

The World's Most Ambitious ID Project

Innovations Case Narrative: India's Project Aadhaar

In July 2010, Nandan Nilekani, chairman of the Unique Identification Authority of India (UIDAI), reflected on the progress made in the year since he accepted this cabinet-level position at the invitation of the prime minister of India, Dr. Manmohan Singh, whose Congress Party and its allies had won the national general elections held earlier that year.

The Congress Party's campaign had insisted that the fruits of India's remarkable economic growth had to be shared more widely and more equitably than had been accomplished through "trickle-down" economics, and the Singh government now had the clear mandate to strive for greater financial inclusion for India's huge population of poor and marginalized people at the bottom of the pyramid. A unique, fraud-proof identification for each of India's 1.2 billion residents was an audacious goal but an essential enabling step in this quest.

Nilekani had co-founded and built Infosys into one of India's biggest firms—and one of the world's best-known software companies. For him, this was a worthy challenge. After relinquishing the position of CEO to become co-chairman of Infosys a few years earlier, he had immersed himself in a research and book-writing project. This was not the typical executive memoir; instead, it was a study of India—its past, present, and future—based on extensive reading and personal interviews with over 120 experts on India from all over the world. Published in

Vijay Sathe is the C.S. & D.J. Davidson Professor of Management at the Peter F. Drucker and Masatoshi Ito Graduate School of Management at Claremont Graduate University in California. His research, teaching, and consulting work are in strategy, entrepreneurship, and the revitalization of organizations in all sectors of society.

*Professor Sathe became interested in Project Aadhaar after interviewing Nandan Nilekani about his book, *Imagining India*, for an audience at the Los Angeles Public Library in April 2009. (This conversation can be viewed at [Fora.TV](#) by searching for "Sathe"—click on Chapter 03 after the video begins to skip the introductions.)*

He subsequently obtained Mr. Nilekani's permission to develop a series of case studies—instead of a single case written after the project is completed, with its risk of retrospective bias—to learn from the project as it unfolds over the next few years. This is the first case in the series.

2008, *Imagining India* had received worldwide acclaim for the clarity and originality with which the book's 18 chapters explained why India was the bundle of contradictions that it was and, more important, how it could best capitalize on the opportunities it now had to catapult itself out of the quagmire of challenges it faced.

One opportunity that Nilekani described in his book was the creation of a unique ID (UID) that could empower and benefit the people of India, including through direct benefit transfers to bank accounts that the poor could open with the ID. With a GDP in excess of US \$1 trillion, India spent roughly US \$20 billion per year (two percent of its GDP) on subsidies for food, fuel, fertilizers, and other essentials, but a large proportion of that was siphoned off by vested interests, including corrupt officials and other intermediaries.

In 2006, Nilekani had been awarded the Padma Bhushan, one of India's highest civilian honors.¹ Thomas Friedman, author of the best-selling book, *The World Is Flat*, had credited Nilekani's view that the world was becoming a level playing field as the inspiration for his book's title and had called him the "Bill Gates of India." Now Nilekani had the opportunity to use his international reputation, his national credibility, his knowledge of the technology and software industries, his extensive network of connections, and his government position as a cabinet minister to meet the unprecedented technological, political, bureaucratic, and behavioral challenges involved in making the concept of a UID for every resident of India a reality.

As Nilekani reflected on his first year in office, he felt good about the foundation that had been laid for the project. Ram Sewak Sharma, a high-ranking official in the Indian Administrative Service who had successfully implemented a number of e-government projects, had been recruited as the director general for the project. Other equally talented and entrepreneurially minded officers from various services—such as the Indian Administrative Service, Indian Audit and Accounts Service, Indian Postal Service, Indian Revenue Service, and Indian Railway Service—had been appointed as deputy director generals to focus on particular areas of importance to the project, such as finance, technology, logistics and financial inclusion, and personnel and training.

The project design was based on a partnership model that leveraged the existing government infrastructure at the center and at the state level, and its implementation plan had been carefully developed and vetted. Expert committees had been appointed to create the necessary technical, legal, and regulatory standards. The project had been presented to NGOs and other interested parties in a variety of settings, and their feedback was solicited. To ensure maximum transparency to the general public, a website (<http://www.uidai.gov.in>) was created and updated regularly so that anyone could see the status of the project at any time and examine all its reports, documents, tenders, communications, and archives.

In April 2010, the name of the project was changed to Aadhaar, which means "foundation" or "support" in most Indian languages. The name and the logo, selected from entries received in a national competition, conveyed the notion of an

ID infrastructure for any direction that a resident of India wanted to take in life. One of India's largest-ever marketing and communication campaigns was being carefully orchestrated by some of the country's top advertising talent to position the brand as a "reliable and helpful family friend" in the minds of 1.2 billion people, 70 percent of whom lived in rural and sometimes hard-to-reach areas.

In addition to heading UIDAI, in April Nilekani was appointed chair of the Technology Advisory Group on Unique Projects, with a mandate to fix the framework for the government's large and transformational IT projects. This added responsibility was widely seen as a strong vote of confidence in Nilekani's chairmanship of the UIDAI and the considerable progress it had made in just a few months under his leadership.

By May, field trials using various biometric devices (fingerprints, photographs, iris scans) had been completed to demonstrate proof of concept for UID enrollment. Ernst & Young had been chosen to work as a technical consultant for the project and to prepare the requests for proposals. Some of the world's best-known technology companies were bidding for the opportunity to supply and operate the massive technology infrastructure to be built for UID authentication.

Nilekani knew he had the strong backing of both the president and the prime minister of India, as well as a budget of US \$422 million for the project in 2010–2011. He wondered what his biggest risks and challenges in the coming year would be, and how he could deal with them most effectively.

CABINET-LEVEL APPOINTMENT

On July 27, 2009, *Business Week* reported on Nilekani's project:

Nilekani is venturing into a sector he has criticized for years: India's sprawling government bureaucracy. "It is the mother of all IT projects," he says. The goal is to help bring masses of India's poor into the formal economy, where they can gain access to financial and social services...

Corruption siphons as much as 80% of the funds meant for India's poor, according to studies from Harvard Business School and the World Bank. In Nilekani's plan, card scans could verify that goods and money made their way from local administrators to the people.

Naturally, such a change runs against powerful entrenched interests, from corrupt contractors to government employees who leech from the system. So the political challenges Nilekani faces are every bit as daunting as counting India's people—one-sixth of humanity—and providing each with a high tech tool. To boost the effort, India's Prime Minister, Manmohan Singh, has invited Nilekani into his government, granting him nearly the power of a Cabinet minister. The initial budget is US \$ 20 million—a mere down payment on a total that should run into the billions.²

What Led the Government to Invite Nilekani?

While he was CEO of Infosys, Nilekani had served as a member of the National Knowledge Commission, a high-level advisory body to the prime minister of India that aimed to transform the country into a knowledge society. According to one blogger,³ Manmohan Singh was so impressed with Nilekani and his book *Imagining India* that, after his party's decisive victory at the polls in early 2009, he wanted to recruit Nilekani as minister of human resource development. Singh was himself a technocrat and others, like Montek Singh Ahluwalia, deputy chairman of the Planning Commission, were also technocrats. A correspondent from the *Times of India*, one of the country's best-known newspapers, reported on it in June 2009:

Early June: Nandan Nilekani gets a call from Prime Minister Manmohan Singh to join the planning commission. . .Nandan, according to sources, while thanking the PM for considering him for the job declined, citing corporate responsibilities. . .But the conversation with the PM lit the idea of holding public office, of being an effective change agent, and he mulled it over.

