March 2022

A Smarter, More Humane Solution? Why the Digital Border Wall Warrants Bipartisan Skepticism

By **Charles Orta,** *CHCI-Facebook Graduate Fellow*

Executive Summary

Since FY 2017, Congress has appropriated more than $1.52 billion for tech and surveillance to U.S. Customs and Border Protection (CBP) and the Department of Homeland Security (DHS) and its other component agencies, including more than $780 million in FY 2021 alone. A significant portion of these funds are being spent on a digital border wall at the U.S.-Mexico border, consisting of surveillance towers, drones, sensors, biometrics, and other border security technologies. The digital border wall is billed as a "gentler," "smarter," and more "humane" alternative to President Donald Trump's physical border wall, and has thus far received strong bipartisan support, including from President Joe Biden. Strong bipartisan support, however, is not a *prima facie* indicator of good policy. Serious concerns remain, not only about the human rights implications of these technologies on migrants and border communities, particularly those of Latino heritage, but about their ability to be effective at achieving their stated purpose. These concerns, and the threat border security technologies pose to the public at large, call for Congress to introduce stronger safeguards on their deployment and require increased oversight and transparency.

Background

The U.S. federal government's deployment of technologies for border security purposes along the U.S.-Mexico border dates back to the 1970s, when ground sensors first began being installed to detect the activity of smugglers and undocumented migrants.[1] Successive presidential administrations, Republicans and Democrats alike, have since expanded the nature and scope of these border security technologies. During the Clinton administration, for example, the government increased its collection of biographical data, fingerprints, photos, and arrest records as part of an automated biometric identification system.[2] It also began deploying cameras and additional sensors as part of surveillance programs along the southern border.[3] Under the Bush administration, the U.S. government redoubled its efforts to enhance those surveillance capabilities through the use of drones and development of the Secure Border Initiative Network (SBInet).[4] SBInet was an ambitious high-tech border fence with an integrated network of cameras, sensors, and radars meant to cover the entire southern border.[5]

While SBInet was canceled by the Obama administration in 2011 following internal audits within DHS that revealed repeated delays, excessive waste, and serious concerns over its effectiveness,[6] the allure of using emerging technologies to more effectively and efficiently monitor who and what crosses the U.S.-Mexico Border remained intact. Just a few years after the cancellation of SBInet, the Obama administration developed the Integrated Fixed Tower program.[7] The program's intent was to dot the southern border with surveillance towers, beginning with a network of 50 such towers across southern Arizona.[8] It was bolstered by the Administration's launch of the Silicon Valley Innovation Program in 2015, which spurred tech companies to invest in border security.[9] Funding and deployment of border security technologies has only surged since. Congress appropriated $743 million to CBP to fund border security technologies from FY 2017 to FY 2020 under the Trump administration.[10] In FY 2021, more than $780 million was appropriated to DHS for the same purposes.[11]

Today, border security technologies largely consist of surveillance

The enduring bipartisan and corporate fervor for the digital border wall has obscured a fundamental question: whether increased reliance on border security technologies truly offers an effective and humane means of managing the southern border.

towers, drones, biometric databases, automated license plate readers, and sensor systems.[12] Together, they form an interconnected network of technologies designed to monitor all aspects of migration and activity along the southern border. The use of these technologies has led to references of a "digital border wall" or "smart border wall" being created along the southern border, since it is these technologies, not physical barriers made of metal or concrete, that are increasingly the government's primary means of securing the border.[13] The backing of a multi-million dollar for profit industry of defense contractors and Silicon Valley start-ups and tech companies provides a powerful impetus for the continued expansion of the digital border wall.[14] So too does the enduring bipartisan support this initiative enjoys.[15]

