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**Amanda Lenhart:**

Welcome to Databite No. 142! I'm Amanda Lenhart, I'm the Program Director for Health + Data at Data & Society. I will be your host for today alongside the D&S events team behind the Zoom, Rigo, CJ, and Eli. For those who don't know us yet, Data & Society is an independent research institute studying the social implications of data and automation. We produce original research and convene multidisciplinary thinkers to challenge the power and purpose of technology in society. This event is co-produced with our friends at the [Ada Lovelace Institute](https://www.adalovelaceinstitute.org) in London, England. Their current research on COVID-19 technologies—and particularly on vaccine passports—is what is underpinning this event today.

The Ada Lovelace Institute is a research institute and deliberative body dedicated to ensuring that data and AI work for people and society. To learn more about their work visit: [https://www.adalovelaceinstitute.org](https://www.adalovelaceinstitute.org).

We'll be spending the hour together, so let's get grounded. If you're joining us from a computer, use the features at the bottom of your screen to participate. You can ask and upvote questions via the Q&A function. You can use the closed captioning function for subtitles. You can view links and prompts in the chat window. Also note: this event is being recorded and will be shared afterwards and posted to our website. You can also follow the conversation and share thoughts on Twitter using the hashtag [#databites](#).

Data & Society began on Lenapehoking, a network of hills, rivers, and islands in the Atlantic Northeast now known as New York City. This land is the ancestral home of the Leni Lenape people. Today, we are connected online via the internet—a vast interplanetary array of data,

servers, and computers devices. In the United States, much of this system sits on stolen land acquired under the extractive logic of white settler expansion. As an organization, we recognize this truth and uplift the sovereignty of Indigenous people, data, and territory. We commit to dismantling all ongoing colonial practices and their material implications on our digital worlds. The website  native-land.ca is an ongoing mapping of Indigenous land, rights, and territories. This is a tool for you to learn about the land you are on. Please feel free to share where you are joining us from in the Q&A.

Today, we are asking: What place should COVID-19 vaccine passports have in society? Which is also, helpfully, the title of the Ada Lovelace report that is anchoring our talk today. Joining me to unpack the findings are three expert voices in the field: First, my co-host, Imogen Parker, who is the associate director at Ada Lovelace Institute for policy and a policy fellow at the Cambridge University Center for Science and Policy. Ranjit Singh, a postdoctoral scholar on Data & Society's AI on the Ground team, and Amy Fairchild, a historian, public health ethicist, and Dean of the School of Public Health at Ohio State University. For the sake of time, you can read extended speaker bios in the events page linked in the chat. Imogen, let's get started by setting the stage a bit: What are we talking about when we talk about vaccine passports?


**Imogen Parker:**

Thank you so much, Amanda. It's a real pleasure to work with you and to be here for this conversation. Just to set the scene a little bit—there are lots of different terms circulating and lots of different versions of what we might include under this umbrella heading of a 'vaccine passport.' To anchor today's conversation and the work that Ada has been looking at over the last year has really been focusing on tools that have three parts. It brings together 1) Health information—so that might be vaccine records, it might be test results, it might be health or risk factors around COVID—it links that information with 2) some form of identity information, so to connect that health record to an individual—might be a digital ID system, it might be a biometric scan, or it might passport number, for example. And then that composite is shared

through a 3) digital platform to a third party who uses that to make a decision, at an individual level, about access—or the ability to access rights or freedoms. So the sorts of topics that come up often in this debate around international travel, for example—having to show a vaccine passport to board a plane—or domestic uses like being able to go to the cinema or into indoor spaces. And since the idea of an immunity passport—a vaccine passport, a COVID passport—has really been something that has been raised repeatedly since really early on in the pandemic, so we've been monitoring this from April of last year. We've heard governments proposing ideas about organising *differential* rights and freedoms to individuals who face less risk from the pandemic. And it's worth taking a minute to think about what the motivations might be for that—what the hope of this might be. And you can really see this compelling case that, rather than the heavy-handed lockdowns we've been having—that affect everyone, that cause massive economic harm, massive social harm—an immunity passport or a vaccine passport might allow a more granular understanding of risk and a more targeted approach to limiting freedoms. So I guess the "hope" for something like this might be: You can do public health better—you can lower the risk of people doing frontline work, for example. You can increase personal liberty at the aggregate—because some people don't need to stay home—because they don't really face as much risk. And, of course, you can stimulate the economy by allowing partial reopening, for example.

So this has been discussed in various forms; it hasn't really taken off, really – because of what the evidence is around transmission has been until recently. And, I think, once we saw vaccines pass regulatory tests—once we saw that rollout beginning—the momentum around this has built really, really rapidly, and the focus has moved away from natural immunity or risk-scoring, and really lasered down into vaccines. You know, if you've had the vaccine, should that allow you to do something different? And if it does, how do we develop a system around that that can create certification?