Mid-June: When the idea of public office was mooted again, Nilekani was ready.⁴

Why Did Nilekani Accept the Invitation?

Before he accepted the new position, Nilekani was aware of the liberating power of a concept like UID. He knew of the work already done to create the country's largest network of rural business centers to provide access to essential government, education, and financial services for the poor. He knew of the project involving biometric identification of food ration cards in the State of Karnataka, which aimed to enroll 45 million people and eliminate fake and duplicate ration cards, and he knew of many similar projects that could benefit from the UID.

Nilekani explained his motivation for taking on these challenges in a September 2009 interview with the same *Times of India* correspondent:

Q: What drives you, what motivates you to do this?

A: (Laughs) You are asking why I am not goofing off? First of all, I believe I should spend the rest of my working life doing something useful. I can't think of anything more useful than this. I believe we should lead a purposeful existence. Otherwise, you can dissipate very quickly. I am a lucky guy. A large part of all this has been luck, not a great plan that I have had. I have been endowed with everything anybody could wish for. I feel I should not waste that. I should use that unique position I have to make a big difference. And this is the best way as it, in some sense, plays to my skills and background.

Q: How do you see this panning out?

A: This is a five-year commitment. My job is to make this work and deliver something that is irreversible in five years. A lot of challenges today in India are challenges of execution. Translating policy and strategy into results on the ground. A big part of why that doesn't work is because some of the micro infrastructure is not in place. And this is one of them. This is a very important piece of the implementation improvements that we need. This is value for money, value for my time.⁵

Challenges of the New Job

In that interview with the *Times of India*, Nilekani talked about the challenges of his new job two months after he was appointed chairman of UIDAI:

Q: How do you find Delhi after Bangalore?

A: Obviously it is a very different world. It is a move from the private to the public sector. To the government. . .

Q: Have you figured out how the system works from the inside?

A: It is a steep learning curve. For example, getting people. How you get officers allotted to you? There is a process to be followed. How do you get office space? How are meetings organized? How do you document these meetings? All of these are new [to me].

Q: You are supposed to get people from the private sector in addition to government officers?

A: That again is a process. You have put in place a recruitment process to select the right people. In principle, the idea is accepted that it will be a combination of very talented people both from government and outside. The challenge is mixing these people from different backgrounds into one team.

Q: Does the job require a lot of networking?

A: I have been meeting ministers, secretaries, chief ministers [CMs]. The plan is to meet all CMs. Central side, I have met most of the people. This is a massively cooperative project. This isn't a project where you work in a corner, in an isolated environment and build something. Because it touches every Indian resident and every government department, it can work only in close cooperation with them. A lot of networking, diplomacy and meeting people.

Q: Tell us in brief about the project: investment, partners, vendors, people, technology?

A: Investment, I don't know yet. People, a few hundred from our side. The main thing is it's a partnership model. UIDAI itself will be in the business of giving numbers. The card, or whatever is the device, will be issued by the respective partners who will deal with the Indian residents.

Q: So UID won't be a card like a PAN card?

A: We might send you a letter with a number and say please keep this letter safely. That is just information. Usage happens when, say, the passport has the UID number. Eventually what will happen is that the UID number you get will start permeating the system. It will become ubiquitous. What's important is that you get the UID only once, then you can use it anywhere. That's the big change. You enroll once and get an identity for life. That's the big USP [Unique Selling Proposition]. That's how it reduces transaction costs, improves service for the people.

Q: Timeline for this?

A: In 12 to 18 months we want to roll out the first set of numbers. We will work with the registrars. . . Which registrar comes on board first and starts issuing will decide who gets it first.⁶

Nilekani's Philosophy and Perspective on the Project

On December 26, 2009, Nilekani described his philosophy in an article published in the *Times of India*:

Our team has presented the concept of the unique identification (UID) number to a variety of people—politicians, public administrators, businessmen, civil society groups, students and at public forums. An interesting trend we noticed across audiences was that the technological aspects of the UID model captured their imagination. . .

This pro-technology mindset that cuts across income groups and communities may seem curious in a developing country such as ours. . . For us, technology has been a source of reform and empowerment, a way out of entrenched, difficult-to-navigate institutions. This has held true since 1984, when a reformist Indian government, led by the youngest prime minister in Indian history, turned to technology to implement its pro-poor agenda. Rajiv Gandhi railed against “the brokers of power and influence” that dominated India's economic institutions, and saw technology as a way to loosen their hold.

What followed, among other initiatives, was the public call office model, implemented by Sam Pitroda, which transformed access to telecom in the mid-1980s, and established technology in a now familiar role—as a means of enabling greater access to resources and services at lower costs.

...

The transition that technology has helped enable in India fits into economist Douglass North's description of the shift of a limited access economy—where access to resources is controlled by a small group of elites—to an open access model, where resources and skills are widely attainable.

The World's Most Ambitious ID Project

The economic structure until the 1980s in India was a restrictive one, where government and an oligopolistic market controlled much of the resources through a licensing system, state-dominated production and centralized institutions. Entry costs into the economy were high—access to resources such as finance, subsidies and business licenses were restricted to those who had patronage networks. Access depended on “who one was, and who one knew.”

Technology has played a crucial role alongside reforms since then, in expanding circles of access. It has enabled India to move from markets where access to resources and institutions was limited—such as stock markets where trading was controlled by brokers, and agricultural supply chains where crop prices were determined by middlemen—to democratized, open access systems that have empowered individuals. Electronic stock markets have allowed individuals to execute their trading orders from anywhere in the country, and widespread access to mobile phones has meant farmers can call up mandis to negotiate prices...

The Challenge of Identity

Using the mobile phone for transaction and delivery of services such as banking has remained largely untapped.

A challenge we face in such service delivery is tackling risks that have emerged with open access systems. In economies with limited access, transactions depend on organized relationships, face-to-face interaction, identity verification and patronage networks. Anonymity is low, and systemic trust—a prerequisite for transactions—is easier to enforce.

Open access systems, however, come with greater anonymity. Service providers can't automatically trust individuals, since they have no history of business with them, and poor customers also often lack identity documentation. Remote transactions complicate these challenges further. Consequently, service providers now spend large amounts of money on KYC—know your customer—processes to ensure that the transaction with the customer is a safe one.

The Possibilities of UID

The UID number, with its “anytime, anywhere” biometric authentication, addresses the problem of trust within a transaction for both face-to-face and remote service delivery. Making identity easy to verify brings down the risks associated with enabling open access systems. The UID's online verification can also make geographical distances irrelevant to delivery of services. The ability of individuals to prove their identity anywhere in the country becomes valuable as migration and urbanization intensify...

The UID opens up a vast array of new possibilities for our technological future, and offers a foundation on which a host of applications can be built. For example, the UID number of each resident can be linked to a bank account through which the government can provide direct services, such as health and education, through digital vouchers and cash benefits. Such service delivery also enables governments to establish relationships directly with individuals, rather than interest groups. The increased negotiating power this enables for individuals will mean fairer, more transparent public delivery systems and stronger, more enforceable rights...

Until the 1980s, the infrastructure focus of Indian governments used to be on providing basic necessities—roti, kapda aur makan (food, clothes and house). Since reforms in the 1990s, the emphasis moved to broader, community infrastructure—bijli, sadak, pani (electricity, roads, water). Today, people's aspirations have shifted to "mobile, bank account, UID." The demand is for infrastructure that empowers the individual, and provides economic opportunity.

