Center for Global Development
Independent research & practical ideas for global prosperity

CGD Brief October 2017

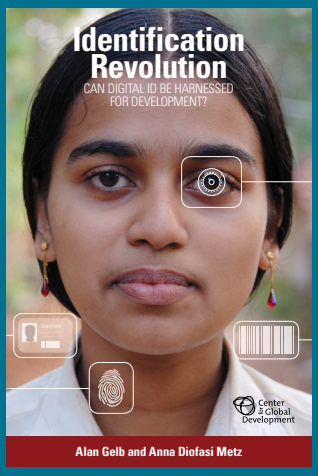
Identification Revolution: Can Digital ID Be Harnessed for Development?

Alan Gelb and Anna Diofasi Metz

Summary

Recent advances in the scope and sophistication of identification systems could have far-reaching consequences for development. At their best, ID systems can advance the Sustainable Development Goals by helping to realize individual rights, build state capacity, improve accountability, and expand opportunity. But their success is not guaranteed. At their worst, ID systems can exclude vulnerable groups, support institutionalized discrimination, and facilitate the exploitation of personal data.

While there is no one-size-fits-all approach, there are common features that ID systems should share if they are to support development. Principles that speak to inclusion, robust and responsive design, and accountable governance of ID systems, and good-practice examples from countries at the forefront of ID management, provide a list of areas that all stakeholders should consider as ID programs move forward.



This brief is a summary of the book *Identification Revolution: Can Digital ID Be Harnessed for Development?* by Alan Gelb and Anna Diofasi Metz (Center for Global Development, 2018).

Improvements in identification technologies, the rapid proliferation of digital identification programs, and the growing number of services and transactions that depend on accurate identification have been nothing short of revolutionary. People can be uniquely identified using their fingerprint or iris scan and can prove who they are with unprecedented accuracy. Digital ID systems are reshaping the relationship between citizen and state and transforming the way development policies and programs are implemented. As the number of people with official ID documents grows, so does their ability to fully participate in their country's social, economic, and political life.

Identification is now firmly on the development agenda. Over the last decade, the provision of registration and identification services has emerged as an important policy focus for developing country governments and their partners; providing "legal identity for all" by 2030 is now Target 16.9 under the Sustainable Development Goals (SDGs). It is also increasingly seen as instrumental to achieving many other development goals and targets (figure 1).

More low- and middle-income countries have started "foundational" national ID programs since 2000 than ever had them before (figure 2). In addition, many new "functional" ID programs have been created to serve particular purposes—to clean voter rolls or to ensure that pensions reach their intended beneficiaries, for example. This boom in ID programs is driven by a number

Figure 1. Identification and the Sustainable Development Goals

ACCESS TO FINANCE

- Prove ownership over property **(Goal 1 & Target 1.4)**
- Satisfy know-your-customer rules for banking **(Goal 1 & Target 1.4)**
- Unique ID for credit registries **(Target 8.3 & Target 1.4)**
- Reduce remittance costs **(Target 10c)**

GENDER EQUALITY AND EMPOWERMENT

- Full participation in economic and social life **(Goal 5)**
- Closing the gender gap in access to finance **(Target 5a)**

ACCESS TO BASIC SERVICES

- Registration for school and exams **(Goal 4)**
- Higher childhood vaccination rates **(Goal 3 & Target 3.3)**
- Unique ID for health insurance **(Target 3.8)**
- Biometric tracking of TB & HIV/AIDS treatment **(Target 3.3)**
- Civil registration health data: reduce infant and child deaths **(Target 3.2)**

CHILD PROTECTION

- Proof of age: help eliminate child labor **(Target 8.7)**
- Proof of age: help end child marriage **(Target 5.3)**

LABOR MARKET OPPORTUNITIES

- Reduce transaction costs in hiring **(Goal 8 & Target 8.5)**
- Facilitate orderly and safe migration **(Goal 10 & Target 10.7)**

SOCIAL PROTECTION: GRANTS AND SUBSIDIES

- Improve targeting, timeliness, cost-effectiveness of payments **(Goal 1 & Target 1.3)**
- Unique ID to improve transparency and reduce leakages **(Target 1.3)**
- Facilitate fast and efficient delivery of emergency aid **(Target 1.5)**
- Energy subsidy reform: price subsidies to cash payments **(Target 12c)**

MANAGING PUBLIC PAYROLLS

- Remove ghost workers & generate public savings **(Goal 16 & Target 16.5)**

TAX COLLECTION

- Common identifier can bolster tax collection **(Target 17.1)**

CLEAN ELECTIONS

- Unique ID to clean the voter registry **(Target 16.7)**

of priorities: nation-building, enhancing national security, and strengthening government capacity, including to deliver transfers and subsidies.

