Digital Inclusion & Economic Development: Conversations with Pramod Varma, Alix Zwane, and Rohini Pande

Voices in Development: A Podcast from Yale's Economic Growth Center explores issues related to sustainable development and economic justice in low- and middle-income countries. This episode features Pramod Varma, Chief Architect of Aadhaar, India's digital identification program, discussing the role of digital public infrastructure in economic development.

Transcript

Catherine Cheney: Why do some countries advance while others fall behind? Who benefits from economic growth and who doesn't? How do inequality and climate change affect people, especially the most marginalized? What role can data play in answering questions like these and informing policies that promote economic justice? Let's find out on Voices in Development.

Hello and welcome to our podcast. I'm your host, Catherine Cheney. We're coming to you from the Economic Growth Center at Yale University, which is focused on economics and data driven insights for equitable development. In this episode, we're going to talk about digital public infrastructure, or digital networks that deliver social services to citizens. You'll hear from Pramod Varma, who was the chief architect of Aadhaar India's digital identity program, as well as Alix Peterson Zwane, Senior Fellow at the Yale Jackson School and CEO of the Global Innovation Fund, and Rohini Pande, Henry J. Hines II Professor of Economics and director of the Economic Growth Center.

Here's a bit of context on Aadhaar. Since the program launched in 2009, countries around the world have followed this model closely. India set out to give every citizen a unique identification number using biometrics or iris scans and fingerprint records. This digital identity is now used in all interactions with the state, together with India Stack, a software platform widening access to financial services. We caught up with Pramod after a recent visit to Yale, where he shared how India's transformative model of digital inclusion could be extended to low income countries globally.

But before we get to that conversation, let's hear from Alix Peterson Zwane and Rohini Pande about the links between digital public infrastructure and inclusion, and how having a digital ID in a bank account is a necessary but incomplete solution for inclusion. Rohini and Alex, thanks so much for joining us.

Alix Peterson Zwane: Great to be here.

Rohini Pande: Thanks a lot.

2:12 - 4:09
Catherine Cheney: So Rohini, I'd like to start with you because of course, you and Alix joined Pramod for this event at Yale titled Unlocking Digital Public Infrastructure for Global Growth and Inclusion. So can you help us better understand what you see as the link between digital public infrastructure and some of the work of EGC and some of these big goals around inclusion?

Rohini: Every few years, something comes along that is seen as the next miracle policy that's going to make it incredibly easy for poor people to get the money and the financial resources they need in order to escape poverty. And right now, with some reason, the hope lies for a lot of people with digital public infrastructure. So I think to understand the potential of digital infrastructure, it's useful to ask, what are the

constraints that a poor household right now faces, likely in a rural part of a country, and a lot of it relates to access. It's hard to get cash. It's hard to get to a brick and mortar bank branch. It's hard to persuade a bank that you're reliable enough to get a loan. It's hard to access Social Security, even if there are cash transfers that are meant for you. The hope with digital public infrastructure is that by relying on, kind of, an individual's identity, which is not going to change over time - so, for instance, through biometrics, as in the case of India, Pramod Varma helped set up with Aadhaar - you can set up a secure system and provide an individual who ideally has at least a mobile phone and a digital identity, swift access to resources. And in a world where enough of the financial systems are in place, you don't perhaps even need to cash out the payment. You can not just receive money digitally, but also make payments digitally. So that's really the hope, is that this is going to be a way to cut through the need for all the paperwork that you need to make a citizen be able to access resources that the state promises him or her, and to do that securely.

4:09 - 6:12
Catherine Cheney: And, Alix, I know that digital public infrastructure is emerging as a big topic of conversation in the global development community. I'm sure that's the case in your work. So I wonder if you can talk about how this comes up at the Global Innovation Fund and what do you see as some of the biggest opportunities, but also some of the biggest risks when it comes to DPI?

Alix Peterson Zwane: From a donor's perspective, I can think of at least three really important considerations that is driving some interest towards this new approach. The first of it is this actually makes it easier to justify and sell a transition towards more general budget support, as opposed to projectized support that works around the state. The second thing I would point out is that this dovetails quite nicely with this emerging localisation agenda, where donors are interested in making sure that increasing amounts of aid money actually does make it to recipient countries and to organizations headquartered and based in those recipient countries. And then I think the third thing I'd say is the revolution around cash as a means of supporting people, particularly refugees or displaced populations. Again, this technology dovetails very nicely with that agenda around moving goals that organizations have around moving away from providing in-kind services to providing cash.