This support is due in part to the perception that these technologies provide a more cost-effective, efficient, and humane means of guaranteeing border security. For the majority of Democratic and Republican politicians who believe that being "soft" on border security remains politically untenable, the digital border wall is thus an attractive proposition. Proponents of a digital border wall, for example, indicate that compared to the $24.5 million per mile that it would take to build a physical barrier, a digital border wall could be built for less than $500,000 per mile.[16] According to CBP, many of these border security technologies, namely surveillance towers and

drones, also act as force multipliers.[17] They enable agents to monitor remote areas that may be difficult or dangerous to monitor in person, reduce the need for increased manpower, and can allow for more persistent detection of potential illegal activity.[18] The digital border wall has also provided Democrats with a means of supporting border security, while still denouncing President Trump's vision of a physical barrier encompassing the border.[19]

Echoing these claims, and calling the digital border wall a more humane alternative to Trump's physical border wall, President Biden has indicated he is seeking more than $1 billion in investments for border infrastructure, including "modern border security technology" for FY 2022.[20] He has also Included provisions for strengthening the digital border wall as part of his immigration bill, the U.S. Citizenship Act of 2021, which contains no upper limit on the amount authorized to be appropriated for deploying border security technologies.[21]

Policy Analysis

The enduring bipartisan and corporate fervor for the digital border wall has obscured a fundamental question: whether increased reliance on border security technologies truly offers an effective and humane means of managing the southern border. By not scrutinizing the operational efficacy of these technologies and discounting their impact on migrants, border communities, and the American public at large, the U.S.

government has failed to exercise due diligence in balancing human rights and security considerations related to the digital border wall.

The Digital Boarder Wall's Impact on Migrants

Despite its name, the digital border wall is likely to lead to significant, physical harm to migrants crossing the southern border, the majority of whom are from Latin America. This is specifically the case with surveillance technology. A recent study examining the effects of SBInet found a significant correlation between the location of human remains along the southern border and that of surveillance technologies.[22] Post-SBInet, migrants seem to have shifted to routes of travel outside surveillance technologies' visual range, even if those routes were more dangerous and likely to lead to death or injury through isolation, dehydration, hypothermia, or exhaustion.[23] There is no reason to suspect that newer surveillance technologies will not similarly contribute to migrant harm. On the contrary, the increased difficulty of evading such technologies might lead to heavier reliance on human smugglers, only increasing migrants' vulnerability to exploitation.

Although less tangible, there are also equally significant privacy concerns associated with the digital border wall for migrants and other border crossers. This is especially true of biometric programs that allow the CBP to collect, store, and often share with other agencies massive amounts

The digital border wall's stated purpose is to detect and prevent un-documented crossings of people and objects, but its reach extends beyond migrants to American communities engaged in unrelated activity.

of personally identifiable information, including DNA samples, fingerprints, and facial images.[24] This data is vulnerable to malicious actors, as evident when a CBP facial recognition pilot program with over 180,000 images was hacked in 2018 and 19 photos of travelers ended up on the dark web.[25]

The human rights issues at stake are even more acute for technologies incorporating facial recognition that can later be used to identify, track, and target migrants and border crossers. In addition to concerning privacy implications, these technologies pose disproportionate harms to minority groups, who are the most frequent target of these technologies and for which these technologies are more unreliable, as documented in a 2019 federal study of over 100 commercially available facial recognition algorithms.[26] In the border security context, for example, inaccurate facial image matching can result in significant harm to already vulnerable populations, including wrongful harassment, detention, and denial of asylum.[27]

Although CBP has a privacy impact assessment process in place,[28] it has in the past failed to issue public privacy notice prior to the rollout of some border security technologies,[29] as well as implement basic privacy safeguards.[30]

The Digital Border Wall's Impact on Border Communities

The digital border wall's stated purpose is to detect and prevent undocumented crossings of people and objects, but its reach extends beyond migrants to American communities engaged in unrelated activity. Nowhere are these effects more prominent than in the daily lives of the predominantly Latino populations living along the border.[31] These border communities, which also include Native American reservations,[32] are subject to more persistent, extensive, and concentrated surveillance than any other part of the country.[33] Researchers have documented over 225 data points of surveillance technology use by federal and local entities along the border.[34] Living with little semblance of privacy in this type of militarized environment takes a heavy psychological toll on many residents, and there are anecdotal examples of community members feeling forced to change their behavior and cultural practices accordingly.[35]