Technology, in particular biometrics, has been a game changer. In some cases, developing countries have already leapfrogged rich countries in their use. New solutions are being developed in both rich and poor nations to enable reliable identification online (e-ID) and allow residents to contract with each other, open a bank account, or register a business entirely in the digital realm.

Not all of these programs have delivered on their promise. Some have struggled to achieve high coverage because enrollment is perceived to provide few benefits, or registration requirements are cumbersome and costly. Others conducted successful initial mass enrollment drives, registering millions in a matter of weeks or months, but failed to keep

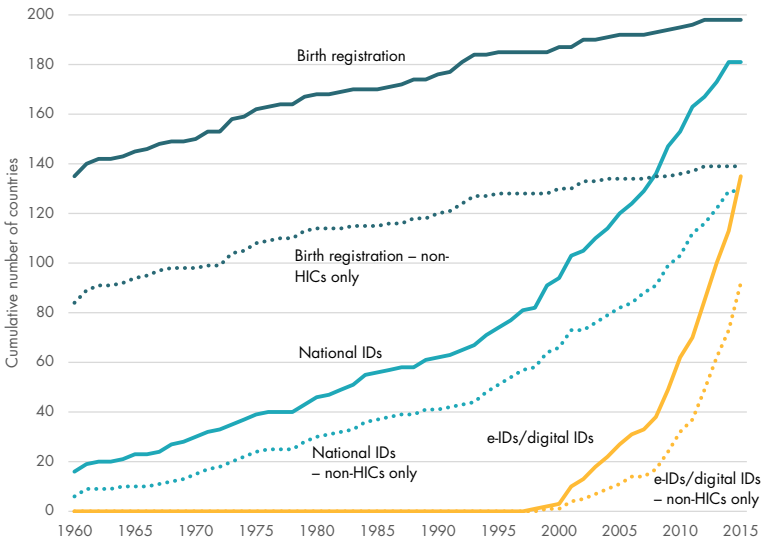
their registries up-to-date, limiting the program's long-term usefulness. There is thus a lot of room for strengthening the design and implementation of both foundational and functional ID programs and ensuring that they are conducive to achieving the SDGs.

Different starting points, common challenges

Countries are at very different stages in terms of the robustness, coverage, and capabilities of their ID systems.

- Early adopters with widely used, high-coverage ID systems include Peru, Pakistan, Thailand, and Rwanda. India's Aadhaar program has enrolled close to 1.2 billion people in eight years and provides cardless digital ID with capabilities at least as advanced as any system in the world. Through the India Stack, it has been leveraged into an open platform for digital payments, document management, and other new services.
- At the other end of the spectrum, poor and conflict-affected countries like Somalia, Liberia, South Sudan, and the Democratic Republic of Congo start out with few identity management assets. Many of their residents have never been formally registered; as a result, there is no comprehensive population registry to support social programs or verify residents' identities.
- Countries like Nigeria, Ghana, and the Philippines have multiple disconnected systems for voting, healthcare, tax administration, and other purposes. Each service provider and public entity maintains its own registration process and database at significant cost. Often, systems fail to follow common standards and may not be technically interoperable.
- A fourth group, including Kenya and Zambia, has reasonably robust systems whose capabilities could be boosted by new technologies. Transitioning from paper-based records to more easily manageable digital systems, and improving the identity verification infrastructure, could, for example, boost the efficiency and accountability of service delivery.

Figure 2. Identification Programs in High-Income Countries (HICs) and Others



Despite these differences, countries face common problems. Many have neglected civil registration, the traditional entry point for identification. About a quarter of births worldwide are unregistered; in the least developed countries, the share is close to two-thirds. Until gaps in civil registration are remedied, countries must rely on separate enrollment processes for their ID programs. Many countries still need to transition from paper-based legacy data systems to digital ones and to improve the transmission of information between databases—for example, to ensure that the ID database records a registered death. Most have not rolled out authentication ecosystems to use the capabilities of their new systems.

Innovations in ID systems

There is no "one size fits all" formula for reshaping ID systems. However, countries can look to a range of technological and institutional innovations, and to some leading examples, for guidance.