Of course, on the risk front, the risk of mishandling of data or unintended consequences associated with the ability to collect and hold a great deal of personal information about people. I think in the Indian case, they've done a really impressive job of making sure that you're leading with the idea that individuals always own their data and supply it to others to use at their request, but in other contexts, that might not match well with traditional ways that individuals have engaged with the state or have engaged with regulatory authorities. And so we need to build up a culture around this just as much as you need to build up technical safeguards in that respect.

6:12 - 8:06
Catherine Cheney: I also wanted to ask about one powerful connection we see in India, which is this identity project and this digital public infrastructure project has really accelerated women's economic empowerment. And that's something Pramod talked about in his talk at Yale. So I wonder if you can expand on that, Rohini, how this can be a tool for women's economic empowerment. But perhaps it's not just the digital public infrastructure. There are other efforts that need to happen at the same time.

Rohini Pande: Mobile payments in India are just everywhere. They are ubiquitous in the smallest village and town, you would be able to use your phone to use one of the apps to pay with it. So I think that has been a huge success. There's recent research looking to see how this move away from cash by citizens has actually been something that has possibly even aided economic development. I think we have to be a bit more careful in saying whether this has actually been that beneficial for women. Certainly the hope is there, and I think there's a lot of philanthropy and other efforts going on and pushing it out.

But in a country like India, the gender gaps in both mobile phone ownership and mobile phone use are huge. And so if you don't have, in some sense, the hardware that you need in order to navigate DPI, the fact that the structure exists out there, it's going to be largely useless to you. And so I think a mistake we often make when we think about women's economic empowerment is to conflate changes that are happening at the household level with changes that we believe are happening for women. So yes, smartphone ownership in India has rocketed. Over 80% of households report that they own or have easy access to a smartphone. But that doesn't mean that women in these households have access to that. And in all our surveys, those gender gaps in smartphone usage are high, even for households that own a smartphone. And I think that's sort of a mistake right now that's getting made, is to really look at this impressive advances that India has made in this area and say, well, you know, digital has really worked for women.

8:06 - 10:03
Catherine Cheney: What we're discussing is this gap between the hope and the potential, and the reality. And so what do you see as the role of research, of academia, of development economics, in closing that gap in delivering on the potential of DPI for inclusion? So I'll start with you, Rohini.

Rohini Pande: One of the more important research questions is even to just ask what has been the impact? I think none of us doubt that there has been an impact. When you go to poor countries, when you just see the incredible change in how economic activity happens. But in order for governments, for philanthropy to know how much money they should be putting into this versus some say, very old fashioned technology, I think you need to know not just the size of the impact, but who is getting left out. And then after that, I think there's a huge role of research, at least in thinking about how do you design technologies, given what we think the implementation challenges on the ground are.

Catherine Cheney: Alix, what would you add?

Alix Peterson Zwane: Many years ago, in a former life, I worked at Google, and this was right around the time when they were introducing Google Maps and rolling it out, in particular in India. And you are still thinking about how is this tool going to get used? And Google spent a ton of resources just thinking about the user experience and trying to imagine the use cases for this. So they had people who were following around private detectives, people who were following around, you know, traditional food delivery guys on their bikes who had to time where they were really closely and tightly and trying to be quite open about thinking about we don't even know what we don't know about how some of these emerging technologies might be used.

So I think there's some of that qualitative work to be done to understand both the experience of people's lives. So the women that Rohini was talking about and then, yeah, being open towards thinking about what might come next from all of this.

Catherine Cheney: Alix, Rohini, thank you both so much for your time.

10:11 - 11:10
Catherine Cheney: Now that we've covered why India has emerged as a model for digital public infrastructure globally, let's dive into how the country rolled this out. PramodVarma was the chief architect of Aadhaar and India Stack. Now, he's the chief technology officer at the EkStep Foundation, which focuses on building digital public infrastructure in education, Co-Founder of the Foundation for Interoperability and Digital Economy, and co-chair of the center for Digital Public Infrastructure. Here's our conversation on the possibilities, as well as the challenges of digital transformation at a societal scale.

