

United States House of Representatives
Committee on Financial Services
2129 Rayburn House Office Building
Washington, D.C. 20515

July 2, 2020

Memorandum

To: Members, Committee on Financial Services
From: FSC Majority Staff
Subject: July 8, 2020, “Exposure Notification and Contact Tracing: How AI Helps Localities Reopen Safely and Researchers Find a Cure”

The Task Force on Artificial Intelligence will hold a virtual hearing entitled, “Exposure Notification and Contact Tracing: How AI Helps Localities Reopen Safely and Researchers Find a Cure,” on Wednesday, July 8, 2020 at 12:00 p.m., on the virtual meeting platform Cisco Webex. This single-panel hearing will have the following witnesses:

- **Brian McClendon**, CEO, Co-founder, CVKey Project
- **Krutika Kuppalli, M.D.**, Infectious Diseases Physician
- **Andre M. Perry**, Fellow, Metropolitan Policy Program, The Brookings Institution
- **Ramesh Raskar**, Professor, MIT and Founder, PathCheck Foundation

Overview

The novel coronavirus 2019 (“COVID-19”) pandemic has had a significant public health and economic impact on the United States, including on the financial services sector. As states halt or reverse phased reopening’s because of recent increases in COVID-19 infections, the ability to trace and contain the virus continues to remain a top priority for all aspects of society. Contact tracing and exposure notification have the potential to help isolate coronavirus cases and keep workers, including at financial institutions, safe. Artificial intelligence (“AI”) has been instrumental in helping experts analyze the influx of new research and data related to how COVID-19 continues to evolve.¹ However, some experts have raised concerns about using AI to analyze consumer and financial data related to COVID-19 because doing so may violate consumer privacy laws.²

Contact Tracing, Data Privacy and Public Health Safety

The Centers for Disease Control and Prevention (“CDC”) has stressed the need for individuals to opt-in to contact tracing and social distancing in order to stop the spread of COVID-19.³ Contact tracing is the process of identifying people who have contracted an infectious disease and their close contacts to prevent the further transmission of the infection. Generally, three types of contact tracing: (1) manual contact tracing, (2) digital contact tracing, and (3) and digital exposure notification.

¹ Pascale Fung, “How cutting-edge AI is helping scientists tackle COVID-19,” World Economic Forum, Jun. 8, 2020, at <https://www.weforum.org/agenda/2020/06/this-is-how-ai-can-help-us-fight-covid-19/>.

² “Science is moving faster than ever on COVID-19, and AI can be a valuable tool to making sense of it all. But machines can’t yet be a replacement for human judgment.” See generally, Brian Walsh, “AI helps scientists decipher flood of coronavirus research,” Jun. 20, 2020 <https://www.axios.com/coronavirus-artificial-intelligence-science-4a4aa4e9-07f6-4ee0-bb39-0c09fdd6837d.html>.

³ CDC, “Contact Tracing,” <https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/contact-tracing.html> (last accessed Jul. 1, 2020).

Manual Contact Tracing. Manual contact tracing involves public health experts interviewing people who have contracted COVID-19 and asking them to identify everyone they had close contact with during the time they may have been infectious.⁴ Manual contact tracing assumes that consumers will respond to communications from health experts, and that health experts have the most up-to-date address information. These two factors alone disproportionately affect certain populations, including persons experiencing homelessness. Manual tracing is also complicated because fraudsters have started COVID-19 contact tracing scams, which may make consumers less inclined to share confidential information, even with a reputable health official.⁵ The Federal Trade Commission released a joint statement with the Department of Health and Human Services and the Department of Justice alerting consumers of tips to be aware for contact tracing calls asking for wire transfers and credit and debit card numbers.⁶