There is also at least one documented instance of border security technologies being explicitly used at the border for a purpose unrelated to preventing undocumented crossings. In 2017, CBP stationed a remote video surveillance system to monitor the emerging threat of demonstrations against the expansion of President Trump's physical border wall.[36]

The greatest harm of border security technologies to border communities, however, perhaps comes in the implicit, significant tradeoff that occurs every time the United States government chooses to invest additional resources into these technologies. While millions continue to be appropriated each year to enhance surveillance along the southern border, these communities continue to have some of the highest poverty rates in the country and lack access to basic infrastructure, leaving them feeling marginalized.[37] Even more so when these communities are typically not consulted prior to the deployment of new border security technologies.[38]

The Digital Border Wall's Impact on the American Public At Large

Even communities far away from the southern border are likely to eventually feel the effects of continued funding for the border security technologies that make up the digital border wall. Not only does CBP claim jurisdiction within 100 miles of a U.S. land or coastal border, encompassing about two-thirds of the American population,[39] but the southern border is inherently treated as a testing grounds for experimental technologies later deployed elsewhere.[40] Technologies funded, developed, and advertised for border security purposes routinely attract the interest of law enforcement agencies nationwide.[41]

One of the clearest examples of the privacy threat these technologies pose to the American public at large is CBP's use of drones for purposes other than border security. In 2020, DHS surveillance aircraft were deployed to more than 15 U.S. cities during George Floyd protests.[42] This included CBP Predator B drones in Minneapolis and elsewhere.[43] The use of CBP drones in this manner is no outlier – the CBP regularly loans its drones out to local and federal agencies for non-border patrol purposes, with close to 700 such

instances documented between 2010 and 2012.[44] CBP drones have also been used for surveillance of other protests in the past.[45]

According to a 2014 report by the Government Accountability Office, 20 percent of CBP drone flight hours were spent outside immediate border and coastal areas.[46] There are no use or user limitations on CBP drones and limited transparency and oversight exists over their deployment nationwide.[47]

Operational Efficacy of Border Security Technologies

In addition to human rights concerns, there are legitimate concerns about the ability of many of these technologies to contribute to their stated border security purpose, as repeatedly noted by reports from the Government Accountability Office (GAO) and the DHS Office of the Inspector General (IG). A 2017 report by the DHS IG found that "CBP lacks strong well-defined operational requirements and an overall strategy framework" for securing the southern border.[48] A 2018 report by the GAO found that CBP had failed to "determine the contribution of surveillance technologies to CBP's border security efforts."[49] A 2021 report by the DHS IG reiterated these concerns, finding that CBP does not have "a standard process to assess technology effectiveness" and "cannot plan effectively for future investments," including for border security technologies.[50]

For those who endorse the digital border wall for its ability to lead to greater apprehensions or deterrence of migrants, the history of border security technologies' deployment offers little supporting evidence.[51] This is most evident when examining many of the individual border security technologies that make up the digital wall. Predator B drones, for example, cost $17 million to purchase, $12,255 per flight hour to operate, and an estimated $32,000 each time it is used to apprehend individuals.[52] Yet, they have been referred to as "dubious achievers" of border security by the DHS OIG, which found "no evidence that the drones contribute to a more secure border."[53] It is unclear whether newer, smaller drones are any more effective, as no study has been conducted to that effect.[54]

The case for the effectiveness of several other border security technologies is not much stronger, making a tradeoff of human rights in favor of security difficult to justify. SBInet and many of CBP's earlier surveillance tower efforts cost millions to billions of dollars but had high error rates with limited results.[55] Although new AI-powered surveillance towers claim to solve issues plaguing past surveillance towers, it would not be the first time border security contractors make operational promises they fail to deliver on in practice.[56] No measure of effectiveness exists for these towers, and history suggests deterrence is likely to be limited, as migrants and smugglers learn to adapt to them as they have to past surveillance towers.[57] Finally, facial recognition technologies, as alluded to earlier, have proven unreliable for certain demographics.[58]