Innovative technologies

- **Multimodal digital biometrics** has become a central tool to help establish new unique identity baselines even in large populations and to authenticate people, although more data is needed on performance in the field. Duplicate enrollments can be flagged to ensure that each person is registered only once. Biometric technology allows people to be authenticated with high accuracy against their claimed identities, whether "offline" against data stored on barcodes, QR cards, or smart cards, or "online" against a central database, as in India's cardless Aadhaar system.

- **Infants and very young children** represent a frontier population for identity management systems. Biometric enrollment is extending to children as young as 5 and potentially even younger, increasing the importance of integrating, or at least closely coordinating, civil registration and identification. Other innovations for uniquely identifying infants include an electronic bracelet or necklace with a chip holding the name and particulars of the child, as well as a copy of the child's medical record.

- **Mobile units and mobile communications** (used in Pakistan, Peru, Malaysia, and other countries) can make ID more accessible by reducing registration barriers for remote communities.

Innovative institutions and policies

- **"Identity first": separating identity from status and entitlements.** As in India's Aadhaar program, "foundational" identification can be disconnected from all entitlements, including the determination of national status, which can be determined later, just like eligibility for a subsidy, program, or service. Most applications of identification to SDG goals and targets do not depend on status in any central way; in addition to being inclusive, "identity first" can speed up the rollout of the ID program so it can be engaged more quickly to reform public service delivery.

- **Providing ID services by an autonomous agency with some financial independence.** Several countries use this model, including Peru, Pakistan and Rwanda. It clarifies the mandate, and greater financial independence helps to depoliticize the identification function, building trust in the system. The costs of providing ID services can be partly covered by user fees, but charges must be regulated to ensure that reliance on fees does not impede the provision of identification as a social good.

- **Important lessons from leading cases.** Peru, Estonia, and India offer technological and institutional lessons for centralized identity management. They include performance-based payments for registration and data reporting, standards-based rollout, and using digital identification as an open platform for further services. The United Kingdom's GOV.UK Verify and the use of social networks to provide identification are more speculative, but show how digital identification may evolve with the growth of digital societies and economies. Innovations include flexible identity assurance standards, multiple competing identity providers, privacy-enhancing data segregation, and dynamic evidence of active identities.

Acknowledging the risks of ID programs

Exclusion, misuse, and wasteful investments are real risks, particularly in the context of developing countries.

- **Exclusion.** The formalization of identification processes may lead to even greater exclusion from social and economic life for some marginalized populations, including statelessness.

- **Misuse.** Some countries may lack the capacity or willingness to implement effective data protection and privacy measures. Only around half of developing countries have data privacy laws that conform to global standards for fair information practices. Even where such laws exist, they may not be enforced.

- **Wasteful investments.** Poorly designed ID programs and opaque procurement processes can lead to fragmented, non-interoperable, and overly expensive systems that are ill-suited for local needs and capabilities.

Risks must be recognized and mitigated, but they are not a reason for the development community to stand aside. There is little prospect of realizing the SDGs if countries are not able to strengthen their capacity to implement policies and to deliver services effectively. Nor will the SDGs be achieved if poor and vulnerable people are not able to participate in political, social, and economic life because they lack recognized identity. Multiple factors are driving ID programs forward—the task is to ensure that they are as development-friendly as possible.

Building development-focused ID systems: 10 principles and some practical ideas

Development partners are moving toward a more strategic approach. Donors have supported ID programs to help implement individual projects in line with their mandates—birth registration for UNICEF, voter registration for UNDP, refugee registration for UNHCR. The multilateral development banks have supported programs in diverse areas such as social protection, financial inclusion, and public health. This has encouraged experimentation but also reinforced a bureaucratic tendency toward fragmented and non-interoperable programs.

The situation is changing. Virtually all the major players in the area, including UN agencies, multilateral development banks, major NGOs, and foundations, as well as some members of the industry, have endorsed a set of common principles prepared in 2017 in collaboration with the World Bank and the Center of Global Development (box 1). The 10 Principles on Identification for Sustainable Development constitute a start toward a shared vision and provide a checklist of areas that should be considered as ID programs move forward. They are categorized under three overarching themes: inclusion, design, and governance.

Box 1. Principles on Identification for Sustainable Development

Inclusion: Universal Coverage and Accessibility

1. Ensuring universal coverage for individuals from birth to death, free from discrimination.
2. Removing barriers to access and usage and disparities in the availability of information and technology.