Digital Contact Tracing. Digital contact tracing uses data from public Wi-Fi and smartphone sensors to identify persons who may have been proximate to the location data of an infected person. Digital contact tracing data can be used to notify smartphone holders and public health officials by phone, in person, or automatically of an individual's exposure and the time window of exposure.⁷ One concern with digital contact tracing is that it assumes that most people have smartphones, know how to use smartphones, always have access to the internet or Bluetooth technology on their smartphones, and will voluntarily respond and notify authorities when they contract COVID-19.⁸ In the United States, a person would have to notify the smartphone COVID-19 app that they contracted COVID-19 before the app notifies any other users who opted-into notifications. However, in South Korea and China, data collection is involuntary and based on financial transactions, cell phone location data, and security cameras—as soon as the AI identifies an infected person in either of those two countries the police can ask them to self-quarantine for 14 days.⁹ There are also questions about the accuracy of digital contact tracing. One study found that a Wi-Fi enable iPhone 6 location-based measurements were limited and often inaccurate, showing errors of location identification between nine and fifty-two feet.¹⁰ Finally, some have raised concerns that even though individuals opt-in to share their data in a digital contact tracing app, the app may collect excessive amounts of information and use that information in ways that the individual may not have explicitly authorized.¹¹

Digital Exposure Notification. Digital exposure notification is similar to digital contact tracing except it requires explicit user consent for how data is used and collected, does not collect location data, and does

⁴ *Id.*

⁵ Christopher Brown, "Contact Tracing Scams Emerge as Latest Trick in Covid-Fraud Book," Bloomberg Law, Jun. 30, 2020, at <https://news.bloomberglaw.com/health-law-and-business/contact-tracing-scams-emerge-as-latest-trick-in-covid-fraud-book>.

⁶ Shameka L. Walker, "Help COVID-19 contact tracers, not scammers," FTC, Jun. 25, 2020, at <https://www.consumer.ftc.gov/blog/2020/06/help-covid-19-contact-tracers-not-scammers>; see also, ABA, "Tips to Avoid Coronavirus Scams and Protect Your Money" <https://www.aba.com/advocacy/community-programs/consumer-resources/protect-your-money/coronavirus-scams> (last accessed Jul. 1, 2020).

⁷ CDC "Digital Contact Tracing Tools" https://www.cdc.gov/coronavirus/2019-ncov/php/contact-tracing/contact-tracing-plan/digital-contact-tracing-tools.html#anchor_1590015209621 (last accessed Jul. 1, 2020).

⁸ See generally Sam Sabin, "Telecom Industry, Broadband Advocates Push for Internet Subsidies in Next Stimulus," Morning Consult, Apr. 2, 2020, at <https://morningconsult.com/2020/04/02/broadband-subsidies-coronavirus-stimulus-package/>.

⁹ Yingzhi Yang, Julie Zhu "Coronavirus brings China's surveillance state out of the shadows," Reuters, Feb. 7, 2020 at <https://www.reuters.com/article/us-china-health-surveillance-idUSKBN2011HO>; see also, Robert A. Kleinman and Colin Merkel, "Digital contact tracing for COVID-19," Jun. 15, 2020 at <https://www.cmaj.ca/content/192/24/E653>.

¹⁰ Krista Merry and Pete Bettinge "Smartphone GPS accuracy study in an urban environment," Jul. 18, 2019, at <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0219890>.

¹¹ John Neocleous "Expert Analysis: Data Collection, Personal Privacy, and COVID-19 Contact Tracing How the Virus and New Tech Triggered Thorough Review and Clarification Surrounding Privacy Laws," ABA, Jun. 4, 2020, at <https://businesslawtoday.org/2020/06/expert-analysis-data-collection-personal-privacy-covid-19-contact-tracing-virus-new-tech-triggered-thorough-review-clarification-surrounding-privacy-laws>.

not identify consumers to other consumers. The prevailing digital exposure technology for COVID-19 is the Apple/Google Contact Tracing App, which uses Bluetooth Low Energy (a related technology that can permit mobile devices to make purchases in store).¹² Specifically, for those who opt-in, their phone is assigned a random ID that changes every 10-20 minutes and exchanges ID numbers with nearby smartphones via Bluetooth. If there is a match with an ID with a positive COVID-19 case, the user will be notified by their local public health authority with information on next steps.¹³ Since Apple and Google unveiled the app, however, only 4 states – Alabama, North Dakota, South Carolina, and Virginia – have announced plans to utilize the technology.¹⁴