The UID is soft infrastructure, much like mobile telephony, internet connectivity and financial access, important to connect individuals to the broader economy, and critical for people to leverage opportunity and access.⁷

CRITICAL EARLY DECISIONS

People who knew Nilekani described his management style as highly consultative. He had a vast network of connections across all sectors of society, and he traveled extensively to meet people on their turf to solicit their input, to secure their buy-in, and to build personal relationships. The result was a series of critical early decisions.

A Number, not a Card, and Authenticated Online

The initial press reports referred to the UID as a card with the example of Singapore in mind. However, others who knew how things worked in India feared that a card could be copied and tampered with easily, and lead to much more corruption. This concern ultimately led to the decision to design the UID not as a card, but as a number that would be authenticated.

Off-line authentication would be simpler but would not offer the anytime-anyplace convenience of an online system. And because a demand-driven UID would take off only if it was useful and convenient, the argument for online authentication won out.

It was also decided not to use the existing government databases to collect resident information because they had been assembled *without* the de-duplication

tools and biometric technology that the UID planned to use to ensure that there would be no duplicates or fake IDs.

A Demand-Driven Partnership Model, with Multiple Registrars

The project would leverage the existing government infrastructure at the center and at the state levels and would rely on partnerships with a number of “registrars” who would serve as agents to issue the UID numbers. Other entities would be part of the “UID ecosystem.” This is similar to the familiar system in which banks serve as partners for the issuer of a credit card such as VISA, but the merchants who accept the credit card are also part of its ecosystem.

The belief that the UID should be implemented by a demand-driven approach was based on the huge success of the mobile phone in India: the total number of mobile phones in use was estimated to be 500 million at the end of 2009.⁸

The success of the mobile phone also influenced the decision to give the consumer a choice when enrolling for the UID. In addition to the central and state governments, the banks, life insurance companies, and other private-sector organizations could also be registrars for the UID and could compete with the government agencies to offer enrollment services. If one registrar did not serve the consumer well or charged too much for UID enrollment, that consumer could go to another registrar.

A Focus on Benefits for Everyone

The initial press reports had referred to the UID as identification for all *citizens*, but its mandate was to include all residents of India. Anyone could use a citizens-only UID as proof of citizenship; that fact presented a burden that the UIDAI was neither intended nor equipped to bear. Further, if the UID was restricted to citizens, it would exclude residents seeking to engage in legitimate activities that the UID could enable, like opening a bank account or obtaining a mobile phone or driver’s license.

Some villages in India had converted completely to computerized systems for particular applications, such as land records. Corrupt local officials, who could no longer collect money to issue these records, were known to break the machines and then claim: “Your machines do not work!”

Street-level knowledge about such grassroots implementation problems was another reason to design a UID system with features that took away the power of any one individual or agency. For all these reasons, the system had multiple options for enrollment (multiple registrars). It was a simple, open system, using mobile phones and fingerprint/iris readers, rather than a closed proprietary system for enrollment. It used online authentication (“anytime, anywhere”) and useful UID-enabled applications (such as micro-payments) to motivate many people to get the UID (mass adoption). Once adoption of the UID reached a tipping point, it would be impossible for those opposed to the UID to defeat it.

Summary: The Underlying Theory of Design and Change

The design theory was that if enough people saw the benefits of the UID and wanted it, they would push the system to make it work in a way that was non-corrupt and efficient. This is what had happened in the case of the mobile phone, and it was planned for the UID.

The theory of change was that the critical early decisions would create a massive demand for a new-to-the-world category of products and services based on the UID. For this to happen, it was clear that the general public would have to see the UID as a tool that could improve their lives, just as the mobile phone had done. Given how many applications the mobile phone now had in India—money transfers, reservations, access to prices and information, logistics, etc.—it was felt that no government, however enlightened, could have thought of all the applications that the consumers discovered for its use. A demand-driven UID would facilitate a similar outpouring of useful and user-friendly applications for the common person.

One thing the UIDAI team felt it had done “better than average” was the number of people, both experts and stakeholders, it had consulted in developing the project concept and implementation plan. Many of the pivotal ideas and assumptions guiding the project came from this intensive and extended process of consultation from the very beginning of the project.

MOVING FORWARD

Gaining Political Support

In February 2010, a cabinet-level committee on UIDAI, chaired by the prime minister, approved the UIDAI strategy and the concept of UID-enabled micro-payments to facilitate adoption of the UID.

In her address to the spring session of the Indian Parliament on February 22, 2010, the president of India, Pratibha Patil, mentioned the UIDAI’s establishment:

The Unique Identification Authority of India has been established with a mandate to issue unique identity numbers based on biometrics to all residents of India. This mammoth and unprecedented exercise will serve as a great enabler to improve targeting and delivery of major government welfare programmes and public services, especially to those who are poor and marginalized. The first set of unique identity numbers is expected to be issued in the early part of 2011.⁹

The Ministry of Rural Development, which oversees the implementation of the National Rural Employment Guarantee Act (NREGA), provided strong backing for the project because the UID would facilitate the direct delivery of benefits to the rural poor, without the current leakage to corrupt intermediaries. The ministry entered into a memo of understanding with UIDAI in this regard.

Although the UID project was unprecedented in terms of its scale and scope, UIDAI had one clear advantage: analogous concepts and pieces of the technology had been implemented successfully in parts of various states, and the resulting benefits had received wide publicity.

For example, the Municipal Corporation of Delhi had introduced a biometric system for checking attendance in August 2008; it led to the discovery of 22,853 “ghost employees” who were being paid Rs. 17 crore (US \$3.77 million) per month but who were nowhere to be found!¹⁰ This money was obviously being siphoned off by corrupt officials. Such dramatic disclosures made the public receptive to the benefits of biometric identification systems such as the UID, despite the concerns about privacy.

Securing Funding

The budget of the Indian government for fiscal 2010–2011 included Rs. 1900 crore for the UIDAI project, of which Rs. 1300 crore was earmarked for the states and their registrars to pay for setting up the UID enrollment process, including communication and training for the enrollment agents. (One crore equals 10 million, so Rs. 1900 crore equals US \$422 million at the exchange rate of Rs. 45 per U.S. dollar, or 0.17 percent of the total Indian budget for 2010–2011 of U.S. \$246 billion).

In addition, this scheme would offer Rs. 100 per person, effectively Rs. 400–500 per family (US \$25 to \$30 at the PPP—purchasing power parity—rate of Rs. 16 per U.S. dollar) to people below the poverty line as an incentive to register and obtain the UID number.¹¹ Rs. 2989 crore (US \$664 million) would be given to the states of India for this purpose over the next five years.¹² Assuming no leakage, this amount would provide incentives for 60 million to 75 million of these extremely poor families in India. Internationally, an income of less than US \$1 per day per head of household in terms of PPP was defined as extreme poverty, and 24 percent of the Indian population of 1.1 billion, or around 264 million people, were estimated to be extremely poor.¹³

Building the UIDAI Organization

The first step: hiring the right people. As mentioned earlier, Nilekani had recruited a director general and deputy director generals (DDGs) for the project, all of whom had successfully run similar projects. Technical, marketing, and legal experts from outside the government had teamed up with their government counterparts as external consultants. The UIDAI was headquartered in Delhi, with its Technology Centre in Bangalore. There were to be eight regional offices in the country, each headed by a DDG.

UIDAI faced a number of challenges in recruiting the 380 budgeted staff it needed because of the fact that this was a government project. Normally it would take a long time to hire people because of the number of required approvals, but Nilekani’s position as a cabinet-level minister helped to expedite the process and by May of 2010, 95 permanent staff had been hired.