Before we get into the discussion, I will just sketch some of the different drivers in this ecosystem. We've seen some really important drivers, I think, from companies who are developing tools and standards around this in the expectation that—they think—this is going to

be instrumental in countries and across the world. So we've been speaking to health app providers that are building functionality out to more actively display the COVID vaccine element of the health record. We've been talking to big digital ID companies, biometrics companies, who are moving sideways in thinking: can we incorporate vaccine records into this?" There's really important collaborations, as well, so I think in particular one to watch is IBM and Salesforce: they have developed a digital health pass as part of a work management tool—so the idea for that is that employees, customers, visitors to businesses or to spaces can share vaccination and health records on smartphones. There is a commons pass which is developed with the World Economic Forum for international travel. And you've got a number of collectives that are coming together saying we need to figure out standards around this; we need to ensure we've got interoperability—and that includes Microsoft and Oracle. So you've got some really huge players in this space that are driving this—that are really exploring this—and trying to make the case for these types of tools. In terms of countries, particular advocates to watch, I suppose, are early movers—we've seen Greece and Israel really pushing for this. So Israel has a very high vaccination rate. It's looking at this for internal domestic use like hospitality, going to the cinema. Greece, I think, the focus is on entry into the country—you know, that's a country that relies a lot on tourism. So they're really looking hard at "Can we get away from a two-week quarantine period that basically makes it impossible for people to come on shorter holidays?" They're looking around that. In Europe, in general, freedom of movement has been so important that this conversation crops up a lot around whether or how this can be used. I think another country that is worth mentioning just by way of introduction is Germany: they have a national ethics body [The German Ethics Council ("Deutscher Ethikrat")] and that was tasked last year to look at the ethics of this and they couldn't reach agreement. They needed an extended period of time—and they reached agreement that it shouldn't happen now—but they were split as to whether or not it should or could happen in the future if, you know, the evidence around health evolved. So I think that's a really fascinating example and just demonstrates the complexity around this.

[37:07]

A couple of other bits just to throw in by way of context: I've been looking to the US and, actually—even in really in the recent weeks where we've been talking with Data & Society about this event so it feels momentum is now is suddenly building really sharply—so yesterday Wal-Mart, which I think is the biggest US vaccine provider, has thrown their backing behind some form of digital vaccination credentials—a health passport app.

Some interesting states to watch are: in New York, the governor has announced a pilot of the Excelsior Pass for use at Madison Square Gardens and Barclay Center; I think Hawaii is piloting airports and travel use; California had a bill vetoed recently that would have looked at this; and, I think, Florida has a bill filed aiming to block discrimination on the basis of health status—so it feels like suddenly this conversation is really ramping up in the US context.

A last story just to close by way of introduction: I saw the news that states, airlines, and tech companies are really advocating for the Biden Administration to develop some federal standards around this—that the concern is building that you're going to have a patchwork of unregulated, unreliable, or just very different tools trying to do different things using different information—and that's going to really exacerbate some of the risks that I think we are going to get on to shortly. So I will leave it there. I hope that just gives a bit of a sense of how this question has risen up the agenda.

[38:32]

**Amanda Lenhart:**

Thank you, Imogen. That is a super helpful grounding in this topic for all of us. And actually, we are going to get to the other panelists in a second, but I did want to ask you quickly if you would be able to walk us through what are the findings from your expert deliberations, what do they conclude about what we should do?

**Imogen Parker:**

So we convened a group of experts—bringing together different disciplinary perspectives from human rights, data, immunology, and Amy as well who is joining us today, I'm really grateful for

that—and the conclusion that we got to was that: at present, it felt that there wasn't justification for domestic generalised use. And there's a couple of bits I want to pick apart in that positioning: I think the first point we have to grapple with is the health—you know, this has to be built on solid foundations when it comes to where the health evidence is. And it felt like the big justification for the group was that sharing my vaccine status—the justification for that is that it has to tell you something about the risk I pose *to you*—it can't just be about the risk I face from COVID. And at present, we don't have a clear and general picture on transmission risk, and the questions of how this interacts with mutations, as well, is particularly lite. Of course, that evidence will keep evolving and that picture may change. And so we wanted to explore a couple of potential opportunities—and the opportunities are very embedded in the UK context. The sense was that *there is this narrow window* where a vaccine passport might be helpful—if it was grounded in the science—and that window feels like it's when you have a sizeable chunk of the population that have had two vaccines but you haven't yet reached mass vaccination and, hopefully, herd immunity within your country.

[40:27]

Now the UK is in quite a unique position in that we are moving very quickly in terms of vaccination, so the hope is that, I think, all adults have a vaccine—have been offered a vaccine—by September. The uptake has also been really high—so into the 90% of people that are getting offered a vaccine. Although there is this window of opportunity, it doesn't necessarily weigh against some of the really sizable risks that the group identified. So, just to rattle through those, there are a number of immediate and longer-term risks. There was one that was around risks to the individual and the uses of this information, so: Will this be used for policing? Will this be used for employment, for insurance, for dating apps? What are the actual use cases we are talking about here? And are they valid use cases? Are they controllable use cases? I think a really important point to make at this point is: even the most privacy-preserving technology can still be used in ways that perhaps open individuals up to a risk of harm. There is a kind of bigger layer there which is looking at society: What is this going to do at a societal level to different groups. Will it affect inequalities? Will some groups be particularly disadvantaged? What about

those in precarious employment, for example? How does this interact with other forms of discrimination—or forms of over surveillance under some groups? I think there is a really important point there to probe around—vaccine hesitancy as well—how is this going to play out in groups where there is greater vaccine hesitancy? Then you can go up a greater level—which is looking at the global picture—and there were some real concerns about the global inequalities arising from this and, particularly, whether this might risk supercharging a kind of 'vaccine nationalism' or vaccine hoarding—which, actually, is not only bad for everyone, it's also bad for the countries you're operating in. There is this very clear argument coming out that "We are only safe when we are all safe," and actually we need to take this collective and this global approach.