US Approach to Tracing and Effects on the Economy

Presently, compared to other countries, the United States has taken a decentralized approach to COVID-19, in which individual states engage with private sector companies to develop their own contact tracing tools.¹⁵ Ideally, in a decentralized system, all the different state apps would be interoperable so, a person traveling from California to Nevada, would receive the same messages regardless of what provider the respective state contracted with. However, that is presently not the case as a person only receives notification if they have a smartphone running the latest software supported by whatever virtual geographic boundary has been created by a state.

Another key determinant of the effectiveness of tracing is the ability to identify how far the chain of exposure extends. Once a contact tracer or app notifies a person of possible exposure, further investigation is required to see whether the virus may have been passed to another person later. This requires the willingness of persons to share their movement information with the contact tracers. This month, however, in Rockland County, New York, after contact tracers identified a cluster of eight new COVID-19 cases after a large party, the persons identified reportedly refused to cooperate and the state department of health, which considering issuing subpoenas compelling them to work with contact tracers to contain the virus.¹⁶

Without a coordinated approach on contact tracing, “reopening the economy,” is challenging because jurisdictions have to assume that all persons from a jurisdiction with high incidents of infection may be a potential carrier of the virus. The recent resurgence of COVID-19 in several western and southern states, for example, has caused some European countries to ban all U.S. travelers.¹⁷ In addition, New York state now requires a mandatory 14-day quarantine for all residents from states with a higher than a 10% test

¹² Apple & Google, “Privacy-Preserving Contact Tracing,” at <https://www.apple.com/covid19/contacttracing> (last accessed Jul. 1, 2020). Also see Google & Apple, “Exposure Notifications: Using technology to help public health authorities fight COVID-19,” <https://www.google.com/covid19/exposurenotifications/>; Congressional Research Service (CRS), “[Digital Contact Tracing Technology: Overview and Considerations for Implementation](#),” (May 29, 2020); CRS, “[Constitutional Authority to Regulate the Privacy of State-Collected Contact-Tracing Data](#),” (Jun 26, 2020); and CRS, “[‘Tracing Papers’: A Comparison of COVID-19 Data Privacy Bills](#),” (Jun. 26, 2020).

¹³ *Id.*

¹⁴ Zac Hall, “Which U.S. states are using Apple’s Exposure Notification API for COVID-19 contact tracing?,” 9to5Mac (Jun. 30, 2020), <https://9to5mac.com/2020/06/30/covid-19-exposure-notification-api-states/>. Also see Aaron Holmes and Hugh Langlely, “Apple and Google’s ambitious COVID-19 contact-tracing tech can help contain the pandemic if used widely. But so far only 3 states have agreed — and none has started to use it.” Business Insider (Jun. 10, 2020), <https://www.businessinsider.com/apple-google-coronavirus-contact-tracing-tech-states-dont-plan-using-2020-6>.