Moreover, the complexity of the project required specialists in law, communications, information technology, and several other disciplines. However, since UIDAI was a newly constituted body, it did not have the inter-departmental coordination that other government ministries used to acquire the necessary expertise. As a result—and given the tight deadlines—UIDAI had to consider non-government sources for some of the talent it required. It could hire these professionals, despite the higher salaries and benefits in the private sector, because they saw UID as a challenging project of national importance and they wanted to be a part of it.

Other outside talent could be hired as consultants—for example, by organizations such as India's National Institute for Smart Government, which had expertise in e-government projects—because the government already had a mechanism, its project management unit, in place to enable consultants to support government projects. It was important to get people from these different cultures—government and non-government—to learn to work well together as quickly as possible.

Learning to work together across the cultural divide. One person with first-hand knowledge of the situation described this experience:

The last few months have been an interesting voyage of discovery in how the government-sector people and those from the private sector can work together. As senior government officers were hired into the UIDAI organization, they paired up with appropriate counterparts from the private sector who were hired by due government processes. An ideal mix of the public and private worlds was created to execute this national project.

As with any merger between two different cultures, there was some anxiety and confusion on both sides about how to work with each other. With the benefit of hindsight, people could see it was two different worlds clashing. The private-sector world focused less on hierarchy, while those from the government world focused more on protocol. Both sides could have been more attuned to these and other fundamental differences, but perhaps those from the private sector bore more of the responsibility for not being more sensitive to the world they were entering. As one insider said,

After the initial “sonic boom” around March 2010, things have settled down and the government people and their private-sector counterparts are meeting for monthly reviews. The government side is getting bigger and taking on more of the work now.

Quality of the people and their development. Another observer, who was no longer associated with the project, expressed some concern about the government servants being hired:

Nandan [Nilekani] hired Ram Sewak Sharma as the DG [CEO], and he is very good, very smart, very energetic and has the necessary time horizon because he is more than five years from retirement. The people Sharma hired are also very good. But a lot of the other people were not

hired personally by Sharma, or by the people he had hired, but by the government machinery. So I don't know about the quality of these people or about their dedication to the task.

What I fear is that there may be insufficient attention to detail and lack of compliance. A lot of the work will only happen if these people are on top of their jobs and ensure that work gets done quickly and effectively. They are the official channels of communication with the government agencies in the states. But the hope is that they will shape up as time goes on. Besides, the way the project is set up, a lot of the key work will be done by the registrars and by the technology folks who do not report to these people.

Avoiding Bureaucratic Wars

UIDAI had to gain the support of a number of agencies of the Indian government, including the Election Commission, the Census, the National Population Register, and the Department of Information Technology, to avoid nascent bureaucratic objections and infighting.

The election database was the largest list of individuals in the country, so initially some within UIDAI thought of working with the Election Commission. But UIDAI decided not to, based on the argument that, since the UID would be given to all residents, not just citizens, it might be used to claim citizenship if UID was viewed as closely associated with the election department.

Census 2011 and the National Population Register. Two important initiatives led by the registrar general of India, under the Home Ministry, overlapped with the UID. First, preparations were under way to conduct the decennial census in 2011, with a budget of Rs. 3600 crore (US \$800 million). After some discussion, the argument that prevailed was that the UID would provide real-time data on identification only, whereas the decennial census was needed for a more comprehensive enumeration of socioeconomic data not captured by the UID. Knowledgeable observers explained that unlike a corporation that killed parallel projects for the sake of efficiency, government agencies accepted redundancy as long as their own projects and budgets were not adversely affected.

Of greater concern was the UID's overlap with a new initiative also led by the registrar general, called the National Population Register (NPR), which would list the identities of the entire population. After the census of 2001, it was decided that during the next census in 2011, a parallel initiative, the NPR, would also be undertaken. On March 18, 2010, CNN.com reported on the progress:

India is launching what could be its most ambitious national project next month when it will attempt to identify every member of its 1.2 billion population in a national survey. . .starting April 1, an army of 2 million data collectors will start the National Population Register (NPR) which will build a colossal digital database of fingerprints and other personal data. . .

Officials insist the ID program was driven by concerns over national security and over rampant corruption undermining the government's anti-poverty efforts. . . Last year, Transparency International ranked India 84th on its corruption perception index of 180 nations. . .

The project. . . was originally envisaged about a decade ago. But the terror attack on the Indian financial capital of Mumbai in 2008 led authorities to expedite it. . . In India, illegal immigration from Bangladesh has been an issue of serious concern for over decades. . . according to India's external affairs ministry. . .

More than 70 percent of Indians live in villages. The country's homeless number nearly two million and more than one-third of the Indian population cannot read and write, according to census figures. . . Of India's 80 million tribal population, more than three million are primitive groups. . . .

Planners foresee a rapid rural-to-urban transition ahead in India. . . India's massive informal economy currently employs 94 percent of the nation's workforce. . . Some analysts say a concrete database of residents can be used to ease the burden on cities.¹⁴

There was some confusion about whether or not the Census of 2011 and the NPR were one and the same thing. The registrar general and the census commissioner held a press conference in April 2010 to explain how the two were related but different:

[With the census] we are trying to measure the quality of life that people are leading. After assessing the households, in February [2011], we will focus on individual data. Then the National Population Register will come into the picture. Please remember, Census 2011 and NPR are separate. We are collecting data on these two together just to save time.¹⁵

But it was still unclear whether NPR would be a database of citizens only or one for all residents, and how it would be coordinated with the UID. NPR planned to use teachers, homemakers, and volunteers to collect survey data by having them ask questions and fill out a form. The UID required more due diligence in collecting biometric information (fingerprints, photographs, iris scans) and checking names and addresses to ensure data integrity at enrollment.

Between April and June of 2010, the heads of these government agencies made statements to the press indicating that they had reached agreement that NPR and UID would both be databases of *residents*, not citizens. But these statements also revealed different purposes and priorities in the different agencies. UID, under the Planning Commission, was focused on financial inclusion, corruption reduction, and protection of individual privacy; NPR, under the registrar general of India and the Home Ministry, was focused on national security.

By May, the press was quoting Nilekani on the agreed relationship:

“We are going to be the back end where the NPR would collect the data and we will de-duplicate the data (demographic and biometric) for generating unique identity number. There is complete synergy of efforts,” Nilekani said while briefing reporters about the decision taken by the Cabinet Committee on UIDAI. . .

In generating the UIDs, the NPR is going to be our biggest partner. We have a joint administrative committee with the Registrar General of India (RGI) for this purpose. Along with NPR, the NREG, state governments and banks are going to be our partners,” he added.¹⁶

Another press report quoted Director General R. S. Sharma of UIDAI as saying, “We have an agreement with the Registrar General of India that the NPR exercise under the 2011 census would collect biometric data as well.” It also said that “UIDAI had recently signed up with the Life Insurance Corporation of India (LIC) as one of its registrars (for the UID)” and quoted Sharma as saying that “having multiple registrars is a must for the project.”¹⁷

Additional details came from a correspondent for *The Hindu*:

The data collection will be standardized so that all registrars—who will actually do the data collection—can use the same methods. The registrars include the Public Distribution System (PDS), the rural development departments which run the NREGA programme, the banks, the LIC, oil marketing companies, the Registrar General of India which conducts the census, and the National Population Register. The registrars are free to collect whatever other information they want, so long as they collect the stipulated demographic and biometric data for UIDAI.¹⁸

As one astute observer of government politics in India put it in June 2010:

It is now clear that NPR under the registrar general and the powerful Home Ministry will be *a* registrar for [the] UID, but not the sole registrar as they apparently wanted. What is not clear is whether this has created some tension that will manifest itself as a threat to the UID in some form that we cannot yet see.