Conclusion and Recommendation

In light of the serious human rights and efficacy concerns associated with border security technologies, the claim that the digital border wall is smart and humane policy warrants bipartisan skepticism. At the bare minimum, these concerns suggest that additional appropriations for border security technologies should be capped, reduced relative to previous amounts, or even frozen until these concerns are addressed. They also suggest that Congress should engage in increased oversight to help members and the public better understand the ramifications of the digital border wall, potentially through public hearings engaging border communities, tech providers of border security technologies, advocacy groups, and CBP agency heads.

Aside from these preliminary actions, there are additional steps Congress can consider in a joint or piecemeal fashion to address concerns associated with the digital border wall in terms of oversight, transparency, and use and user limitations.

Oversight

Advocates against the digital border wall, for example, have called for meaningful oversight of border security technologies prior to their deployment.[59] This could involve making these technologies subject to a 60-day notice and comment period, independent pre-deployment assessments of the efficacy and potential rights violations associated with the technologies, and required consultation with, or consent from, border communities.[60] Oversight post-deployment is also possible in the form of periodic rights and efficacy assessments, although migrant and border community distrust of CBP is high and legitimate questions remain about the agency's willingness to engage in such oversight and to enact recommendations, particularly given its lack of accountability for past abuses.[61]

Transparency

Transparency over border security technologies can also take a variety of forms. One simple form is requiring disclosure of current CBP contracts and solicitations for border security technologies and of others being tested, for which a dearth of transparency currently exists.[62] It could also include increased transparency over the algorithms used in facial recognition and artificial intelligence technologies deployed by CBP,[63] as well as increased transparency over how acquired biometric data is used and stored.[64]

Use and User Limitations and Other Safeguards

A final category of actions Congress can take is to enact use or user limitations over border security technologies subject to certain safeguards. Take drones, for example. Congress can limit their use to border security operations; restrict their use within a certain geographic range from the border below the expansive 100 mile jurisdiction CBP claims; limit the technologies CBP drones can be equipped with, such as facial recognition technology; and limit CBP's ability to share drones with other agencies or subject such transfers to additional safeguards.[65] Another example of use and user limitations could be restricting CBP's use of facial recognition, as well as increased limitations on both the sharing of data with other agencies and the amount of time data can be stored for and under what conditions.[66] Use and user limitations would mitigate these technologies' impact on human rights, but concerns would remain about these technologies' continued application on migrants and border communities.

Endnotes

[1] Erica Hellerstein, "Between the US and Mexico, a Corridor of Surveillance Becomes Lethal," Coda Story, July 14, 2021, https://www.codastory.com/authoritarian-tech/us-border-surveillance/.

[2] Ibid.

[3] Ibid.

[4] Kris Axtman, "US Border Patrol's Newest Tool: A Drone," Christian Science Monitor, Dec. 7, 2005, https://www.csmonitor.com/2005/1207/p02s01-usmi.html; "Obama Administration Ends High-Tech Border Fence," CBS News, Jan. 14, 2011, https://www.cbsnews.com/news/obama-administration-ends-high-tech-border-fence/.

[5] "Obama Administration Ends High-Tech Border Fence."

[6] Julia Preston, "Homeland Security Cancels 'Virtual Fence' After $1 Billion is Spent," New York Times, Jan. 14, 2011, https://www.nytimes.com/2011/01/15/us/politics/15fence.html.

[7] Aaron Holmes, "Silicon Valley Startups Backed by Bill Gates and Andreessen Horowitz are Using the US-Mexico Border to Test New Surveillance Technology," Business Insider, Feb. 4, 2020, https://www.businessinsider.com/echodyne-bill-gates-startup-cbp-us-mexico-border-patrol-surveillance-2020-1.

[8] Hellerstein, "Between the US and Mexico, a Corridor of Surveillance Becomes Lethal."