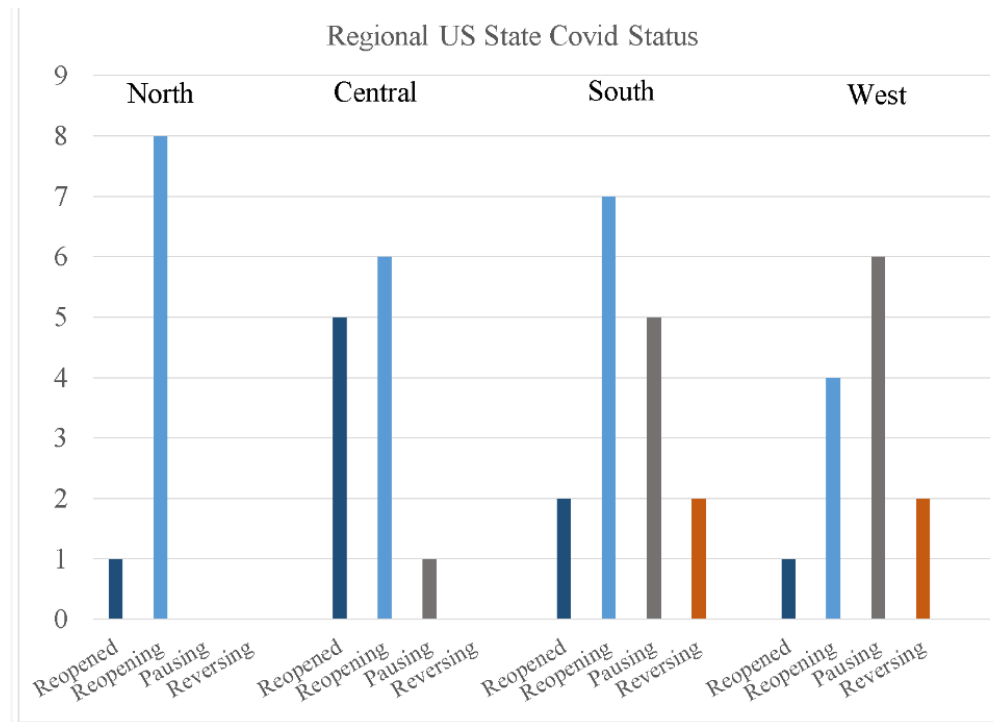
¹⁵ Andy Greenberg, “State-Based Contact Tracing Apps Could Be a Mess,” WIRED, May 27, 2020 <https://www.wired.com/story/covid-19-contact-tracing-app-fragmentation/>.

¹⁶ NBC New York “Rockland County, Probing New Cluster, Uses Subpoenas as People Resist Contact Tracing,” Jul. 2, 2020, at <https://www.nbcnewyork.com/news/coronavirus/rockland-county-probing-a-new-covid-cluster-resorts-to-subpoenas-as-people-refuse-to-give-contacts-to-tracers/2494189/>.

¹⁷ Martina Stevis-Gridneff, “E.U. Formalizes Reopening, Barring Travelers From U.S.,” NY Times, Jun. 30, 2020 at <https://www.nytimes.com/2020/06/30/world/europe/eu-reopening-blocks-us-travelers.html>.

positivity rate, which is presently about 14 states, and a violation of the order is a fine up to \$10,000.¹⁸ In the absence of information about any person's exposure, jurisdictions may assume the worst, that every one from an at risk jurisdiction is a carrier, which is leading to additional disruptions to the U.S. and global economies.

Figure 1. Status of States as of July 1, 2020¹⁹



The effectiveness of contact tracing may affect how quickly financial institutions are able to reopen as well. Financial institutions are looking at contact tracing when considering how best to keep workers safe when they return to the office. According to a PwC survey conducted in April, 32% of the financial services executives are evaluating the use contact tracing technology to help protect their workforce. The CDC has provided guidance specifically for bank employers, which notes, in part, “Follow CDC guidance and work with local and/or state public health authorities and occupational safety and health professionals to decide if and how you will test employees and do workplace contact tracing of those who test positive for COVID-19.”²⁰

¹⁸ Governor Andrew Cuomo, “No. 205: Quarantine Restrictions on Travelers Arriving in New York, Executive Order,” Jun. 24, 2020, at <https://www.governor.ny.gov/news/no-205-quarantine-restrictions-travelers-arriving-new-york>.

¹⁹ Jasmine C. Lee, Sarah Mervosh, Yuriria Avila, Barbara Harvey, et al., “See How All 50 States Are Reopening (and Closing Again),” <https://www.nytimes.com/interactive/2020/us/states-reopen-map-coronavirus.html> (last accessed Jul. 1, 2020).

²⁰ CDC, “COVID-19 Employer Information for Banks,” (Jun. 28, 2020), <https://www.cdc.gov/coronavirus/2019-ncov/community/organizations/bank-employers.html>. Also see CDC, “Contact Tracing Resources,” (Jun. 30, 2020), <https://www.cdc.gov/coronavirus/2019-ncov/php/open-america/contact-tracing-resources.html>.