I want to start with just a really basic question around the definition of digital public infrastructure. So I've heard DPI mentioned in many forums, but actually one of the more useful definitions I heard from you, and you mentioned that it balances what the government is good at and what the private sector is good at. So can you give us all a better sense of what is digital public infrastructure? Why does it matter?

11:10 - 14:28
Pramod Varma: I think that there was a stark contrast in how government would approach an inclusion agenda versus a market approaches profit or a growth agenda, and they were not coming together. Typically they don't come together. The fundamental difference here is that if the government was trying to solve a large societal problem, like, let's make sure everyone has a bank account, let's make sure everybody gets subsidies in the right way. Let's make sure education or health care is taken care, you know, access to healthcare, for example. There are two approaches to do this. One, government tries to solve the whole thing, assuming the market's not even in the picture, they shouldn't do it sometimes or they don't do it, they won't do it. So because of that, government tries to do everything. And that's a very expensive proposition. So one of the things that fundamentally differentiated India's approach is the balancing of this act of what should the government do and what should the rest of the ecosystem do?

We came from a different angle. We came from an angle of scale, 1.4 billion people, and extreme diversity, 22 official languages or the Bangalore city, I come from actively, 109 languages are used. So we went back to very much basic first principle asking, saying, that let's ask what necessary conditions we must build now that allows us to evolve, continuously, evolve and build more solutions. So we were thinking like US highways. We were using those examples in our mind. What did U.S. government do? They didn't build the cars. It's not the government is providing car, you know, a government built car, you know. But they built the highways or, you know, the railroads and the infrastructure. So we have seen the balance happening on the internet, on telecom, on physical infrastructure, like highways, where government does minimum connectivity or the fabric for development, and creates a playground for innovation that allows innovators to kick in and to actually build innovations faster and cheaper.

When innovations can be built faster and cheaper, we believe diversity can be addressed, scale can be addressed, and most importantly, incentives aligned. Sustainability. Sustainability can be addressed because there is a market incentive to actually run. We also have always this question in our mind, would private sector ever get to the most vulnerable? Because there's no profit there. Even for that, we argued that if you actually create the infrastructure, it gets cheaper to build solutions for the vulnerable, even if it's a government built solution or a philanthropy or a NGO building a solution, let them build. It's okay. But even for them, it gets steeper because the infrastructure has been built.

So the DPI approach fundamentally differs in that we are getting the best of government to create interoperability and the creating the fabric and leaving it for the society as a whole. Market actors, NGOs, philanthropies to rise up to say, oh, now that you have this infrastructure, I get to build solutions faster, cheaper.

14:28-16:57
Catherine Cheney: So how did asking those questions and having those conversations lead you ultimately to Aadhaar and India stack?

Pramod Varma: So in 2009, when this digital identity project, first of India's digital transformation layers began, we need to understand the situation. At that time, we were then 1.3 billion people roughly, and India was struggling because we only had 17 - one-seven - percentage of Indians having bank account access. That means no financial products, no formal lending, access to capital. Almost everything is shut off right at one shot. And at the same time, India is also very welfare state. Actually, we give a lot of

social protection money to the people. In 2009, we were at that time about 50 billion USD every year in pensions and scholarships and pregnant women supporting them during the pregnancy and a lot of that. You know, farmer subsidies for farmers.

Now imagine nobody has a verifiable identity. Nobody has a bank account, nobody has any phone or any connectivity. But $50 billion is supposed to be given to them. Is it like giving salaries to people in your company who you don't know who they are. There's no identity. There is no bank account, so it's as good as leaking. That's what happened in India. It's like it was expected that half of the money, roughly at least half of the money, was going into middlemen, you know, who were just enjoying the asymmetry in the system. So the "why?" of Aadhaar was to provide a portable national identity to a billion people and make sure that sets the tone for them to open a bank account. So it was a very, very simple task, give identity to a billion people.