Two last points, and I will hand back over. There was a lot of discussion around whether this is normalizing a form of health status surveillance by creating this longer-term infrastructure in response to a time-bounded crisis. Some of the experts referenced 9/11 security infrastructure at airports, this idea that: once you build this pathway—which might feel justified in the midst of a pandemic—will it ever get stripped back? And if it doesn't—that takes us onto another real concern that got raised—which is: What are the longer-term uses of this? What is the potential scope creep of? Where might this expand to? Might it include things like HIV status? Might it be used to check how often somebody was off ill in the last six months before employing? So I think all of those issues really need very serious consideration, and I think working through the kind of "Is there an upside? Is it scientifically grounded? And, if it is, can you put together the legal and policy structures that can help to mitigate that—both domestically but also thinking internationally and globally." So that is a bit of a whistle-stop tour of a lot of really rich conversations from our experts.

**Amanda Lenhart:**

That's brilliant. Thank you so much, Imogen. That was a really, I think, helpful and a great kick-off to the next part of our conversation. I want to throw the next question to Amy, which is: Having heard about some of these risks—having heard about Ada Lovelace's UK-based but more

global look at this—what do we need to know about the US context? What do we need to understand about how the United States is different? And how does that impact what a vaccine passport will even look like or do in this country?

**Amy Fairchild:**

Thanks, Amanda. That's a really important question to ask about the United States, where the different states are largely responsible for public health measures and we have seen very different approaches, in the context of COVID-19, just to things like masking. So we can imagine we'll see the same things too in terms of vaccination. Even though I do have reasons that I am very interested in the idea of a vaccine passport, I think it has some potential to help fill some huge deficits in public health infrastructure in the United States—particularly data infrastructure—I'm skeptical that it's going to get much of a foothold here. Maybe at the borders? In part, that has to do with our own kind of nativism and nationalism—we tend to see threats as coming at us from the outside—and that is part of our complex history in this country. Perhaps domestic air travel in the United States. But, if it is going to take hold, I do think it's going to require federal regulation and effort of some sort. And we've already seen the Association for State and Territorial Health Officials (ASTHO) [pushing back against the Biden Administration](#) that's said: "Hands off, I'm going to leave this to states and businesses and your individual ingenuity." I do think it's going to take some federal effort. But if we look at things like the history of just vaccination registries in the United States—where there were efforts in the 50s, the 60s, the 80s, the 90s—to create federal registries of vaccination, those really all fell apart because of very deeply rooted skepticism on the part of a lot of Americans about government overreach. Privacy is a concern, but we are also deeply skeptical of the idea of mandates and "I have to do something" and so—to the extent that we've been successful in this country in mandating things like vaccinations—it has been with kids, it's been with innocent victims, vulnerable populations, those who aren't perceived as being able to to make decisions for themselves. But this idea that somebody—so Imogen, you talked about a vaccine passport giving you something that allows somebody else to decide for you based on a choice that you've

made—and that's the thing that Americans tend to be very skeptical about: "I don't want somebody deciding for me." But, at the same time, I would say that there is a degree to which you can provide for people too—by building the infrastructure that really lets you connect health records, not just at the hospital system—we've made huge advances on that front in terms of electronic medical records. But in terms of a National Health System that is interoperable and portable from one state to the next.

[47:28]

**Amanda Lenhart:**

That's super helpful, Amy, thank you. I want to actually throw it to Ranjit. Fill us in, Ranjit, on the work you've done in India, studying Aadhaar. Can you give us a little bit of a background about what that is? And how vaccination status will or won't be connected? And what is *different* about the India context from all the other contexts we've already heard about?

**Ranjit Singh:**

Sure. I think I'm going to pick on something that Amy said, which is centered on the idea of thinking about this problem infrastructurally. So, to start with, India has, for the last ten years, been investing in a biometric-based national identification infrastructure. So in 2010, the government started collecting fingerprints and iris scans of everybody in the country to give them a unique social security number—which is called an Aadhaar number—Aadhaar translates in English to "foundation." And, you know, there's quite a few sets of issues that have come up with the implementation of this project as well, but what is important to note here is that the people who designed Aadhaar are kind of using their expertise—in being able to get a population of 1.25 billion people in designated facilities—as a resource to think about vaccinations. So their primary argument being that—just like the collection of fingerprints and iris scans—vaccinations require people to actually come to a place and get vaccinated. And that, to a certain extent, can potentially be used as an organizing principle for not only distributing vaccines in the country—which faces the challenge of scale. In terms of vaccinating 1.25 billion people—and if you're doing vaccinations that would require two shots that would be getting 2.6 billion

touchpoints in total—and that would basically mean that what you're trying to do is to not only coordinate between a variety of different facilities that are providing these vaccinations—some are of them are going to be government-based, but others are going to be private. We are creating a new set of expertise in terms of vaccination itself. In India, specifically, the requirement is thinking through: How many people are going to be vaccinated and who are these people who are going to vaccinate them? If you want to imagine it in terms of numbers, you know, achieving a scale of 10 million vaccinations a day requires about 200,000 to 300,000 people who are doing the vaccination itself—and that, to a certain extent, is a massive challenge of scale. So in order to organize all of this, the vaccine certificates imagined as an organisation principle. The core argument being is that, you know, the vaccine certificate is kind of imagined as our organization principle; the core argument being that the vaccine certificate not only can be used as an interface that kind of connects questions of: Who are the vaccinators? Where are the facilities that are being used for vaccinations? What are the payment methods that are used to vaccinate people? What are the vaccines that will be used to vaccinate people?