Department of Information Technology. High-level visibility and support for the project also helped to quell what could have become internecine bureaucratic infighting. For example, the National Informatics Centre of the Department of Information Technology provided network backbone and e-governance support to central and state governments. The fact that the project required a special focus and would be reviewed and approved by a cabinet committee chaired by the prime minister ensured support across the board.

Building Coalitions to Overcome Anticipated Resistance

By the last quarter of 2009, Nilekani and his team were spending a massive amount of time selling the project approach to the various constituencies. A first draft of what was to become the UIDAI Strategy Overview was prepared and presented,

often using PowerPoint and question-and-answer sessions, to a variety of stakeholders in all sectors of society. The aim was to get all the stakeholders excited about the potential benefits of the project, to solicit input, which was summarized on the UIDAI website, and to build public support for change.

Nilekani viewed this effort as analogous to a “road show” undertaken by startups for their initial public offering or to the “evangelizing” of third-party developers by software companies like Apple. By the end of 2009, he had met personally with the leaders of key companies and NGOs, and the heads of all the relevant central ministries, as well as 20 of the 36 chief ministers of the states of India. He and others on the UIDAI team also met with all the registrars; these entities were generally aligned with the UID enrollment strategy.

The first killer app: UID-enabled micro-payments. With the UID positioned as “soft infrastructure,” comparable to a bank account or a mobile phone, and as a “utility” comparable to electricity, the first application being developed to kick-start the adoption of the UID was UID-enabled micro-payments. For the fewer than 20 percent of Indian residents who had bank accounts, ATM machines and ATM withdrawals were commonplace; now the aim was to enable everyone, including those living in the half million villages of India, to have a UID-enabled “no frills” bank account for authentication-enabled transactions.

For example, people could make micro-withdrawals or micro-deposits (for as little as Rs. 10, or US 20 cents) using a mobile micro-ATM machine with a fingerprint scanner for ID authentication. A villager eligible for payment of, say, Rs. 500 from the government’s NREGA could go to a local merchant, called a “kirana” shop or to some other “business correspondent” that the Reserve Bank of India (RBI) had authorized to serve as an agent for a bank, and withdraw money from his or her account.

UID-enabled transactions could also help to pull in part of the informal economy. For example, in the state of Bihar alone, it was estimated that Biharis working outside the state transferred home Rs. 20,000 to 30,000 crore (US \$4 billion to \$6 billion) via informal channels. The UID would remove the problems involved in these transactions, and eliminate commissions to middlemen, while securing them against loss or fraud.

In short, the UID-enabled micro-payments scheme was conceived as what the software industry called a “killer app,” one that would become a part of people’s daily lives, and take India one giant step forward from a “closed-access economy” to one that was “open-access.”

The “coalition for financial inclusion.” The UID-enabled micro-payments concept was developed in collaboration with the RBI, and the ministries of finance, rural development, and other government ministries, as well as players from the banking and telecom industries, referred to collectively as “the coalition for financial inclusion.” The aim was to achieve universal banking. The UID would enable the government to deliver services to the poor via direct benefit transfers into their bank accounts; it would also allow the banks to make money at the bottom of the

pyramid because a UID-enabled bank account was likely to become the sole delivery channel for all government benefits.

Despite the potential for new business, it took some effort to get the banks on board because this was a mammoth undertaking that required them to learn to do business with millions of “business correspondents” who would interface with the end users. The telecom players, on the other hand, had already learned to work with the 1.6 million retailers in India—the places where people went to set up and recharge their mobile phones. The UIDAI arranged a meeting of the Indian Banking Association with players from the telecom industry and asked both parties to explore if they could work with each other on UID-enabled micro-payments, or if there were any regulatory barriers impeding collaboration that had to be removed first.

The banks had to be persuaded to engage in this process because they had a different core competence (secure transactions) than the telecom players (secure communications), but both were needed to make UID-enabled micro-payments a reality. The RBI also signaled that it would consider allowing other entities to deliver banking services to the poor in order to facilitate financial inclusion, if the banks were unwilling to do so. The banks were asked to submit plans for how, by March of 2012, they would offer banking services to every village in India with a population of more than 2,000 people.

The “coalition for financial inclusion” was created by attending to the interests of the various stakeholders and by using a domino or cascade strategy. Once the RBI approved the strategy, it was easier to get the banks on board. Once the RBI and the banks agreed, it was easier to get other financial intermediaries on board. Consequently, the telecom players were happy to be involved and, once they were on board, the needed suppliers were ready to bid for the opportunities for new business.

UIDAI personnel supported this cascade strategy through appropriate facilitation of meetings of working-level coalition managers. For example, career bankers said they would have implemented payment schemes for the masses long ago if it were that simple! They asked what banking experience the UIDAI team had to make them think their plan would work.

To avoid turf wars, the answer given was that the UIDAI personnel were indeed not bankers, but that this was a promising idea of national importance with huge potential that could work—if the bankers were up for the challenge—because it had strong support at the highest levels of government and because India had the technological capability to pull off such a massive project successfully.

The UIDAI team worked hard to facilitate such face-to-face dialog (“let’s get the right people together in one room”) and create working bonds across the cultural chasms that separated the institutions that needed to work together. By May of 2010, in collaboration with the Indian Banking Association and the RBI, technical standards for a micro-ATM machine (combining a mobile phone with a fingerprint reader) had been established.

Also by then, a dedicated team under Deputy Director General Ashok Pal Singh had begun to work with the RBI to find ways to promote financial inclusion using the UID. They came up with a revolutionary idea: Instead of going to the banks and begging them to enroll the poor, why not give enrollees a default, “white-labeled” no-frills bank account during enrollment? The enrollee could choose whether or not to open that account. Once the people in a district were enrolled, the roughly two million “white-labeled” accounts given to these people would be put up for auction to the highest bank bidder. The winner would potentially acquire two million new bank accounts in one fell swoop! Boston Consulting Group was providing pro bono services to UIDAI to analyze the business model and to bring this idea to market.

Sources of expected resistance. The project anticipated that it would encounter resistance from entities such as the machinery implementing the public distribution system (PDS) in the states, and the vested interests that benefit from the leakages. Operated under the joint responsibility of the central and state governments, PDS purchased essential commodities such as wheat, rice, sugar, and kerosene; then, through its network of half a million “fair price shops,” it sold them at subsidized prices to those living below the poverty line who were issued ID cards to claim their rations.¹⁹ The total annual subsidy was about Rs. 32,000 crore (US \$7 billion). As a *Times of India* reporter wrote on March 17, 2010,

The sale of foodgrains through the public distribution system to poor families throughout the country at highly subsidized prices is stinking of corruption, hoarding and black marketeering, the Supreme Court appointed central vigilance committee said in its damning reports. . . The fair price shop owner is aware of bogus/fake ration cards and uses these for black marketing of PDS foodgrains. . . There is a thriving nexus between fair price shop owners, transporters and corrupt officials.²⁰

The UID and its online authentication would put a damper on this leakage, and the “nexus” would surely find ways to fight back. In general, opposition to the project would come from those who currently benefited from the closed-access economy, including corrupt contractors and government officials, and politicians who depended on contributions to slush funds. Once implemented, the UID would ensure that government money reached the intended beneficiaries; thus it would change the way the political parties were funded from the grassroots level on up.

Parts of India were not only highly corrupt but also extremely dangerous, and here the implementation of the UID was expected to take much longer and face far greater challenges.

