Internet *for* Development

WDR16

Spotlight on Digital Identity

DRAFT – May 2015

Liberté • Égalité • Fraternité
RÉPUBLIQUE FRANÇAISE

THE WORLD BANK
IBRD • IDA | WORLD BANK GROUP

WDR16
Spotlight on Digital Identity

IDENTITY IN AN INCREASINGLY DIGITAL SOCIETY

Throughout history individuals have needed mechanisms to identify each other and to identify themselves to their communities or states. Simple mechanisms – familiarity, appearance, perhaps vouching by an elder – are sufficient in small, intimate communities. Wider societies and economies require more formal mechanisms such as physical tokens, sometimes a paper-based identification (ID) card and including the signatures or representations of their holders, and able to be verified against documents stored in a central registry.

These systems are increasingly giving way to digital identity systems, with the central registry storing data in digital form and credentials relying on digital, rather than physical, mechanisms to authenticate their holder. India's massive *Aadhaar* program, which has so far enrolled over 830 million people, has dispensed with the physical ID card altogether. Estonia has created a virtual legal representation of an individual; through the use of PINs to authenticate the holder against a digital card credential, people can sign legal documents and contracts remotely with the same legal validity as if they were signed in person as well as access public services without needing to appear at government offices.

Proof of identity is essential for people to access a range of rights and services such as health care, enrollment in school, social welfare, and financial services. The importance and role of identification has placed it at the heart of the post-2015 development agenda, specifically as a Sustainable Development Goal (SDG) target #16.9 to *"provide legal identity for all, including birth registration, by 2030"*. This is the first time that a target relating specifically to legal identity has been put forward as part of the development agenda. It is none too soon, since in the developing world, nearly 2 billion people lack official ID. They are usually the poorest and most excluded members of society; about half are children.

Citizens, governments, and businesses are increasingly aware of the need for effective, accessible evidence of identity to facilitate service delivery and the assertion of economic, social, and political rights. Citizens increasingly expect

to be treated as customers empowered to do more things more conveniently. In response, governments seek to enhance their citizen engagements to improve the security, efficiency, and cost of public service delivery as well as to offer more personalized services. All of this can be facilitated by e-services to enable connected entities to access services and complete transactions electronically. For this ecosystem to function seamlessly, both public and private entities have to know whom they are dealing with, and to be able to authenticate themselves easily and remotely and to identify those with whom they are engaging. These critical functions can only be provided by digital identity *(digital ID)*.

COUNTRY-SPECIFIC ROLES OF DIGITAL IDENTITY

Although the concept of digital ID is universal, it plays somewhat different roles depending on the country context:

In high-income countries, digital ID represents an upgrade to well-established, robust legacy physical ID systems that can be expected to continue for some time. It is the enabler needed to transform traditional commerce and services into more efficient and convenient e-commerce and e-services.

Canada, Belgium, France, Finland, Singapore and South Korea are just a few countries leveraging existing physical identity infrastructure to create digital ID ecosystems that enable the delivery of successful digital public services.

*Low-income countrie*s often lack robust legacy IDs and are building their ID systems on a digital basis, leapfrogging the more traditional based system. This is the main role, rather than e-services. Such systems are being developed in Bangladesh, Kenya and Guinea.

In middle-income countries, digital ID is strengthening and progressively replacing physical identity services while at the same time supporting the emergence of some e-services. Successful examples are found in Estonia, Moldova, India and Pakistan.

THE VALUE OF DIGITAL IDENTITY

Governments, citizens and businesses alike put trust in digital ID systems, thus unlocking the full potential of the digital economy. Analysis by Boston Consulting Group indicates that digital ID systems generate gains in efficiency and

convenience that could yield global taxpayer savings of up to $50 billion per year by 2020[1]. Further, findings from a study commissioned by the Secure Identity Alliance illustrate that digital ID-enabled transactions and e-services, specifically the ones that can be easily automated and only require user authentication, have the potential to save money to both citizens and public entities.

Projections show that the number of digital government/citizen transactions worldwide will grow to about $67 billion (30%) by 2020[2]. Thus, countries may experience a significant revenue shortfall if digital ID systems are not in place by that time. Seizing these opportunities will require governments to instill a climate of trust through such systems, and these in turn will depend on political commitment and leadership.

It is expected that in 2020 alone, two thirds, or $480 billion, of the potential value of digital ID in the European Union (EU-27) will be at risk if personal data is not trusted. Moreover, government missteps in addressing trust and handling citizens' data can affect the economy as a whole, threatening revenues and efficiency gains derived from all personal data applications[3].

EVIDENCE OF IMPACT

Beyond quantifying the economic value of deploying digital ID systems, a growing volume of research is dedicated to uncovering evidence of impact and use-cases that prove to be critical enablers for development.

There are three key areas in which digital ID systems have been found to have impact—as the following examples illustrate. These are efficient public service delivery, civil service reforms and support to democratic elections and citizen empowerment.