[50:40]

All of these have this one common thread of technology which is basically the vaccine certificate that kind of connects all of this information together—which can eventually also be connected with the biometric number. So currently what the country is doing—what the government is arguing—is that if you require a free vaccination and the government is subsidizing your vaccination, then you *have to* provide your biometric number in order to actually get access to subsidized vaccines. If you want to basically just get it from the market—which hasn't happened yet, as we are currently facing vaccine scarcity—and we'll move to a place where the vaccines would be adequately available, and anybody can just go to a hospital and get vaccinated—but that would happen six or eight months down the line, and at that point of time, there would be private organizations which have also been involved in the distribution of vaccines themselves. So this is a larger challenge in terms of thinking about—not only what are the use contexts in which vaccine certificates would eventually be used by organizations that are providing access to certain things, and whether people will be able to travel or not. It currently is imagined as a

resource to actually put together a vaccination rollout program itself. And that, to a certain extent, is the larger challenge of managing the scale—of vaccine rollouts for a country such as India.

**Amanda Lenhart:**

And I think something that I thought was really interesting, Ranjit, when we talked about this before was this idea that, within India, the Aadhaar system is *already interconnected* with other things: it's already connected to the banking system. It's already connected. So the system on which this vaccine passport could be overlaid is already pretty—there is already a use case and an expectation in the context—for people who are enrolled in the system which is, I think you said, 98% of people in India—to have your personal identification information connected to other kinds of data about you.

**Ranjit Singh:**

Absolutely. It started with the idea of the biometric number being your financial address. So, you know, if you're basically thinking through cash pay subsidies: the government provides you with a certain amount of cash in order to basically then get access to the kind of nutrition that you would like to actually eat on an everyday basis. For that, the government basically started using biometric numbers as a unique identifier for beneficiaries, and those numbers were supposed to be connected to bank accounts of people so the government can directly transfer money to the biometric number rather than the bank account. And so it provides some amount of interoperability for the beneficiaries on the other end where they can choose which bank account the subsidy money goes to, and they can change their banking services depending upon how they're actually interfacing with the government. Again, it's a way of basically saying: this experiment is working and it is kind of designed around this whole idea and conversation around 'India Stack' which, simultaneously, is now currently being imagined as a new resource to think through what would be called an India Health Stack. So, as Imogen mentioned earlier, this time-bound crisis of COVID is currently being used as a way of renewing a certain amount of investment into building a unique Health ID for everyone in the country which would be the

foundation for a Health Stack which will connect medical records of people—as Amy was basically pointing out—as a resource to infrastructuring health in India.

**Amy Fairchild:**

If I could just add something on there. So, Ranjit, you talked about it being a way of pushing out vaccination reminders to people. And that was the idea—and that is the idea—behind vaccination registries in the United States. Because, aside from COVID—and it could get pretty complex with COVID-19 too, because two of our vaccines require that second booster shot, we can see more booster shots coming into the future. So having that infrastructure in place to be able to not to count on people to remember but push out those reminders could be really important. But we have to worry about the power of push-out versus keep-out, particularly in a country like the United States where we have such inequalities that date back to the 1920s in terms of who has access to vaccination.

[55:13]

**Amanda Lenhart:**

That is an amazing segue to the next question which is: What are the potential increases in inequalities that could come from doing any kind of rollout poorly? I know, Imogen, you talked about the risk, but are there some on-the-ground examples, or particular cases—either use cases where it's positive and it actually helps, I think we've heard about creating a public health infrastructure that we lack and that we might want in both India and the United States—but are there other use cases we need really to be worried about? That we should be thinking about? In either context or any context?

**Imogen Parker:**

I can just mention one point which is: there is a really live conversation in the UK at the moment—so the UK has set up a taskforce to look into this question—there are a lot of calls from different actors about some form of this. And an argument that really needs some wrestling through is the idea that you could use a vaccine passport to encourage uptake. And I think there

are kind of two hypotheses: you've got a group that, perhaps, are more vaccine-hesitant—if you link freedoms, opportunities, reintegration into society, and getting to go to bars or concerts or festivals—that could provide a real incentive to people deciding to get the vaccine. There is a counter argument that I've heard as well which is that some of the groups who perhaps are most vaccine-hesitant—again maybe particularly in the UK context, might be different in other contexts—might be groups that have legitimate or historic anxiety about health interactions with their communities or about surveillance from the state. So I think there is an equal and important counterargument which says: if you are building infrastructure around a public health measure, that could actually act as a powerful deterrent against people wanting to get the vaccine. And I think those two hypotheses are really important to weigh and to consider in each country's context, because it strikes me that that will be very powerful, in terms of the inequalities, but also in terms of how it interfaces with the public health goal of vaccination which is obviously the real priority for all countries at the moment.

**Amanda Lenhart:**

Amy or Ranjit, do you have any local context thoughts on vaccine hesitancy and its interactions?