[9] Courtney Norris, "Silicon Valley Jumps Into Biometric Gold Rush for Trump's 'Other Border Wall,'" PBS News, May 5, 2017, https://www.pbs.org/newshour/politics/silicon-valley-jumps-biometric-gold-rush-trumps-border-wall.

[10] Just Futures Law and Mijente, "Factsheet: The Dangers of a Tech Wall," April 2021, at 2, https://justfutureslaw.org/wp-content/uploads/2021/04/Factsheet-on-Tech-Wall-and-CBP-Appropriations.pdf.

[11] Ibid.

[12] For a detailed list of currently deployed border security technologies see Mijente, Just Futures Law, and No Border Wall Coalition, The Deadly Digital Border Wall, October 2021, https://notechforice.com/wp-content/uploads/2021/10/Deadly.Digital.Border.Wall_.pdf.

[13] Ibid. at 24.

[14] Ibid at 6.

[15] Hellerstein, "Between the US and Mexico, a Corridor of Surveillance Becomes Lethal."

[16] Will Hurd, "We Need a Smart Border Wall, Not a 3rd Century Solution," USA Today, Aug. 7, 2017, https://www.usatoday.com/story/opinion/2017/08/07/border-security-we-need-smart-wall-will-hurd-column/539618001/.

[17] Will Parrish, "The U.S. Border Patrol and an Israeli Military Contractor are Putting a Native American Reservation Under 'Persistent Surveillance'", The Intercept, Aug. 25, 2019, https://theintercept.com/2019/08/25/border-patrol-israel-elbit-surveillance/.

[18] Ibid.

[19] Marisa Franco, "Democrats Want a 'Smart Wall.' That's Trump's Wall by Another Name," The Guardian, Feb. 14, 2019, https://www.theguardian.com/commentisfree/2019/feb/14/democrats-wall-border-trump-security.

[20] White House, "Fact Sheet: Department of Defense and Department of Homeland Security Plans for Border Wall Funds," press release, June 11, 2021, https://www.whitehouse.gov/omb/briefing-room/2021/06/11/fact-sheet-department-of-defense-and-department-of-homeland-security-plans-for-border-wall-funds/.

[21] White House, "Fact Sheet: President Biden Sends Immigration Bill to Congress as Part of Hus Commitment to Modernize our Immigration System," press release, Jan. 20, 2021, https://www.whitehouse.gov/briefing-room/statements-releases/2021/01/20/fact-sheet-president-biden-sends-immigration-bill-to-congress-as-part-of-his-commitment-to-modernize-our-immigration-system/; US Citizenship Act, S. §2302(c), 117th Congress (2021).

[22] Samuel Norton Chambers et al., Mortality, Surveillance and the Tertiary 'Funnel Effect' on the U.S.-Mexico Border: A Geospatial Modeling of the Geography of Deterrence, 36:3 Journal of Borderland Studies (2021).

[23] Ibid.

[24] Mijente, Just Futures Law, and No Border Wall Coalition, The Deadly Digital Border Wall, at 14-18.

[25] Molly O'Toole, "Biden has Quietly Deployed an App for Asylum Seekers. Privacy Experts are Worried," Los Angeles Times, June 4, 2021, https://www.latimes.com/politics/story/2021-06-04/asylum-bidens-got-an-app-for-that-with-privacy-risks-and-surveillance-beyond-border.

[26] National Institute of Standards and Technology, U.S. Department of Com-

merce, Face Recognition Vendor Test (FRVT) Part 3: Demographic Effects (December 2019).

27 O'Toole, "Biden has Quietly Deployed an App for Asylum Seekers. Privacy Experts are Worried,"; David J Bier and Matthew Feeney, Drones on the Border: Efficacy and Privacy Implications, CATO Institute, May 1, 2018, at 4, https://www.cato.org/sites/cato.org/files/pubs/pdf/irpb_5.pdf.

