattern emerged wherein this glitch was only experienced by people who were nearsighted and therefore used magnified

phone screens. The CBP One™ app does not scale its display based on the magnification as other apps do, meaning that the button that users must click to capture an image for biometric identity verification in the app is pushed entirely off the screen when magnified, rendering it impossible to proceed. Given that age is a factor that frequently reduces digital literacy, this glitch perniciously impacts people of advanced age who are more likely to need to magnify their phone screen to see and use their phones, and less likely to know how to troubleshoot digital systems.

The two-factor authentication required to create the login.gov account needed to access the CBP One™ app provides further challenges for people on the move. Although pre-paid SIM cards make it easier for people on the move to gain access to local communication networks when entering a new country, the need to regularly pay to 'top-up' these SIM cards with new funds to continue to maintain access to the app when their phone number is associated with their account and frequency at which phones are targeted in robberies instils an elevated precarity to often already outdated or faulty pieces of technology. As London College of Communications scholar Sara Marino describes when discussing the importance of phones for people on the move, "the reliance on these fragile pieces of engineering adds further vulnerability that in conditions of forced displacement (and particularly during the journey) can be fatal".[53] **Something as small as changing one's phone number can result in losing access to one's CBP One™ registration**. Theft now similarly presents a dual danger, for it not only robs the money invested in a phone and necessitates further funds required to purchase a new phone, but it also robs people's access to request legal entrance to the United States. Given how older accounts are more likely to receive appointments, the theft of a phone also steals the benefit of all the time invested in requesting an appointment with a previous account linked to that SIM card. Importantly, when creating people's registrations can involve significant investment of time and resources, the loss of a registration created with the help of a support source perceived as reliable such as lawyers and volunteers in shelters can create an opening that actors offering digital migration services in the opportunistic economy seek to fill.

Accessing communications infrastructure presents a further obstacle for people on the move. *One family's elation at receiving an appointment to enter the United States quickly turned into panic when they could not use the biometric identity verification in the app to confirm their appointment and worried their allotted 24 hours to confirm it would expire. Only upon being allowed entry to the shelter management's private office and standing next to the WiFi router were they able to confirm their appointment.* Paul Schmitt, Daniel Iland, Elizabeth Belding, and Mariya Zheleva denote that "cellular communication services and infrastructure can be nonexistent in areas where displaced people settle, and where they do exist, they often provide poor service".[54] In shelters in Mexico City, upwards of 130 people may rely on a single WiFi router for digital connectivity. In other shelters, individuals are asked to pay a nominal fee to access the WiFi, while in other shelters the use of mobile phones is not allowed. **The potential for changed phone numbers, stolen phones, and poor communications infrastructure to impair people's ability to access digital migration management tools also strengthens the appeal of services advertised by actors in the opportunistic economy.**

An update to the app in March 2024 added a new restriction that the number of people allowed to request an appointment together in the same group could not exceed 10, and removed all existing groups larger than 10 members. Multiple observed groups of familial units spanning across three generations traveling together lost their registrations and the benefit that their months spent waiting using the same registration that day. While this limit may have been intended to prevent actors in the opportunistic economy from selling membership in large groups, the implementation of this change failed to consider how it would impact people on the move in larger groups using legitimate registrations dating back months. **Fraud prevention efforts in digital migration management should set a goal of ensuring that digital systems already attune to the vulnerabilities people may face function in an equitable way, rather than erecting new barriers to the use of such systems.** If fraud prevention mechanisms result in more errors and the overreaching deletion users accounts, they risk exacerbating the challenges people on the move face by driving people to rely more heavily on unreliable sources of information.

5. Rising Reliance on Unreliable Sources of Information

People on the move can experience difficulties sorting through the abundant rumors and official information campaigns related to the CBP One™ app. Officially, the U.S. Customs and Border Patrol (CBP) asserts that "each day, CBP One allocates the majority of appointments randomly; the remainder are allocated to the requestors who have been waiting the longest for an appointment".[55] People's experiences, however, sometimes offer evidence to the contrary, although this is likely coloured by confirmation bias. Some people in shelters who deleted their registrations and created new ones received appointments in a matter of days, leading others to do the same, negating any benefit they may have received from requesting an appointment with older registrations. Describing the entire system, anthropologist Lupe A. Flores writes that "automated inspections and asylum automation represent a digital seismic shift in migration management and border control, where asylum processing is desired to be made efficient in the face of backlogs prompted by failed state policies…".[56] This interest in promoting an efficient system for processing the arrival of people on the move to the United States illustrates the **prioritization of whose time is important and valued: the state's efficiently and timely processing of individuals is only made possible by sacrificing the time of those waiting for months to receive an appointment.**