**Ranjit Singh:**

Absolutely. I think the simplest example here would be: Aadhaar enrollment, when it was happening in India, was free. You could basically just go to any organization, whether it was public or private,  for enrollment and they were supposed to provide you the service without charging you any money. But, on the ground, there were often enrollment agencies that were actually charging people anywhere between 10 to 20 dollars for enrollment—which became a massive barrier for people who simply couldn't afford it. That, to a certain extent, was a deep bone of contention in organizing Aadhaar enrollment as well—the unique identification authority of India had to continuously blacklist organizations for doing this, right? And you can easily imagine this kind of mapping onto a particular challenge when it comes to vaccine distribution where the government might say that the vaccines are free, but the people who are vaccinating might charge money for it. And that creates an additional set of barriers around how

these distribution logistics are actually created. While we may actually imagine that these organizational principles would work really well theoretically, but at the same time, what happens on the ground is certainly very different. And that, to a certain extent, creates new sets of challenges when it comes to: How do we think through grievance redressal? What does it mean to actually have due process in these situations—where I was promised a service but I wasn't offered the service in the way that I was expecting it to be offered to me—and what can I do in response? And that is an open question.

**Amy Fairchild:**

I would add there—building on Imogen's comments and Ranjit's— if you just even look in the United States about access to vaccination, you have to have a certain level of technology. That's been one of the barriers for some groups in the United States to get vaccinated. People who tend to have higher-risk jobs don't have the ability to sit at a computer for an hour clicking to try to get that appointment—or are the most likely not to get vaccinated, most likely not to have vaccine passports—and those are the very groups that are at highest risk that we do want to promote vaccination in. And trust is one of the key barriers with some groups in the United States. And, in the United States too, one of our public health crises right now is the Southern Border—and we have to think about the willingness of undocumented immigrants to get vaccinated. Texas and other Southern states during the 1980s and 1990s have seen pockets of—for instance, measles outbreaks—in immigrant populations, so we do have to build trust with the groups who are most likely to not get vaccinated and are going to be at high risk from the consequences of COVID-19.

[1:00:43]

**Amanda Lenhart:**

And I think the trust question is actually a really important point. That, in some ways, so much of what is a challenge in the United States system is the lack of trust: the people who are hesitant about the vaccine; the people who don't want a nationwide system because they don't trust the government. And, my understanding, Ranjit, is that it's quite different in India?

**Ranjit Singh:**

Absolutely. Part of the challenges of what I was studying when I was actually looking at Aadhaar was also this question of: Why did people choose to actually enroll in this project in the first place? And the answers to this question are varied because, you know, when the project actually began the designers of the project as well as the government were very unclear on why they were actually implementing digital ID in the first place. It was supposed to *not* have a purpose? Because it was kind of done as a resource to basically then figure out a root identity for people to which other identities could potentially connect. It was a way of creating uniqueness of data records which then can translate into different data records that the government holds for different services. So it was never specified that "this is the reason why we're doing it." But at the same time, people chose to enroll into the project for prescient reasons like: "When we enroll into something that the government is doing, we generally get a benefit out of it." In a way, there was certainly trust with the way in which the government is looked at by Indian citizens, but—at the same time—it doesn't mean that this trust is universal. At this point, there was a lot of resistance to the project but, at the same time, as it increasingly became more pervasive, you know—we are living with this ID system now—so any form of resistance to it, to a certain extent, becomes increasingly harder to actually pursue over time. While you may say that you don't want to use an ID in the first five years of its implementation, as it gets appropriated by different parts of government, you have to have the ID in order to actually interact with the government in the first place, right? So, it's an incremental process, in that sense: you have these early adopters—it's like any big launch—you have the early adopters, and then there will always be late adopters for technology but, at the same time, we have to think about it in terms of: what is the threshold—or the tipping point—where if we have enough number of people who are invested and have done this, then it kind of changes the dynamic for the rest of the people? And that tipping point is something that is an open challenge right now. How we think about it is, not only an open question for this panel, I believe, but also a way of thinking about vaccine passports in general. Because you can easily imagine that, two years down the line, there will be

a lot of people who have this form of certification as opposed to others who don't, and then the consequences of not having them kind of ramify over time and can increasingly become a resource for getting them enrolled into the process as well.

[Here: 1:04]

**Amy Fairchild:**

Let me add one thing. As Ranjit was speaking, one of the things that I think it's important for us to keep in mind—and one of the reasons that Ada Lovelace made the recommendation that even though there was a lot of skepticism—the governments need to take responsibility here, governments are accountable to citizens in ways that corporations are not, so despite that fear there is responsibility and accountability there. That is one of the reasons I would like to see federal intervention in this area, because I do think it's going to be inevitable in some fashion—whether it's at a corporate level or because of what's happening globally—and it would be better for people we can elect to office and vote out of office to have some responsibility.

**Amanda Lenhart:**

Thanks Amy. I want to throw out a question which is I think we've heard from the Ada Lovelace process that we probably shouldn't be building—or maybe as of right now, based on the current evidence—should not be building vaccine passports. But we know that people are building vaccine passports, right? So knowing that, are there things that we should build into these passports into the technical architecture to mitigate or reduce inequities that would arise from these? Are there things that we can do or is that not possible? I open this to anyone who wants to come in.