28 O'Toole, "Biden has Quietly Deployed an App for Asylum Seekers. Privacy Experts are Worried."

29 Ibid.

30 Neema Singh and Michelle Fraling, "Congress, Don't Give DHS Unrestricted Authority to Build a 'Smart Wall,'" ACLU, February 1, 2019, https://www.aclu.org/blog/immigrants-rights/ice-and-border-patrol-abuses/congress-dont-give-dhs-unrestricted-authority; Department of Homeland Security Office of the Inspector General, CBP Has Not Ensured Safeguards for Data Collected Using Unmanned Aircraft Systems, September 21, 2018, https://www.oig.dhs.gov/sites/default/files/assets/2018-09/OIG-18-79-Sep18.pdf

31 Southern Border Communities Coalition, "The Southern Border Region at a Glance," https://www.southernborder.org/border_lens_southern_border_region_at_a_glance.

32 Parrish, "The U.S. Border Patrol and an Israeli Military Contractor are Putting a Native American Reservation Under 'Persistent Surveillance.'"

33 Todd Miller, "War on the Border," New York Times, August 18, 2013, https://www.nytimes.com/2013/08/18/opinion/sunday/war-on-the-border.html.

34 Electronic Frontier Foundation, "Atlas of Surveillance: Southwestern Border Communities," https://www.eff.org/pages/atlas-de-vigilancia-comunidades-fronterizas-del-suroeste.

35 Hellerstein, "Between the US and Mexico, a Corridor of Surveillance Becomes Lethal"; Parrish, "The U.S. Border Patrol and an Israeli Military Contractor are Putting a Native American Reservation Under 'Persistent Surveillance.'"

36 Parrish, "The U.S. Border Patrol and an Israeli Military Contractor are Putting a Native American Reservation Under 'Persistent Surveillance.'"

37 Just Futures Law and Mijente, "Factsheet: The Dangers of a Tech Wall," at 2-4.

38 E Tendayi Achiume et. al., "Technology is the New Border Enforcer, and it Discriminates," Aljazeera, Nov. 23, 2020, https://www.aljazeera.com/opinions/2020/11/23/technology-is-the-new-border-enforcer-and-it-discriminates.

39 Mijente, Just Futures Law, and No Border Wall Coalition, The Deadly Digital Border Wall, at 6.

40 Parrish, "The U.S. Border Patrol and an Israeli Military Contractor are Putting a Native American Reservation Under 'Persistent Surveillance.'"

41 Tom Dart, "Inside the US 'Border Industrial Complex': Spy Tech Meets Immigration Crackdown," The Guardian, April 26, 2015, https://www.theguardian.com/world/2015/apr/26/surveillance-border-security-expo.

42 Zolan Kanno-Youngs, "U.S. Watched George Floyd Protests in 15 Cities Using Aerial Surveillance," New York Times, June 19, 2020, https://www.nytimes.com/2020/06/19/us/politics/george-floyd-protests-surveillance.html.

43 Anna G. Eshoo et. al., "Letter to FBI, NG, CBP, and DEA on Government Surveillance of Protestors," United States Congress, June 9, 2020, https://eshoo.house.gov/sites/eshoo.house.gov/files/Eshoo-Rush%20Ltr%20to%20FBI%2C%20NG%2C%20CBP%2C%20DEA%20on%20government%20surveillance%20of%20protesters%20-%206.9.20.pdf.

44 Craig Whitlock and Craig Timber, "Border-Patrol Drones Being Borrowed by Other Agencies More Often than Previously Known," Washington Post, January 14, 2014, https://www.washingtonpost.com/world/national-security/border-patrol-drones-being-borrowed-by-other-agencies-more-often-than-previously-known/2014/01/14/5f987af0-7d49-11e3-9556-4a4bf7bcbd84_story.html?utm_term=.113befbca5f4.

45 Parrish, "The U.S. Border Patrol and an Israeli Military Contractor are Putting a Native American Reservation Under 'Persistent Surveillance.'"

46 Government Accountability Office, "Additional Actions Needed to Strengthen Collection of Unmanned Aerial Systems and Aerostats Data," GAO-17-152, February 2017, at 9, http://www.gao.gov/assets/690/682842.pdf.