Difficult to implement, but a simple task. Original thinking in the government was that we will give ID cards to everyone, and the first thing in this team got together and say "no ID cards, just digital ID." And today we went from no one having bank accounts to 85 to 90% is having bank accounts. So we opened about 495 million accounts with no paperwork. And mostly women, by the way, because women were the biggest beneficiaries of identity and bank account, because they were the last ones to have any ID proof and address proof because husbands held all the documents normally, so they were always in the shadow of their husband. So women that came to the forefront, I think gender parity was achieved as a side effect.

16:57 - 18:43
Catherine Cheney: I did want to ask about privacy and security, and especially with an inclusion agenda, this idea that some of those who lack ID, who could most benefit from digital public infrastructure and identification solutions, for example, could also be most at risk if privacy and security is not built in from the start. Can you tell me more about how that was built in from the start with Aadhaar and your advice for other related efforts?

Pramod Varma: So we were very cognizant of that aspect of privacy and security. So design things we did is first, don't capture data that you don't need. Most tempting was to capture more data, not for bad reasons. Because you're going to enumerate a billion people, it's a good chance to actually ask a few more questions, because we want truly to understand their economic status, education status, it's really useful, by the way. Even including researchers would ask us, why didn't you capture you're going to actually ask a billion people to stand in line and get it.

You could have asked a few more questions, right? What's the big deal? Research questions. We would say no and we would cut down, cut down, cut down. And we cut down into just four fields, literally four fields: name, date of birth, gender and address. And the photographs that is required for bare minimum identity. Nothing else other than this and the core biometrics for duplicating and giving the identity. So minimalism was an argument towards privacy. If you don't capture data, you don't have to worry about security leaks because you don't have the data for anything.

Funny thing, that while it really helped us in privacy, the simplicity of the system was also a reason for scale because especially software engineers and product guys want to have more features, more stuff, more data. The more you have, the less chance you're going to succeed.

18:43 - 21:45
Catherine Cheney: I know your team had to navigate the digital divide in your work to make digital public infrastructure inclusive. So one thing not everyone may realize is you provided online verification, offline verification, feature phone based verification, as well as purely paper based verification. And that's

just one example of why India's really emerged as a model for digital inclusion. So what do you think is the potential of DPI and how could it improve lives for people around the world?

Pramod Varma: It is not just one intervention. It's not just internet. Think about it. It's a telephones smartphone, internet, GPS. When Clinton put out GPS in the public domain in 1999, nobody knew Uber is going to show up in 2010 or whatever, right? Nobody can predict the innovation. But the combinatorial nature of this infrastructure is very, very powerful. We have digital identity, we have digital payments, we have digital credentialing, for example, all our academic certificates, driver's licenses are all digital. That means I can walk into a bank and or when I join a company, I share my transcripts and everything. I can do it digitally in a verifiable manner. Now imagine when the cost comes down and trust increases. A lot more people can be served, and that's something which you start seeing. We tell countries, don't look at it as a one-trick pony, and don't look at it as just give ID and everything solved. No, it is just one thing. You have to do multiple sets, building blocks, and allow the marketplace to combine them and create newer solutions that you and I would never imagine.

So we are building a set of digital interventions that will allow faster, cheaper, affordable, accessible environments to happen. But we believe government cannot solve any of this other than laying the highways at the market. Players have to solve it. So you create that kind of inclusion. We work with countries to help them reimagine their digital infrastructure and not go down the same trap of full stack heavy procurement govtech approach. Rather we are saying do it cheaper, faster, build only the rails and create that environment for innovation to evolve, right.

So we are here to engage researchers, innovators, philanthropists, to globally put together a cohort of people who believe in the idea that if physical infrastructure has shown the economic boost, it can create economic boost. In 2040, we are going to be in the digital realm. Many countries are going to live in the digital world. We have to build digital infrastructure at that time. And what are good practices, bad practices? I think it is an ongoing thing. We are very, very hopeful that the idea is very sticky and the idea resonates really well with people saying, of course it makes sense to invest in infrastructure and create innovation and market economy that thrives on top of it.

21:45 - 22:08
Catherine Cheney: That's all for this episode of Voices in Development. If you'd like to learn more about the Economic Growth Center, you can visit the website at EGC.yale.edu, where you can also sign up for the EGC newsletter. If you enjoyed this episode, please share it and leave a rating and review and look for the next installment of Voices in Development on iGCSE website, Apple Podcasts, Spotify or wherever you get your podcasts.