**Imogen Parker:**

Shall I jump in? Of course, it's a really important question. And actually, when we were doing the research—we've got a forthcoming report in a few weeks which is the full final report from this, we are going to go a bit more into the technical side—but what we found when we were unpicking this is that: yes, there will be important technical principles around building this. Yes,

it will be important to think about privacy-preserving technologies, and data minimization. The kind of challenge around interoperability with this, like the sorts of information you need—not just vaccinated or not vaccinated, but when you were vaccinated, what the durability is, delay was between two doses—all these kinds of questions that will need to be fed in. Actually, the real, I think, anxiety that arose from our conversations was not in the technical build, it was the socio-technical. Actually, unlike something like contact-tracing apps where there are really tricky technical challenges to try and work through there, the sense was that there are more and more tools that are actually think quite *cautiously* about how you build ID systems, or how to be quite privacy-preserving. The fundamental purpose, I suppose, of a vaccine passport—and I'm using that word passport to indicate: it comes with permissions or denial—you know, this is not just the certification bit, this isn't just even the record, this is about how it is used—you can create something that is totally privacy-preserving, but the harms can still happen because the harms the might occur in the interactions between the actors that are policing that: that are permitting certain groups to do things, that are potential employees asking for this information, and I think it's about the socio, actually, more than the technical design directions. That's one of the reasons that we really wanted to push governments to say: "You can't *let this* happen organically. You're going to *have to* grapple with this question—and that might be saying it should or shouldn't go ahead—but there's going to need to be a lot of legal and policy design that goes around this for this not to create harmful outcomes. And that, I think, really echoes Amy's point around governments have a responsibility to understand quite how powerful this could be in shaping society—and that has to be done consciously, that has to be done thoughtfully, and any harms have to be addressed and ideally mitigated.

**Amanda Lenhart:**

We're actually right at where we were going to shift to our question and answer period—and we have a lot of great questions. So I am going to dip into our Q&A here and see if we can find a good question. And this is from Angelina—thanks Angelina—and it actually ties into this last question—and it is a long question, so I'm going to paraphrase, and hopefully I will do it appropriately. Angelina's asking about this data infrastructure and about the digital green

certificate that the EU is proposing for travel this summer, and saying: "Essentially, if there is globally a move towards interoperability on these passports—if that got created—does it create the potential for a massive data infrastructure that can be repurposed for all sorts of different purposes. Is that a reason to come out of interoperability?" is Angelina's question.

**Imogen Parker:**

I mean, wow—that's a really good question. I think that's really the right place to lay some attention as well: there is what goes into the technical build, there are the uses, but then there is also this question of: "What infrastructure are we building, and what is the power of that infrastructure?" And "How does that move from some actors to other actors?" If this is going to have to, in some way, integrate with a National Health Record—if there is a National Health Record, thinking very UK parochial there—or integrate with a national ID system, which we don't have in the UK, then what is that meta-infrastructure you're building? And I think that is a really important question and an area of concern, so I think it's a really good point to think about that additional layer of what is the system you're building, really that really draws on a lot of different countries, kind of very powerful data information about their citizens?

[1:10:00]

**Amy Fairchild:**

Let me add something here. And I think the infrastructure is the right way to think about it—and it does have a lot of dangers—and we don't do it lightly, but: this is my vaccination passport from the first dose of the Pfizer vaccine I got yesterday. This is my original vaccination passport—so we haven't come very far. And it's really important to understand, for countries like the United States, that public health systems can still exist in a technological backwater. There are places

doing contact-tracing on paper-based systems in the United States, using Excel spreadsheets—and that's better than a punch-card. We do have great systems of electronic health records, but we don't have that ability to share when somebody moves from one health system to another easily. And we really do—if we are going to be thinking about national public health, global public health—we have to have a better handle on some of the challenges because what's not counted doesn't count.

**Ranjit Singh:**

Just to build on this: one of the things that I would say is the question of interoperability is fundamentally a question of how do systems interact with each other, right? And we cannot, potentially, have a system which doesn't have built-in interoperability otherwise you're stuck in a system where—it is like a conversation—you cannot talk to somebody else if you're not basically having the same foundation of having the conversation in the first place. What might be an important way of thinking about this would be to actually think about what is the data that is being stored? And for what length is it being stored? So when we start thinking about histories of transactions, we can easily imagine that while the transactions are happening interoperability exists, but at the same time, six months down the line, that entire data set should not exist. And that would be a way of basically thinking through these particular changes of tradeoff between interoperability versus preserving privacy and surveillance—because storage of data is a more challenging issue than interoperability, I would argue.

**Amanda Lenhart:**

Great. Our next question is from Livia and Livia asks: "How do you see vaccine certification affecting the ability to become employed in certain industries—being required by employers? It is already in the US by new hires and nursing homes, for example. I can envision this being incredibly different according to context and varying according to labor protections, union

presence, and labor histories."