Design: Robust, Secure, Responsive, and Sustainable

3. Establishing a robust—unique, secure, and accurate—identity.
4. Creating a platform that is interoperable and responsive to the needs of various users.
5. Using open standards and ensuring vendor and technology neutrality.
6. Protecting user privacy and control through system design.
7. Planning for financial and operational sustainability without compromising accessibility.

Governance: Building Trust by Protecting Privacy and User Rights

8. Safeguarding data privacy, security, and user rights through a comprehensive legal and regulatory framework.
9. Establishing clear institutional mandates and accountability.
10. Enforcing legal and trust frameworks though independent oversight and adjudication of grievances.

I. Inclusion: Universal Coverage and Accessibility

Identification systems cannot deliver for development unless they are inclusive. The importance of universal coverage is inherent in the message of the SDGs to "leave no one behind" and, specifically, in SDG target 16.9.

- **Minimize documentary requirements and neutralize laws and norms contributing to the exclusion of vulnerable groups.** It may be necessary to deploy all-female registration units—as in Pakistan—and

to provide added incentives for women's registration, such as Nepal's tax rebate when land is registered to women.

- **Protect people from statelessness.** States should be expected to ensure that officials implement their laws and international commitments with regards to preventing and reducing statelessness, and—while recognizing state sovereignty in the area of citizenship—encouraged to work jointly toward more inclusive policies. It is important to minimize discrimination and access to services and programs based on legal status.

- **Access should be prioritized over cost recovery.** Identification is a public good and plays a crucial role in enabling individuals to exercise their rights and participate fully in society and the economy. Basic ID, as well as the first copy of a birth certificate, should be provided free of charge.

- **Link registration to tangible benefits.** Linking registration—at birth or subsequently into an ID system—directly with access to social transfers or emergency relief can encourage broad-based enrollment and use. At the same time, registration must not become yet another barrier for the poor.

- **Partnerships with civil society can help.** Service-based payments and cooperative arrangements, including with NGOs, can facilitate registration.

- **Biometric exclusion, or difficulties in using technology, can also be a barrier.** Part of the savings generated through the use of technology should be channeled toward supporting people who have difficulties in navigating the system.

II. Design: Robust, Secure, Responsive, and Sustainable

To be robust, systems must ensure that each identity is unique and enable any credential to be verified, and to authenticate a person against his or her claimed identity. Robustness increases the usefulness of the system to public and private service providers who depend on accurate identification; in turn, reliable and easily accessible systems will be more widely used. This helps to incentivize enrollment and supports the operational and financial sustainability of the system.

- **Fostering convergence between civil registration and national identification is a priority.** Integrating civil registration and the identity management system can reduce costs by avoiding duplicate facility networks and increase convenience.

- **Lowering the age of enrollment can also help to strengthen robust identity.** Early enrollment into ID programs could strengthen the entry point into lifetime identity management.

Identification systems can be sound financial investments for many developing countries. Countries can reap fiscal savings in areas such as payroll management, subsidy reform, and tax administration, even as they continue to roll out the system. But the system must be fit for purpose and convenient to use for both service providers and end users. With many technology options—no cards, smartcards, mobiles, simple cards—there is no single answer, but all too often, the focus on building the system and boosting enrollment leaves the authentication ecosystem as an afterthought.

- **A well-designed fee system can help ensure that the system is financially sustainable and responsive to needs, but all identification-related service charges should be subject to independent regulation.** Identification agencies are statutory monopolists; without regulation, service fees could rise exorbitantly. Performance-based subsidies can fund the provision of identification services to the poor, or they can be cross-subsidized by other charges.

- **The use of common standards makes it easier to integrate in the future, lowers costs, and prevents vendor lock-in.** Countries can draw on a range of technical standards that together cover

virtually all aspects of the systems. As with investments in infrastructure, development partners should require ID systems to conform to accepted standards. Beyond national borders, development partners should support the efforts of economic communities like the Economic Community of West African States and the East African Community to work toward common standards, or at least interoperable credentials.

- **More countries should publish data on the field performance of biometric enrollment and authentication systems.** India has been a pioneer in this area and Pakistan, too, is making data available on authentication success rates, but these are more the exception than the rule. Performance data can provide a basis for standards in other countries for registration, uniqueness, and authentication.