47 Bier and Feeney, Drones on the Border: Efficacy and Privacy Implications, at 3-4; Jason Paladino, "Millions Turn Out to Protest and the Government Watches from Above," The Project on

Government Oversight, June 12, 2020, https://www.pogo.org/analysis/2020/06/millions-turn-out-to-protest-and-the-government-watches-from-above/; Parrish, "The U.S. Border Patrol and an Israeli Military Contractor are Putting a Native American Reservation Under 'Persistent Surveillance.'"

48 Special Report: Lessons Learned from Prior Reports on CBP's SBI and Acquisitions Related to Securing our Border," DHS Office of the Inspector General, OIG-17-70-SR, June 12, 2017, at 13, https://www.oig.dhs.gov/sites/default/files/assets/2017/OIG-17-70-SR-Jun17.pdf.

49 Progress and Challenges with the Use of Technology, Tactical Infrastructure, and Personnel to Secure the Southwest Border, Government Accountability Office, GAO-18-397T, March 15, 2018, at 7, https://www.gao.gov/assets/gao-18-397t.pdf.

50 CBP Has Improved Southwest Border Technology, but Significant Challenges Remain, DHS Office of the Inspector General, OIG-21-21, February 23, 2021, at 23 and 25, https://www.oig.dhs.gov/sites/default/files/assets/2021-02/OIG-21-21-Feb21.pdf.

51 J Weston Phippen, "'A $10-million Scarecrow': The Quest for the Perfect 'Smart Wall,'" Politico, December 10, 2021, https://www.politico.com/news/magazine/2021/12/10/us-mexico-border-smart-wall-politics-artificial-intelligence-523918.

52 Bier and Feeney, Drones on the Border: Efficacy and Privacy Implications, at 3.

53 CBP Drones are Dubious Achievers, Office of the Inspector General, press release, January 6, 2015, https://www.oig.dhs.gov/assets/pr/2015/oigpr_010615.pdf.

54 Shirin Ghaffary, "The 'smarter' wall: How Drones, Sensors, and AI are Patrolling the Border," Vox, February 7, 2020, https://www.vox.com/recode/2019/5/16/18511583/smart-border-wall-drones-sensors-ai.

55 Phippen, "'A $10-million Scarecrow': The Quest for the Perfect 'Smart Wall.'"

56 Ibid.

57 Ibid.

58 National Institute of Standards and Technology, U.S. Department of Commerce, Face Recognition Vendor Test (FRVT) Part 3: Demographic Effects (December 2019)

59 Just Futures Law and Mijente, "Factsheet: The Dangers of a Tech Wall."

[60] Conversation between Author and Julie Mao, Deputy Director of Just Futures Law on January 7, 2021.

[61] Sarah Turberville and Chris Rickerd, An Oversight Agenda for Customs and Border Protection : America's Largest, Least Accountable Law Enforcement Agency," The Project on Government Oversight, October 12, 2021, https://www.pogo.org/report/2021/10/an-oversight-agenda-for-customs-and-border-protection-americas-largest-least-accountable-law-enforcement-agency/.

[62] Holmes, "Silicon Valley Startups Backed by Bill Gates and Andreessen Horowitz are Using the US-Mexico Border to Test New Surveillance Technology."

[63] Michaela Ross and Cheryl Bolen, "Border Agency Eye Scan Flaws Expose Government AI Risks: Report," Blomberg, Feb. 18, 2020, https://news.bloomberglaw.com/daily-labor-report/border-agency-eye-scan-flaws-expose-government-ai-risks-report.

[64] Tanvi Misra, "The Problem with a 'Smart' Border Wall," Bloomberg, Feb. 12, 2019, https://www.bloomberg.com/news/articles/2019-02-12/the-problem-with-a-smart-border-wall.

[65] Bier and Feeney, Drones on the Border: Efficacy and Privacy Implications, at 4-5.

[66] Giuliani and Fraling, "Congress, Don't Give DHS Unrestricted Authority to Build a 'Smart Wall.'"