In June of 2009, a *Times of India* reporter described a movement in one such region: the dreaded “red corridor” that stretches along seven eastern states of India:

Naxalism, which started off as a people’s movement, has now become a nearly Rs. 1500 crore [US \$333 million] organized extortion business. . . the “levy” is not only paid by contractors working in areas dominated by

the Naxals but also by the industrial houses including some of the nationally reputed ones. . . in most cases, the amount generated in the form of a levy usually goes into a “luxurious lifestyle” of Naxal chiefs.²¹

Responding to questions from the press about this issue, the registrar general of India, under whose authority data would be collected for the census and for the NPR, stated:

So far, no one has opposed the census. The Naxalities have never raised their voice against the census, which tries to ascertain the ground reality. . . . But we have sensitized the workers who will be working in the Naxal-affected areas. As far as the security of the workers is concerned, State governments will have to take care [of that].²²

The UID “tsunami” to overcome resistance. With UID-enabled micro-payments as the exemplar, efforts were now under way to conceive of other UID-enabled products and services that could benefit residents—and that were also aligned with the intent of the policy-makers and the interests of the delivery channels. The development of these products and services was Stage 1 of the project to give the UID the “right to win.”

Stage 2 would be field pilot projects and proofs of concept to demonstrate the “experiential benefits” of the project to the villagers themselves, by showing them how the UID could impact their lives, positively and significantly. Stage 3, the scale-up, would involve going “live” with the UID benefits that were already proven. It would have the backing of the coalition for financial inclusion as well as other coalitions to be built, and a war chest of hundreds of thousands of crores of rupees (billions of U.S. dollars) of government funds and for-profit money available for the project. The plan was to build up a “tsunami” of support for the UID in order to overcome any opposition to it.

CHALLENGES TO EXECUTION

Technology Challenges

The key to the technology challenge is India's enormous scale and scope. In some of India's states, including Tamil Nadu and Karnataka, complete financial inclusion had been achieved in certain villages. But when these villagers travelled to other parts of India for work or for pleasure, they could not make deposits or withdrawals because they could not access their accounts from remote locations. UID-enabled bank accounts supported by authentication-enabled transactions would solve this problem: they would provide, in effect, a national interoperable platform or grid for financial inclusion. The technical challenge was to scale-up, by a factor of ten or more, systems for financial inclusion that had been successfully implemented in pockets of India.

ID systems based on the concept of de-duplication for authentication had already been implemented for databases of up to about 100 million records; the FBI reportedly had such a database and capability in the United States. For a pop-

ulation of one billion, the de-duplication systems would have to work with a database that was ten times that size. This made the project exponentially more challenging because every record had to be checked against every other record during the de-duplication process. With a database of 100 million, that meant that 100 million records had to be checked against 100 million-minus-one records. At one billion records, that meant that a billion records had to be checked against a billion-minus-one other records.

Another reason why this project was far more technically challenging than the systems already in use was that the latter were “closed systems” dedicated to a single application, for example, social security numbers in the United States. The UID had to be an open, interoperable system that could facilitate multiple applications.

The speed of the de-duplication process was also critically important. The system was being designed to scale-up to a database of 600 million UIDs within five years, at which point the enrollment rate was expected to peak at around one million to two million new UID applications per day. All these new applications would have to be de-duplicated against the 600 million records already in the database, and within 24 hours, before the next batch of one million to two million new applications arrived.

An additional challenge was that biometric identification using fingerprints, photographs, and iris scans did not provide 100 percent confidence regarding the results. The system might indicate a match between two very similar IDs when in fact there was no match (a false positive), or it might indicate no match when in fact there was a match (a false negative). These known problems could be managed with smaller databases. With a billion IDs in the database, no one really knew how the system would cope with false positives and false negatives and do so quickly enough to allow for online authentication. No one in the world had tried it on this scale before!

One response to this challenge was using world-class vendors. In February 2010, UIDAI awarded the global consultancy firm Ernst & Young a contract to provide advisory services in connection with setting up the CIDR (Central ID Data Repository) and selecting the managed service provider (MSP). Ernst & Young would develop the overall program management strategy, a road map for implementing the UID project, and detailed functional and technical requirements for all the IT and non-IT physical infrastructure components of the CIDR, which would then be put out for bids.

Because of his former ties to Infosys, Nilekani had said he would recuse himself from any decision in which the firm was involved. Indeed, Infosys had bid for the Rs. 30 crore (US \$6.6 million) contract that MindTree won in competition with 19 other companies, including Indian IT titans Wipro and Tata Consultancy Services (TCS) and global giants IBM and Accenture. MindTree would develop the technical and financial standards that UID registrars could use to evaluate and select the enrollment service providers, which would be large firms like TCS, as well as NGOs.

Although IBM and Accenture were strong contenders, they could not guarantee the permanent staffing that MindTree could.²³ For such contracts, it was customary to guarantee staff members who had equivalent skill sets but not the same staff. The resulting “churn” in consulting staff was a risk that clients often didn’t see until after the contract was signed and work had begun. With his deep knowledge of the IT industry, Nilekani understood the importance of having permanent staff assigned to the project for its duration, and UIDAI insisted on this as a condition of the contract.

As reported in the press, R. S. Sharma provided details regarding the vendor contracts signed as of June 2010, and the timetable for future agreements:

“By July 31 we will have all the respective vendors in place, that includes data centre and the biometrics provider,” Sharma said. UIDAI has appointed MindTree for application development and services, and BPO (business process outsourcing) firm Intelenet for its call center. The managed service provider (MSP), who will manage the database, will be signed only after the infrastructure is in place.

“We are expecting to sign up with the MSP by October this year. . . Once the MSP is on board, they will take over the entire operations and be the single point of access (to the CIDR). Unlike some of our other contracts, the time period for the MSP will be medium- to long-term,” Sharma said.²⁴

The world’s biggest IT companies, including the U.S. firms IBM, Hewlett-Packard, and Accenture, as well as the Indian giants Wipro, TCS, and Infosys, were expected to bid for the Rs. 1000 crore (US \$222 million) MSP contract. For the biometric devices, Wipro, NEC, and Sagem had submitted bids for the US \$10 million to \$15 million contract.

Demand Generation Challenges

Here the first challenge was building and communicating the brand Aadhaar. The name Aadhaar (foundation) and the associated logo were chosen in an all-India competition that received 2,000 entries. The *Times of India* quoted Nilekani as saying,

We wanted a name that could effectively communicate its transformational potential and its promise to residents. Something that had a national appeal that could be recognized across the country, could resonate in different languages and would be easy to remember and speak.

He said the same standard was also set for the making of the logo. The new logo, with a sun in yellow and a fingerprint in the centre, was also made public at a seminar organized by the UIDAI here.²⁵

The marketing and advertising campaign for Aadhaar would support its positioning as a reliable family brand:

Like all campaigns worth their salt, this one too will kick off with posters at the usual spots: village haats, river ghats, bus stops and pan shops. The radio and TV ads will take over from there until a committed band of individual volunteers carry the message personally to the masses. . .a core committee of marketing experts. . .plan to make the Aadhaar brand universal.

The positioning: Aadhaar as a reliable family friend or someone with great strength and integrity. . .the Aadhaar campaign will be the largest ever social campaign. . .as it will include children too. The basic challenge is demand generation, as it's a voluntary programme.

The panel comprising top names in Indian advertising have identified about 1.5 crore [15 million] retail points for communication including kiranas, music shops, halwais, auto rickshaw stands, mechanics and cycle repair shops. . .