The lack of transparency involved in the selection mechanisms behind digital migration management tools such as CBP One™ and **the errors and glitches users experience allow for alternative 'authorities' to emerge.** These authorities arise from the paucity of reliable sources and the complicated information environment that people on the move traverse, with people often experiencing acute information precarity.[57] This information precarity fosters an environment where rumors abound and the dearth of official information often makes the verification of such rumors impossible. Many of these alternative authorities are not malicious actors, and are instead fellow people on the move who are sharing the limited information they have with the intent that others may benefit from any advantage it provides, without themselves knowing that they are unintentionally spreading misinformation.

This information precarity fosters an environment where rumors abound and the dearth of official information often makes the verification of such rumors impossible.

Each CBP One™ registration is assigned a unique numerical identifier, seemingly sequentially assigned, which people have begun to use as a way to compare when they created their registrations relative to one another. Facebook groups exist where people share these numbers and search for the solace found in solidarity with other people who created registrations during the same approximate timeframe and have similarly not yet received an appointment, assuaging fears that some incorrect completion of forms or technical glitch is specifically precluding them from receiving an appointment. TikTok and Instagram videos similarly provide platforms for people to share their experiences and advice with others regarding how to expedite processing times when using the CBP One™. The online communities that emerge around topics such as strategies for reducing wait times using digital migration management systems also provide spaces where actors in opportunistic economies can identify possible clients and advertise their services. **These actors provide information that responds to specific questions and anxieties with an air of authority that people experiencing information precarity crave**, capitalizing on the failure of state actors to provide clear guidance that responds to the demonstrated needs of people on the move, thereby fostering the emergence of opportunistic economies.

6. Criteria to Counteract the Emergence of Opportunistic Economies

Delivering the intended benefits of digital migration management systems necessitates addressing the unintended consequences that arise from the realities of their implementation. Such a productive approach to digital migration governance begins with adopting a self-reflexive stance that does not prioritize its techno-optimistic intentions. Instead, government actors must take a user-centric approach and interrogate how the data they collect impacts people on the move, and if such data collection is even required. Likewise, government actors would be wise to evaluate if their digital migration management tools may increase the time that people on the move spend waiting in transit, and the sociolegal reactions that such enforced waiting may encourage people to take. Decreasing the potential for human-error and subjective decision making cannot come at the price of expanding the power of opportunistic economies. For digital migration management tools to serve as a functional step towards ordering and simplifying complex border bureaucracies, their design should devote attention to incentivize their widespread uptake among the populations they aim to serve.

While digital technologies are praised as providing enhanced protection for people on the move through a unique digital identity and reducing the bureaucratic burdens on aid workers and state institutions, they also risk transforming people on the move into a problem to tackle, a mass to control.[58] To avoid this pitfall, state actors must reject the assumed neutrality of technology, given the significant potential for both the structure of digital migration management tools and the algorithms that run them to unintentionally exhibit bias against some people on the move and favoritism towards others.[59] Technologies' subjectivities therefore stem from deficiencies in their design processes, with their political motivations and biases shrouded behind algorithms constructed as 'objective'. Rather than assuming that technological solutions to migration are equitable due to the lack of flesh and blood subjective decision makers, understanding how these digital tools intersect with dynamics such as the timing of migration journeys is vital to their successful design and implementation.