**Imogen Parker:**

That's, again, I think that's a really important point, and actually interestingly, when we were speaking to the German Ethics Council, it felt like  employment was the one area where they really thought: "this is the crunchy issue." In the UK context, there is a lot of attention being given, for example, to: you could have a cruise where all the passengers showed their vaccine certificate—or you can have a bar or theatre where people had to do this. I think what is made less explicit is: What does it mean for the people who are employed there? And, in the UK, the vaccine is moving pretty much through the ages, right? So we are going to have a real split between the 50s-and-overs and the under-50s very shortly. So I think that question of "What does it do to employment in general?" but really, in particular: What does it do to those in precarious employment? What does it do to those unemployed? It feels like there might be more protection or more thought but around kind of 'standard employment'? It's that tail of the population who are already facing potentially kind of poor working conditions, I think, this can be extremely troubling [for[, and I think it will be important to look at the existing legislation around employment, but also the equalities angle on this—and, again, I don't know about the US context for that, but in the UK, it feels like this is going to bump up against employment discrimination cases, particularly when you get groups that may not access the vaccine overlapping with protected characteristics. So one example for that is around pregnant women who aren't advised to get the vaccine—and that is a protected characteristic in the UK when it comes to employment rights. So I think that's, again, another reason that it would be good if governments are on the front foot about offering clarity about the legality and the legitimacy of any use cases where rather than leave this to permeate and then show up in courts or be challenged by people that have the resources to challenge it. I think that's where we really need this stuff ironed out *before rollout* not in the face of rollout.

**Ranjit Singh:**

Just to build on this, I would say that when it comes to contact tracing, for example, the rules of engagement for essential workers are fundamentally different from other people. If you're not an essential worker and you can work from home, the way in which contact tracing works for you is different from if you're an essential worker and you need to be out. So it is also a question of places and what is the affordances and limit of your employment in terms of thinking about the context of the use case, itself, that becomes important to consider here, in terms of: if you are providing services that requires you to constantly interact with other people, then the granular understanding of risk, as Imogen put it earlier, is different for you—and that, to a certain extent, changes the dynamics of what it would mean for you to not have a vaccine or choose not to have a vaccine vis-à-vis other people who might not face the same challenge.

[1:15:53]

**Amy Fairchild:**

That's a good point. I don't know whether India requires vaccinations for adults, but in the US this kind of flips the model on its head because we have this long history of requiring vaccinations for school children to attend school—and, of course, there are always ways to ask for exemptions to vaccination requirements and the same will be true for the COVID-19 vaccinations. Hospitals are one place that provide an example of a way forward. A lot of hospitals, if you look at flu vaccinations—nobody is going to require them now while they're being distributed under emergency use authorization—but hospitals often require seasonal influenza vaccinations—and  those who don't get them have to wear masks. When I worked at Columbia Presbyterian Hospital for many years, you had to wear your ID card to get into buildings and you got a sticker on it—it was like a vaccine passport—you got a green sticker on it and you didn't get in unless you had a green sticker or a mask on. That's a very specific kind of

setting where you have vulnerable populations—but I do think we will start to see it. I think we will start to see it in places like universities where you have students living in congregate settings, but the challenges are going to be not so much with faculty and staff, they're going to be dining workers, maintenance workers, who are going to be most personally at risk but are also going to be parts of unions that are going to be skeptical of mandates—in part, because of the implications that that could have for time off and if you need to take time off to get vaccinated. So if we're going to push forward with vaccination and mandates, we need to do it in a way that makes it as easy as possible for that to happen and reduce some of those barriers to the idea of tracking because you have easy access in the first place.

**Amanda Lenhart:**

An anonymous attendee asks a question that's, in fact, quite related to what you were just mentioning, Amy, which is: "In the US, we are seeing vaccination rates following lines of historical racial discrimination. Black and Latino populations are both the most affected by COVID and the least likely to have been vaccinated. What are the risks of creating another form of redlining and discrimination by requiring a vaccine passport?"

**Amy Fairchild:**

It's an incredible risk. And this is another reason government needs to be involved—even though government was central to redlining in the first place, in some fashion. We can't leave it to private interests to be making these decisions. That would be a huge argument against vaccine passporting. No question about it.

**Amanda Lenhart:**

I think we have time for one more question or maybe two, we will see. This is another

anonymous attendee who has asked: "What data do you think should be collected and stored? And where should the data be stored? How secure should that information be? And who should have access to the data, and what is the potential for abuse? I think we've talked a little bit about this in terms of the socio-technical being the big problems in the system, but are there particular ways to think about what data might be collected in this context or data that we should not collect?"

**Ranjit Singh:**

I guess just to start this conversation I would say that one of the best practices here, especially in the context of contact tracing has been that data needs to be stored on the phone of the individual rather than being stored in the cloud. And that, to a certain extent, allows for a certain amount of control—even if in terms of the physicality of the data and where it is stored in a way. What sort of data would be required is kind of dependent on [this question of]: What is the minimum set of data that can be used at a sufficient condition to identify someone while simultaneously knowing what their vaccination status is? So for example in India's case, specifically in the context of the biometric data set, one of the things the designers was trying to do was to also point out that we don't need a lot of demographic data  in order to immediately identify someone if we have biometric data. The core demographic data that the biometric ID in India stores is name, age, gender, and address—and that's it. Beyond that, the data collected has iris scans and fingerprints—all ten of them—as a way of duplicating records. In a way, the demographic data that is required in order to identify someone for this process might be minimal and could potentially be minimised vis-a-vis the need for basically just knowing whether somebody is vaccinated or not and which vaccination they received. And the data collection should actually focus more on other side-effects of these vaccinations: what was their experience at the facility where they received the vaccination? So it is more often an evaluation of the vaccination experience itself rather than targeting an individual because the focus of this evaluation needs to be on the service that is being provided as opposed to how much data gets collected on a person based on the service that they've provided.