---

1   Boston Consulting Group, 2012.
2   Secure Identity Alliance; Boston Consulting Group analysis; Economist
     Intelligence Unit; UN eGovernment survey 2012.
3   Dahan and Sudan, 2015.

Efficient management of social programs and welfare distribution:

Digital IDs enable targeted cash transfers to bank account number that is linked to a unique identifier. This ensures that those who are entitled to receive subsidies or benefits are actually getting them. For example, in India's fuel subsidy program, by implementing cash transfers to Aadhaar-linked bank accounts for the purchase of liquefied petroleum gas cylinders, realizable savings are about 11–14 percent, or $1 billion per year when applied throughout the country[4]. This is just one of many subsidy programs in India that are being converted to direct transfers using digital ID impacting over $11 billion per year[5].

Other examples of where digital ID has been shown effective in reducing leakages in benefits for social protection or security programs, health insurance, and pension schemes due to duplicates, ghosts, quasi-ghosts, and corruption can be found in Chile, the Arab Republic of Egypt, Ghana, India, Indonesia, Pakistan, South Africa, and Turkey.

Rationalization of civil service wages:

The budgets of many developing countries suffer from bloated civil service wages that leave little room for investments. For example, public payroll represents a vast majority of the national budgets of Ghana, Uganda, and Zimbabwe, respectively. Wage bill reform is now a priority in many countries. For example, Nigeria recently implemented a digital ID system for civil servants that enabled it to remove about 62,000 "ghost workers," saving $1 billion annually[6]. While implementing an electronic wage payment system tied to a digital ID did require an initial public investment, in Nigeria the investment produced ROI of nearly 20,000 percent in one year. The impact of ghost workers is worse in many other countries, ranging from 10 percent to as high as an estimated 40 percent in Zimbabwe[7].

---

4   Barnwal, 2015.
5   Banerjee, 2015.
6   Gelb and Clark, 2013.
7   Proceedings of Parliament of Zimbabwe, Feb 28, 2012.

Citizen empowerment and support to democratic elections:

Nigeria used digital IDs to prevent vote rigging in its 2015 elections. The system enrolled about 68 million voters using biometrics (issuing voter cards that encoded the fingerprints of the rightful holder on a chip) and used card readers to authenticate voters, thus preventing 4 million duplicate votes[8]. Although there were some operational challenges at the polls, the election was conducted successfully: all votes were cast, and it was difficult to rig or contest the results in the face of the transparency brought about by digital identity. However, other countries, such as Kenya or Somaliland could not reap off the same benefits from the biometric voter IDs[9]. Therefore, this remains an area of continuous observation and research.

The impact of digital ID schemes goes beyond those three areas. They can simplify the daily lives of individuals and businesses by making access to public services more convenient and predictably consistent.

DEVELOPING EFFECTIVE DIGITAL ID SCHEMES

Digital ID schemes rely on a backbone of connected systems, databases and population registries. These in turn have been established through a thorough enrollment process of the targeted population. Many programs now include the use of both biometric data and traditional biographical data as well as programs to de-duplicate enrollments to help ensure that each individual has only one registered identity and one unique identifying number.

The credentials issued may be cards with bar codes or more advanced chip-based smartcards; they can also be single-function (evidence of identity only) or multifunctional, with the card able to act as a bank card, driving license, and so on. India's Aadhaar program dispenses with the card altogether, providing

---

8   In press: Voice of America http://www.voanews.com/content/reu-nigeria-electoral-commission-says-82-percent-of-voter-cars-collected/2692361.html

9   In press: Mail&Guardian Africa http://mgafrica.com/article/2015-03-30-why-biometric-voting-fails-in-africa-and-why-it-doesnt-matter

remote authentication against the unique identifier in response to transmission of the holder's fingerprints or iris scans[10]. Online and mobile environments require enhanced credentials—such as electronic trust services, which include e-signatures, e-seals, and time stamps—to add confidence in electronic transactions.

Mobile devices offer a compelling proposition for governments seeking to provide identity credentials and widespread access to digital services. In Sub-Saharan Africa, for example, more than half of the population in some countries is without official ID, but more than two-thirds of the residents in the region have a mobile phone subscription. The developing world is home to more than 6 billion of the world's 7 billion mobile subscriptions, thus it makes sense to leverage this technology for creation, storage and management of digital identity.

For the digital ID schemes to be effective, they have to comply with the core principles of Accessibility, Robustness and Integration[11].

Accessibility	Individual digital ID registration is widely accessible to the targeted population, with no exclusions.
Integration	The digital ID system is integrated with and connected to a wide range of programs delivered by many public and private service providers.
Robustness	Robust technical measures are in place to make the digital ID system resilient to fraud and cybersecurity threats, instituting the trust required in authenticity of transactions.

Source: World Bank Identity Systems Assessment (ISA) toolkit, forthcoming.

CRITICAL CONSIDERATIONS

Digital ID schemes tend to be complex, often politicized, and subject to failure to deliver on high expectations. Risks associated with unsuccessful implementation can be mitigated by adopting guidelines that have emerged from the

---

10   Dunning, Gelb, and Raghavan, 2014.
11   These three principles, in conjunction with the legal and institutional aspects, are at the base of the World Bank Group's Identity Systems Assessment (ISA).

collective experience of digital ID schemes' roll out around the world[12].