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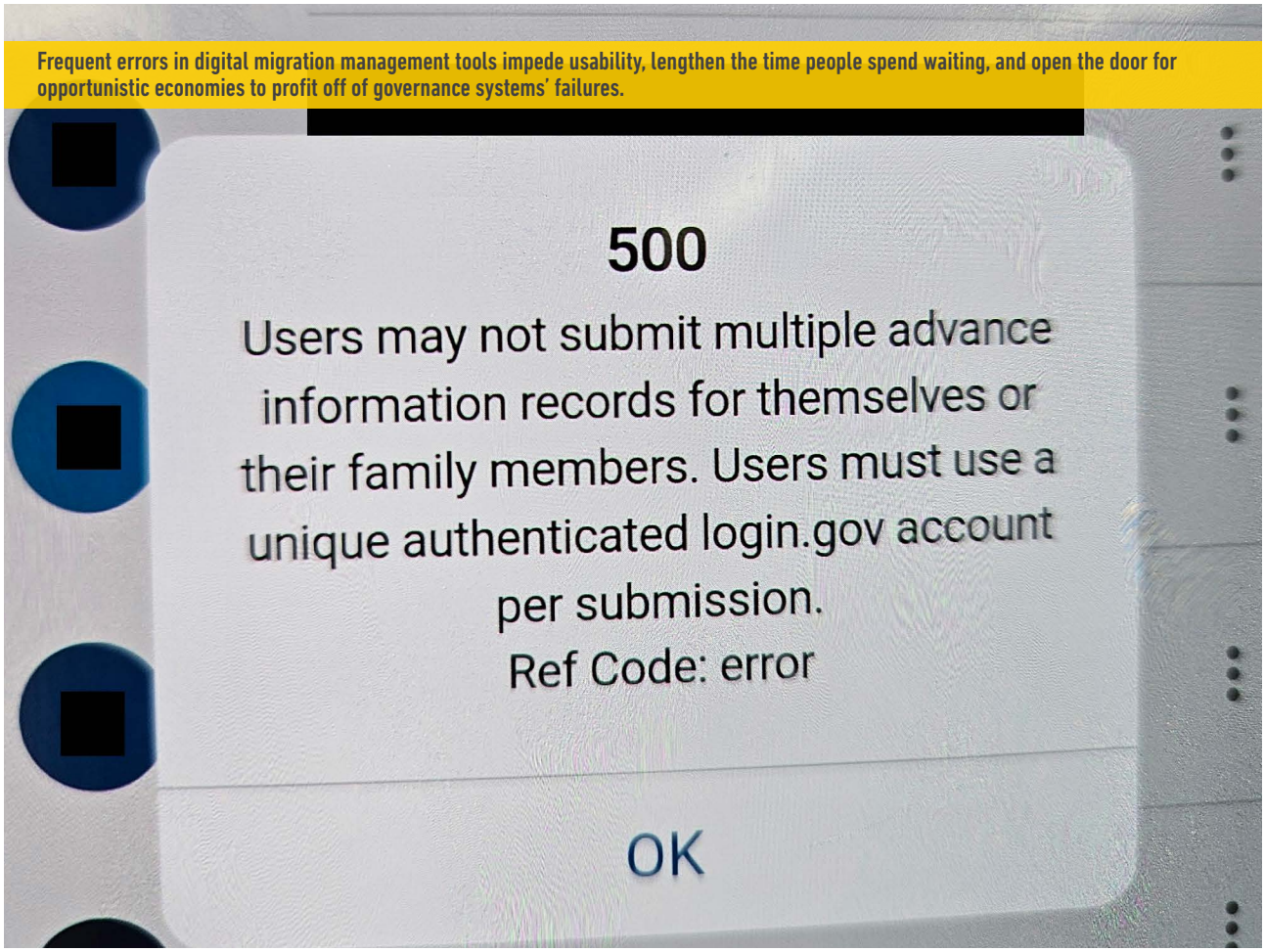
For digital migration policy tools to successfully deliver on their promised potential, policymakers must remain attentive to the socio-legal impacts they enact on the people on the move navigating these complex digital policy landscapes. Conceptualizing nascent digital migration management tools as part of a burgeoning Digital Public Infrastructure highlights the necessity of investing in the creation of a strong foundation today, a foundation that future digital migration tools can build on to sidestep potential challenges by functioning equitably and expediently. These modular technological tools should not be seen as self-contained solutions to governance challenges such as migration; instead, digital migration management tools must be accompanied by efforts to deliver unencumbered accessibility, rapid error remedies, and reliable instructions for their use. The designers of digital migration management systems must address the inbuilt inefficiencies that provide ample breeding ground for actors in the opportunistic economy to exploit. By addressing the unsustainable waiting times and bureaucratic hurdles that exist in early manifestations of digital migration management systems, government actors will benefit by developing modular pieces of Digital Public Infrastructure for implementation in a wide range of contexts as the digitalization of governance continues that are insulated against the opportunistic economies.