[1:21:27]

**Imogen Parker:**

I'll just add one element in that I think is worth picking out and it also echoes some comments in the Q&A: we're using vaccine passports as a bit of a shorthand—and in different countries there is a greater emphasis on different aspects of this—so I think the model under consideration in the UK is something that might include natural immunity, antibodies, antibody test results, might include vaccine status, but it also might include test results. Now, if you're bringing in test results that is obviously a very time-sensitive thing that has very different efficacy and accuracy rates. So thinking through: What is the sort of data that you would need to collect to make this work in terms of that? I think that, you know, test results bring in a kind of big operational overhead because you have to build in all this information about something that probably is only valid for about 24–48 hours, as opposed to a vaccine. So, in a way, it minimizes some risks but, in another way, it brings in operational overhead. On the flipside, some systems are thinking more about bringing in more health records, more personal characteristics, that might have a strong correlate relationship with risk when it comes to COVID—so that might include occupational settings, that might include health, that might include gender, that might include other historic illnesses. Again, you can see that building in that kind of information magnifies the risk but it also potentially improves the quality of the model that you're trying to get to. And I think, again, this is where it gets they thorny very quickly and where you are really going to need to think hard about the legitimacy of the data you're collecting, whether or not you're building specific controls around scope creep—either for additional data or for uses at the other side. And also, it's something that we often call for at Ada but we are really focused on in this instance: that some of these trade-offs really deserve to be put to the public that there will be trade-offs around this; we had a phenomenal group of experts, but this isn't something that can be solved at an expert level in the same way it can't be solved at a technical level. This is

something I think where you really need to bring publics along with you and you really need to engage with those groups who perhaps are going to face unique consequences or have a particular experience in this context—whether it is a biometric IDs, or health systems that really warrants additional attention.

**Amanda Lenhart:**

Great. I want to ask one last quick question as a lightning round. Matthew asks: "Is there a risk that, if governments choose not to proceed with vaccine passports, that private companies will introduce initiatives—which we know they're doing—that may raise ethical and privacy issues? And, if so, what should governments consider in this case? So if governments are going to say, "Hey, I'm not going to be involved" what do they need to do? Are there policies that they put into place? Is there regulation that makes sense that would help, at least, shape the private sector around this issue?"

[1:25:00]

**Imogen Parker:**

 Shall I kick us off—because we have done some thinking explicitly about this? A few things I think  governments need to do, regardless of whether or not they themselves want to take this forward. Firstly, we would say set scientific preconditions: this *has* to be built on secure foundations; you have to be sure that it's going to work when it comes to transmission, it's going to tackle mutations; it's not going to have enough negative side effects that, say, encourage risky behavior because people think they're safe when not safe. Setting scientific preconditions is essential. I would say look at the specific use cases—and I think what has been really interesting about this conversation is that Amy and Ranjit and myself, we all lean into different potential purposes for this—and I think what is really critical is there are a lot of different purposes, a lot of different goals, and a lot of different potential use cases, and I think it's really up to

governments to decide whether *any* of those are valid, and, if they are, to ensure that they are building the policy and the legal infrastructure around those. I already mentioned the public deliberation, I think I already mentioned legal clarity: I think it's really important that some of these questions about discrimination when it comes to employment, some of that is up to governments to lead on. And then the last point I would say—and I don't know what the answer is because it's so rarely done well—we need to find a way to shut this down again. So if it feels like it's valid for the pandemic but not forever, we need to think about what are the sunset clauses we're building in? Can we get the data back out? Can we delete the data? Can we render this technology obsolete? Or do we need to be thinking very calmly and creatively about: "What would it feel like right now if we weren't in the midst of the pandemic? What if we were talking about the flu? What we would think is tolerable, and what we would be comfortable with?" And then we need to build those rules of the road around that scenario.

**Amy Fairchild:**

As I think about this—I'll go back to where I started—and even though I see some potential for this idea to drive infrastructure that we desperately need in the United States around public health, I think the use cases, again, are going to be very limited, and I would look to the analogy of masking in the United States. There are some locales where masking is pretty uniform—but the challenge is enforcing it—and that's where I see it breaking down in the United States. You're going to ask the cashier at a grocery store to enforce passporting, or ask somebody who has got an hourly job—you're going to ask an Uber driver—to do this kind of enforcement. So that's why I think, beyond some specific contexts, it's not going to be very useful. But I do think it has the potential—and this is where, again, I worry about some of the disparities, looking at our recent history of violence against Asian Americans, looking at our history of police brutality—you do worry about the ways in which citizen enforcement can begin to spiral out of control in the United States.

**Ranjit Singh:**

I completely agree with both Imogen and Amy, and the only thing I would say and add is that if

the government is not involved in the process, it needs to ensure there is no denial of access. If people want to get vaccinated, they should—and if they can't afford it, they should still have the opportunity to be vaccinated.

**Amanda Lenhart:**

And I think that's a perfect note for us to end on. Thank you so much to the panelists today—Amy Fairchild, Ranjit Singh, Imogen Parker—this has been a wonderful discussion. Thank you so much. I also want to say thank you to Eli and Rigo and CJ behind the scenes for making this another wonderful D&S event. To stay informed on upcoming research, you can subscribe to the Data & Society and Ada Lovelace newsletters. I believe links are going to be put in the chat for those who are interested in signing up. Again, thanks so much for joining us and I hope you have a great rest of your day. Thanks!

[1:29:13]