There needs to be a whole team of influencers who could potentially make people understand the need for Aadhaar and mobilize them during time of enrollment. . .the influencers will include about 30 lakh (3 million) influential retailers out of 1.5 crore [15 million] total retailers; 150,000 Anganwadi/Asha workers [accredited social workers trained in health, nutrition and child development]; 130,000 rural post offices; 600 district magistrates. . .UIDAI plans to train 104,000 agents who will directly help in the enrolling process.

Railway stations may also ring with songs exhorting the benefits of getting Aadhaar in Hindi. Besides, sporting events like wrestling and cricket tournaments, and cinema will also adorn Aadhaar ads. The programme may also consider celebrity endorsements. . .The government will use outdoor media such as handouts, wall paintings, banners, infomercials and interpersonal media such as songs and drama for communication.

In the first phase, about Rs. 50 crore [US \$11 million] is allocated for this year. More money is likely to be released for market research.

To build the Aadhaar brand, the government plans to use three moments of truth [MOTs] for. . .the Unique ID brand experience [first MOT when a person finds out about Aadhaar; second MOT when he or she enrolls and gets a UID number; third MOT when he or she experiences the benefits of a UID number in daily interactions with mobile operators, banks, gas stations, ration providers, NREGA payments, pre-natal checkups for women, access to schools for children of migrant laborers, etc.]²⁶

Enrollment Challenges

By May of 2010, the program had completed field tests with the three different types of biometric devices. In partnership with the registrars in three states (Andhra Pradesh, Bihar, and Karnataka), around 20,000 people in eight to ten vil-

lages in each state submitted their biometrics for these tests. The process went smoothly and no one complained about being asked for biometric data. The technical teams analyzed the data to figure out how much of it was clean or needed cleaning, how long it was taking to collect the data for each biometric, and other trends and patterns for each of the devices tested.

The next big milestone was proof of concept: actual UIDs would be issued within the next two months, within the publicly committed deadline for issuing the first UID numbers. The project was on track to deliver on this target. In addition, pilot tests using micro-ATM machines for UID-enabled transactions were scheduled for August 2010. Work was also being done on other applications for the UID.

The project had signed a memo of understanding with the Department of Posts (DoP), making it a strategic partner that would pick up UID data from the various enrolling sectors and deliver it to the closest sub-stations where it would be uploaded to the CIDR servers. DoP would also deliver the letter that communicated the UID number to each resident; DoP had 155,015 post offices, of which 90 percent were in rural areas.

UIDAI still had work to do in specifying the detailed processes that the registrars would need to follow for error-free UID enrollment. Given the diversity of procedures in government agencies across the states of India, standards had to be developed to ensure data quality across the system.

UIDAI would provide training materials so that when the resident stood in line to apply for the UID, both the enrollment agency and the operator would have been certified by UIDAI, with independent third parties auditing the process and re-rating the agencies to ensure adherence to standards and data integrity.

By June 2010, UIDAI had signed memos of understanding with the governments of 15 states of India, and with the Life Insurance Corporation of India, confirming them as registrars for UID enrollment. It was in the process of concluding memos of understanding with many other public and private agencies.

The UIDAI had insisted on allowing multiple registrars, so that if the administration of a particular state was not implementing the UID project, other entities would be commissioned or already available as registrars. Rather than predict which central and state agencies were genuinely enthusiastic about the UID, the plan was to welcome them all, to begin where there was the interest and the commitment to implement, to build momentum with the innovators and the early adopters among these agencies, and to allow the others to join later as the bandwagon rolled on.

Some state governments were not looking forward to competition for their registrars. It remained to be seen if they would push back or try to slow down the use of other registrars, including those from the private sector.

Addressing Privacy Concerns

The fact that the NPR was under the Home Ministry and primarily concerned with national security—but would now collaborate with the UID authority—led to

heightened privacy concerns among members of civil society and advocates of civil liberties. Even though the current government was viewed favorably on these matters, there was concern that a future government might misuse the database as a tool of oppression. As one observer, a strong supporter of the UID, put it,

One set of frictions is between the government departments. But another set of frictions that need to be understood is with civil society, whose members are extremely afraid that now the home ministry will get access to UID information. If there is a new government with different priorities, the UID information could be used to profile people or invade individual privacy.

What is a huge threat to the project in my mind is that it doesn't take long to have a story that says, to take a hypothetical example, that a breach in the UID system allowed members of a minority community to be identified and targeted for violence. If something like that were to happen, the project would come to a screeching halt and there would be *no way* to move forward.

A major Indian newspaper, *The Hindu*, had offered this opinion in its editorial on November 13, 2009:

With proper implementation, the transformative potential of the UID scheme in enhancing access to government services should not be underestimated. In becoming a single source of identity verification, it could enable the easier rollout of a number of services such as bank accounts, passports, driving licenses, and LPG (Liquefied Petroleum Gas) connections. Proof of identity and greater financial inclusion could lay the basis for checking fraud and corruption, avoiding duplication and targeting intended beneficiaries in a range of programs. . . The attendant risks of such a potentially game-changing scheme—which include risks of hacking, privacy invasion, and possible misuse of information by a future “Orwellian” government—are real.

The UID project should be open to wide public debate and Nandan Nilekani, the former co-chairman of Infosys who heads the Unique Identification Authority of India, has made a good start by seeking opinions, allaying apprehensions, and discussing details of the project with a wide section of people in government and civil society. . . What it needs is a legal framework that enables the creation of a unique identity system with adequate safeguards to protect privacy and confidentiality.²⁷

Privacy concerns would be addressed explicitly in the legislation authorizing UIDs that was being prepared for the monsoon session of the Indian Parliament starting in August 2010. For example, it would be illegal to acquire UID information except under a specific court order. The technical team was also working on building safeguards into the design of the UID system itself so that even an “Orwellian” future government seeking to bypass the law and invade the privacy of

its citizens would not be able to do so. For example, the UID system would only provide a “Yes” (this is a unique ID) or “No” (this is a duplicate ID) answer to a query without revealing any other information.

Specific measures were also being taken to ensure that the entire UID system was secure. Clear registrar agreements would be in place regarding sharing and storage of information, and any agency that failed to follow the security standards while issuing the UID would be removed from the system. All data would be transferred over an encrypted network. Access to the database would be highly restricted, with clear audit trails on information records accessed. There would be automatic alerts in case patterns of suspicious access to the database were detected. Additionally, any information collected on individual residents would not be shared or distributed.

As reported by a writer for *The Hindu*, Nilekani met with leaders of civil society and others concerned about privacy to assure them of the safeguards being put in place:

UIDAI will support and endorse any action toward formulating umbrella legislation on protecting data, according to its chairman Nandan Nilekani. He hoped that this would help address privacy and security concerns, apart from the safeguards being built into the UID Act itself. The draft legislation for the Act, which will make UIDAI a statutory body, is in the final stages and will be put in the public domain for feedback.

“We are just a number issuing and data collecting authority. . . UIDAI is just the back end,” said Mr. Nilekani. He said partner agencies would only be allowed to confirm identity with a “yes or no” query. They will not be allowed to access all the detail in the database. However, he admitted that in cases of national security, such safeguards could be bypassed and specific information could be given out.²⁸

Could the UID Hurt the Poor?