To prevent the emergence of opportunistic economies, digital migration governance should incentivize uptake by working expediently and equitably, allow for more efficient interactions with government services, and offer inclusive redressal systems.



Frequent errors in digital migration management tools impede usability, lengthen the time people spend waiting, and open the door for opportunistic economies to profit off of governance systems' failures.

In the interest of achieving these goals, the following ten criteria outline considerations recommended for government actors to evaluate digital migration management systems they hope to implement:

1. **The selection mechanisms that underpin digital migration management systems must be transparent and easily viewable to a non-expert audience.** This includes ensuring that the algorithms that process the data from digital migration management systems' users can be accessed by the general public. This obligation is elevated for systems that purport random selection, such as visa lotteries or the allocation of border crossing appointments.

2. **Digital migration management systems must be robustly tested prior to public implementation to detect and remove potential errors and glitches.** This testing must be attuned to the wide range of potential uses and misuses arising from the different contexts of these systems' users for it to be sufficiently comprehensive. The testing of digital migration management systems and artificial intelligence models involved in these systems should neither occur via experts in a controlled environment, nor should this testing be contracted to third parties. Testing must involve the direct participation of a diverse and representative sample of the population that new digital migration management tools seek to serve, for this inclusive testing is requisite for tools equitable implementation. Transparency in the design of testing processes will allow academic and civil society oversight without engendering the market distortions that could arise from third-party testing.

3. **Digital migration management systems must be accessible to all potential users and remove barriers to access.** This would include acuity to how documentation requirements would impede the access of people who lack official identification or people with expired documentation. Resolution mechanisms must also be included for populations who cannot access digital migration management tools due to a lack of wireless communication infrastructure or insufficient funds for personal cellular devices. Special consideration must be made to ensuring the accessibility of populations that may face reduced digital literacy or access, including unaccompanied minors and elderly populations. Such considerations must include providing non-digital alternative methods of accessing the same migration policy tools that are widely accessible and provide equal selection potential to digital tools.

4. **Responsive and rapid means of answering questions, receiving technical support, reporting errors, and resolving glitches must be built-in to any digital migration management system.** This must extend beyond informational pamphlets, videos, and websites such as Frequently Asked Question pages to also encompass redress mechanisms that respond directly to the unique challenges that users experience. Redress mechanisms must provide all users with the ability to appeal decisions that they believe digital systems incorrectly adjudicated.

5. **Only data that is necessary for the specific purpose of digital migration management systems should be collected.** This includes interrogating the extent to which biometric data collection is necessary. High levels of data protection must be guaranteed for any data to be collected and processed to guard against potential unauthorized access and hacking. For the collection of data that is deemed requisite, consent forms and data ownership cannot serve as a rubberstamp for users' meaningful control and autonomy over collected data.

6. **Data collected for digital migration management systems must include concrete safeguards that prevent its interoperability and function creep, such as firewalls and proactive deletion policies.** These safeguards are necessary to ensuring that the masses of data collected are not used for purposes to which the original users that submitted them did not consent.

7. **Novel and untested technologies must not be tested on populations that have no alternative but to accept their use.** This includes using newly developed digital tools to analyze the biometric data submitted by the users of digital migration management systems.

8. **Fraud prevention cannot come at the price of reducing access to humanitarian protection.** Any time that fraud prevention systems are implemented in a context where users are refugees or may seek asylum, there must be a higher bar for the deletion and blocking of users' profiles. Any action that restricts users access to humanitarian protection cannot be automated and must involve expert human review.

9. **Data collected from digital migration management systems cannot be used to train Artificial Intelligence and Machine Learning models for the purposes of predicting migratory movements or adjudicating status determinations.** In this epoch of expanding computational power, this concrete commitment against training AI and ML models with the data of people on the move takes an important step towards preventing algorithmic violence. No data from migrant children should be used for the training of AI and ML models, regardless of the models' intended purposes.

10. **All data from individuals using digital migration management systems must be deleted within a reasonable timeframe after their participation in the system has ended.** This requires that once individuals' applications are processed and requests are completed through digital migration systems, personal data will not indefinitely remain banked in databases for potential future access and use. Mechanisms must exist that enable individuals to request information regarding what personal information of theirs was collected, how it was stored, the duration for which it was stored, and who had access to it while it was stored.

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