In this respect, several areas of focus emerge as critical:

- *Legal and regulatory concerns* about how to best determine the types, extent, and use of information collected under digital ID schemes; how to safeguard the privacy of personal data; and how to craft new primary legislation or rules to avoid unintended consequences such as inadvertent exclusions, onerous mandates that could deter individuals from accessing services, or increased rent seeking involving registration or certificates.

- *Technological concern*s about working with the private sector to develop a sustainable digital infrastructure that can reach remote areas and prevent exclusion; ensure interoperability and trusted authentication protocols for data exchange among different services and solution providers; and ensure data security, particularly in the use of biometrics, as well as the long-term accessibility and security of identity records.

- *Business models and procurement concerns* engendered by technology and vendor lock-in situations; lack of open architecture anchored on modularity and open standards; lack of costing guidance of various IT components; and absence of viable business models and digital ID-enabled services' uptake.

- *Country-specific and cross-border concerns* about what constitutes acceptable unique identifier. This can differ across countries and applications, even as the world has taken steps to define standards for the mutual recognition of alien citizens' credentials . Uses of digital ID schemes for ethnical tracking and other nefarious purposes may be enabled by the recent advances in Big Data Analytics that allow to collect and analyze information on an unprecedented scale.

Overcoming these challenges and barriers requires strong leadership, a supportive legal framework, mobilization of financial and human resources, and – critically – the trust of each country's residents. Incentives, technology, foreign assistance, and reforms will all be critical in achieving tangible results. Equally important is donor coordination at the global, regional and national levels to ensure inclusive oversight and concerted global action[13].

---

12   Gelb and Clark, 2013.
13   Dahan and Gelb, 2015.

DIGITAL IDs IN SUPPORT TO A GLOBAL AGENDA ON IDENTIFICATION FOR DEVELOPEMENT

Recognizing the transformational potential of 21st century ID systems for the delivery of basic services to the poor, the World Bank Group, in collaboration with other development partners and key stakeholders, launched the Identification for Development (ID4D) agenda. The goal is "making everyone count" by "providing an identity and delivering digital ID-enabled services to all." The Digital ID program is a key element of the global ID4D agenda, with the latter being aligned with SDG target # 16.9.

REFERENCE LIST

Banerjee, S. 2015. "From Cash to Digital Transfers in India: The Story So Far." CGAP Brief, February 2015, Consultative Group to Assist the Poor (CGAP), Washington, DC. http://www.cgap.org/sites/default/files/Brief-From-Cash-to-Digital-Transfers-in-India-Feb-2015_0.pdf.

Barnwal, P. 2015. "Curbing Leakage in Public Programs with Biometric Identification Systems: Evidence from India's Fuel Subsidies." Job Market Paper, School of International and Public Affairs, Columbia University, New York. http://www.columbia.edu/~pb2442/subsidyLeakageUID.pdf.

Boston Consulting Group, 2012, "The value of our digital identity", Liberty Press.

Dahan M., A. Gelb, 2015. "Role of Identification in the Post-2015 Development Agenda", Working Paper, World Bank and Center for Global Development, Washington, DC.

Dahan M., R. Sudan, 2015. "Digital IDs for Development : Access to Identity and Services for All", Connections note, Numbered series, World Bank, Washington, DC.

Dunning, C., A. Gelb, and S. Raghavan. 2014. "Birth Registration, Legal Identity, and the Post-2015 Agenda." Policy Paper 46, Center for Global Development, Washington, DC.

EU (European Commission). 2015. Digital Agenda for Europe: A Europe 2020 Initiative. Website, EU, Brussels. http://ec.europa.eu/digital-agenda/.

Gelb, A., and J. Clark. 2013. "Identification for Development: The Biometrics Revolution." Working Paper 315, Center for Global Development, Washington, DC.

Malik, T. 2014. "Technology in the Service for Development: the NADRA Story", Essay, Center for Global Development, Washington, DC.

Secure Identity Alliance, 2013. "eGo Study : eGovernment services would yield up to $50bn annual savings for Governments globally by 2020", SIA, Paris. https://www.secureidentityalliance.org/files/13-11-19-SIA_eGov_Study.pdf

UN (United Nations). 2013. "A New Global Partnership: Eradicate Poverty and

Transform Economies through Sustainable Development" Report of the High-Level Panel of Eminent Persons on the Post-2015 Development Agenda, UN, New York. http://www.post2015hlp.org/the-report/.

World Bank. 2011. *World Development Report 2012: Gender Equality and Development*. Washington, DC: World Bank.

———. 2014. "Digital Identity Toolkit, a Guide for Stakeholders in Africa." Working Paper 91249, World Bank, Washington, DC. http://documents. worldbank.org/curated/en/2014/06/20272197.

Digital IDs for Development

ACCESS TO IDENTITY AND SERVICES FOR ALL

www.worldbank.org/digital-ID