There was some concern that the UID, a tool designed to benefit the poor, would become a tool for their oppression. Some of the poorest and most marginalized residents of India survived because they lived under the radar. For example, the homeless urban poor on the streets coped with police harassment by becoming “invisible.” Would the UID make these people more visible and thus more vulnerable? Ration cards and election ID cards in the hands of the poor made them the targets of intimidation and thuggery; would the UID make them even bigger targets? Or, contrary to these concerns, would the UID begin to empower these people by giving them an identity, legal rights, and a voice? One social worker who worked with the poor and the homeless believed it would:

Believe it or not, these people would like some standing in society where they are recognized. What is happening for these people is that a lot of their aspirations are coming out because of information spillovers—peo-

ple see kids going to school, using mobile phones, TV, Internet. And they recognize that they are not going to be able to fulfill their aspirations by being out of the system. So they want in. And the UID will enable them to do that.

Some people believed that the new “national grid policy” raised far bigger privacy concerns than did the UID. Following the terrorist attack in Mumbai in November 2008, the Home Ministry announced its policy of improving national security by getting various agencies (such as the NREGA, the police, the national security forces, and the income tax department) to more efficiently share the information in their databases. In fact, NREGA already posted individual names and addresses that anyone could access on its website.

As Nilekani reviewed the progress made during his first year as chairman of UIDAI, he thought about what the biggest challenges and risks to Project Aadhaar were, and how they should be dealt with. In addition to meeting the unprecedented technology challenges and overcoming the monumental demand generation challenges, success hinged on ensuring that at least half of the 1.2 billion residents of India were motivated and enabled to complete the enrollment process and obtain a UID within the next five years.

Acknowledgments

Professor Sathe would like to thank Mr. Nilekani and his colleagues for taking the time to provide the requested interviews and referrals. Although the case is based largely on information in the public domain, it would not have been possible to develop it without the insights gained from interviews with knowledgeable observers both inside and outside UIDAI, the government agency responsible for Project Aadhaar. Professor Sathe wishes to thank all these people as well.

-
1. Multilateral Faces of India website. Available at <http://fame-pic.blogspot.com/2010/02/padma-bhushan-2000-2009.html> Accessed May 5, 2011.
 2. Mehul Srivastava and Steve Hamm, “In India, ‘The Mother of All IT Projects,’” *Business Week*, July 27, 2009, p. 56.
 3. Kingshuk Nag, “Should Nandan Nilekani be inducted into govt?” *Times of India*, June 5, 2009. Available at <http://blogs.timesofindia.indiatimes.com/masala-noodles/entry/end-neta-babu-monopoly> Accessed May 11, 2011.
 4. Asha Rai, “Declined offer to join plan panel in early June,” *Times of India*, June 26, 2009. Available at <http://timesofindia.indiatimes.com/articleshow/4703692.cms?prtpage=1>. Accessed May 5, 2011.
 5. Asha Rai, “Here to make a difference, not to give Infy contracts: Nilekani,” *Times of India*, September 6, 2009. Available at <http://timesofindia.indiatimes.com/articleshow/4977357.cms?prtpage=1>. Accessed May 5, 2011.
 6. Rai, “Here to make a difference.”
 7. Nandan Nilekani, “Giving Indians an Identity,” *Times of India*, December 26, 2009. Available at <http://timesofindia.indiatimes.com/articleshow/5379692.cms?prtpage=1>. Accessed May 5, 2011.
 8. Shalini Singh, “India has 500 million mobile phone numbers,” *Times of India*, December 14, 2009. Available at http://articles.timesofindia.indiatimes.com/2009-12-14/india/28107141_1_connections-mobile-phone-urban-teledensity. Accessed May 11, 2011.

The World's Most Ambitious ID Project

9. President Pratibha Patil's address to Parliament, *The Hindu*, February 22, 2010. Available at <http://beta.thehindu.com/news/national/article111566.ece>. Accessed May 5, 2011. Item 60 addresses the UIDAI.
10. Rediff Business, "22,800 fake staffers cost Delhi municipality crores!" Rediff.com, November 25, 2009. Available at <http://business.rediff.com/report/2009/nov/25/over-22800-fake-staffers-cost-delhi-municipality-crores.htm>. Accessed May 5, 2011.
11. For an explanation of PPP, see <http://nextbigfuture.com/2010/02/implied-ppp-and-big-mac-exchange-rates.html>. Accessed May 5, 2011. This reports estimates by Goldman Sachs in February 2010.
12. All rupee figures are from the UIDAI website: <http://www.uidai.gov.in>. Accessed May 5, 2011.
13. For more on Below the Poverty Line, see Abhijit V. Banerjee and Esther Duflo, "The Economic Lives of the Poor," *Journal of Economic Perspectives*, 21, no. 1 (2007), 141-167.
14. Harmeet Shah Singh, "India to capture 1.2 billion population in new digital census," CNN.com, April 18, 2010. Available at <http://cnn.com/2010/WORLD/asiapcf/03/18/india.population.register/index.html>. Accessed May 5, 2011.
15. Saubhadro Chatterji, "We hope Naxals allow census data collection," *Business Standard*, April 11, 2010. Available at <http://www.business-standard.com/india/news/we-hope-naxals-allow-census-data-collection/391470/>. Accessed May 11, 2011.
16. Express News Service, "UIDAI to act as back-office of NPR, says Nilekani," *Indian Express*, May 19, 2010. Available at <http://www.indianexpress.com/news/uidai-to-act-as-backoffice-of-npr-says-nil/620622/>. Accessed May 11, 2011.
17. Shivani Shinde, "National Population Register to start biometrics data collection from Dec.," *Business Standard*, July 26, 2010. Available at <http://sify.com/finance/national-population-register-to-start-biometric-data-collection-from-dec-news—news-kgxb4oegced.html>. Accessed May 5, 2011.
18. Priscilla Jebaraj, "UIDAI will back law to protect data: Nilekani," *The Hindu*, May 20, 2010. Available at <http://beta.thehindu.com/news/national/article433961.ece>. Accessed May 5, 2011.
19. Department of Food & Public Distribution, Government of India, "Targeted Public Distribution System (TPDS)." Available at <http://fcamin.nic.in/dfpd/EventDetails.asp?EventId=26&Section=PDS&ParentID=0&Parent=1&check=0>. Accessed May 11, 2011.
20. Dhananjay Mahapatra, "Entire PDS has collapsed, says SC panel," *Times of India*, March 17, 2010. Available at <http://timesofindia.indiatimes.com/articleshow/5691292.cms?prtpage=1>. Accessed May 5, 2011.
21. Press Trust of India, "Naxalism: A Rs 1500 crore red corridor empire," *Times of India*, June 7, 2009. Available at <http://fcamin.nic.in/dfpd/EventDetails.asp?EventId=26&Section=PDS&ParentID=0&Parent=1&check=0>. Accessed May 11, 2011.
22. Saubhadro Chatterji, "We hope Naxals allow census data collection."
23. Harsimran Julka, "MindTree outbids TCS, Wipro, Infy to win UIDAI contract," *Economic Times*, April 30, 2010. Available at <http://economictimes.indiatimes.com/articleshow/5874991.cms?prtpage=1>. Accessed May 5, 2011.
24. Shinde, "National Population Register to start biometrics data collection from Dec."
25. "UIDAI gets new name, logo," *Times of India*, April 26, 2010. Available at <http://timesofindia.indiatimes.com/articleshow/5858992.cms>. Accessed May 5, 2011.
26. Harsimran Julka, "Aadhar's brand UID being positioned as a reliable family friend," *Economic Times*, June 17, 2010. Available at <http://economictimes.indiatimes.com/articleshow/6056736.cms?prtpage=1>. Accessed May 5, 2011.
27. Editorial, "A game changing scheme," *The Hindu*, November 13, 2009. Available at <http://www.thehindu.com/opinion/editorial/article47533.ece>. Accessed May 11, 2011.
28. Jebaraj, "UIDAI will back law to protect data: Nilekani."