One of the biggest risks to sustainability will be the political economy of the implementing country. This will limit the use of the system even where these good practices and principles are applied to its design and deployment; as in Pakistan, its impact may be limited when it comes to strengthening applications that impinge on the privileges of elites.

III. Governance: Building Trust by Protecting Privacy and User Rights

The legal and regulatory challenge around ID systems is increasing as they become more powerful and more integrated, and as the locus of activity shifts to countries with lower capacity and weaker democratic checks and balances. While the number of developing countries with data privacy laws conforming to internationally recognized fair information principles is increasing, only about half have such legislation. Likewise, only about half of developing countries have an independent entity, such as an ombudsman, charged with representing the interests of those who use the system and ensuring that grievance processes are in place and working effectively. Some countries have laws on the books but are less well equipped to enforce them.

Many countries will need sustained assistance to strengthen and apply data privacy laws. Data privacy is, understandably, not always high on the agenda in countries where digital databases are still modest, but this will change.

Sustaining trust requires at least a minimum level of country capacity to understand and oversee the system. ID systems are unlikely to be trusted if implemented by vendors as "black boxes" with little or no oversight by national authorities. This too is an area where development partners can be helpful.

- **Especially in situations with inadequate legal oversight, the design of the system will be the first line of defense. Data collection should be limited to the essentials.** As some countries have learned (Rwanda), information that can be used to profile or discriminate against individuals, such as ethnicity or religion, should not be collected and certainly not disclosed on cards.

- **Another priority is to limit data-sharing, including between applications, and to increase people's control over the use of their personal data.** In Estonia, the X-Road data exchange layer permits the exchange of information only as needed by each service provider and program, and individuals can see which programs and agencies have accessed their records, except for law enforcement and security.

- **Having identification managed by an autonomous public entity can offer advantages.** With a clear and limited mandate, such agencies may be more responsive to user needs; they may also enjoy greater trust among the population as a result of greater perceived political independence. Having representatives of users and stakeholders—banks, social protection agencies, the elections commission, civil society organizations—as well as, perhaps, the office of a privacy ombudsman on the board of the identification agency (Peru, Pakistan) can help to ensure that it remains accountable for service.

Alan Gelb is a senior fellow and director of studies at the Center for Global Development.

Anna Diofasi Metz is a former policy analyst at the Center for Global Development.She currently works with the World Bank's Identification for Development initiative.

Implications for development partners

As for any other sector, investments in identification systems should be subjected to cost-benefit analysis, including both the socioeconomic and financial perspectives. This will ensure a focus both on containing costs and on ensuring effective and sustainable use of the system to reduce leakage and corruption, and to improve the delivery of services.

Development partners can help ensure that investments follow internationally agreed technical standards and develop costing benchmarks to help inform procurement. There is not at present a neutral standards-checking body to help assure the quality and effectiveness of ID investments and compare them with emerging best practice. Such an entity could be a useful follow-up to the Principles, involving the international financial institutions, UN agencies, and industry experts.

"Exclusion assessments" of countries' laws and practices and their use of identification systems should be made before supporting investments; in cases where investments in an ID system appear likely to entrench discrimination against particular groups, development partners should decline to offer support.

Partners should also commit to **undertaking a privacy impact assessment as part of any major ID investment**. This may not pinpoint every risk, but can help to focus on the technical elements of the system as well as its governance and the legal regime for data protection.

Partners need to be prepared to offer sustained advisory and financial support to help strengthen the framework for data privacy and protection. Capacity support may be needed for a number of years, for example to an independent privacy advocate with authority and resources to respond to breaches of agreed rules on sharing data, and with the power to seek redress and penalties, especially against public officials. Partners should also encourage strong grievance-redressal mechanisms with periodic reporting.

Development partners can help other service agencies adapt to the requirements of a common system. They will often have a natural tendency to defend their own mandates and systems, including to preserve control over technology procurement, and may resist a common ID system, citing transitional costs, even if it is likely to save resources in the longer run. Development partners can help by coordinating support to coalitions of users and helping to finance the costs of transitioning to a common system.

Partners can also support the monitoring of applications to help ensure that the new systems are accountable for results. Far more—and more rigorous—research is needed in this area as the frontier moves from creating ID systems to using them to help deliver programs and services.

Center for Global Development

2055 L Street NW
Fifth Floor
Washington, DC 20036
202-416-4000

www.cgdev.org