



IDENTITY FOR DEVELOPMENT IN ASIA AND THE PACIFIC

IDENTITY FOR DEVELOPMENT IN ASIA AND THE PACIFIC



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Abbreviations

ADB	Asian Development Bank
CNIC	Computerized National Identity Card
CRN	Common Reference Number
CRVS	Civil Registration and Vital Statistics
eID	electronic identification
e-KTP	Electronic Kartu Tanda Penduduk (Electronic Identity Card)
eKYC	electronic know your customer
FID	Filipino ID (Filipino Identification)
G2P	government-to-person
GSIS	Government Service Insurance System
ID	identification
ID4D	Identification for Development
IPIS	Integrated Population Identification System
IT	information technology
KYC	know your customer
LPG	liquid petroleum gas
MyKad	Kad Pengenalan Malaysia (Malaysian Identity Card)
NADRA	National Database and Registration Authority
NRD	National Registration Department
NREGS	National Rural Employment Guarantee Scheme
Pag-IBIG	Home Development Mutual Fund
PhilHealth	Philippines Health Insurance Corporation
PSA	Philippine Statistics Authority
SSS	Social Security System
UIDAI	Unique Identification Authority of India
UMID	Unified Multi-Purpose ID

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Executive Summary

Identification (ID) systems offer a means for developing nations to fast-track the process of development. By making service delivery efficient, enabling digital payments and a digital economy, and protecting citizens' rights and access to services, ID systems can accelerate economic and social development. By authenticating citizen transactions in both public and private sector transactions, ID systems create an unparalleled visibility into activities in the country. They provide transparency in governance, curb leakages in government spending, generate valuable insights for government policies, and ensure that every citizen is counted in every governance process.

The objective of this report is to help governments and multilateral institutions assess and integrate ID systems into their development activities. The intended audience includes government policy makers, heads and custodians of identity management, functional organizations, and multilateral development institutions.

ID systems can offer a variety of uses over the life cycle of a development process. In order to identify these uses in a comprehensive manner, we have developed a strategic framework for applying ID to different phases of the project life cycle. By illustrating this model using different use cases, it can be demonstrated that ID is useful in a variety of contexts—in various sectors and for countries at differing levels of development.

However, for ID systems to support the development process, they need to have reached a certain level of maturity. ID systems are complex and multidimensional, involving many systems and stakeholders. The ability of ID systems to provide reliable data and authentication services derives from multiple aspects of the specific system's design: the strength of its deduplication processes to ensure unique and reliable data sets, the proliferation of usage and coverage so that the ID captures enough information, and the legal backing of the ID system to protect data from misuse.

In this report, a model for ID management has been developed to assess the maturity of any ID system. It evaluates eight parameters indicating whether an ID system is nascent, intermediate, or advanced. Then, the ID management model is applied to the ID systems in seven countries in the Asia and Pacific region in order to assess their maturity.

As a way forward, a directional view that countries at different levels of maturity can take is proposed. Lastly, this report provides a way forward for multilateral institutions, including the Asian Development Bank, to make the best use of ID programs in their development projects.

1. Introduction

1.1 Identification Systems as a Building Block to Development

For a government to provide effective development services, an important requirement is its ability to identify and target the right beneficiaries and deliver services to them without leakages. A strong national identification (ID) system provides the foundation for such a system. More than merely providing services, ID systems help protect a citizen's fundamental rights. Identification can enable citizens to vote, move across borders, and access opportunities in health, welfare benefits, and so forth.

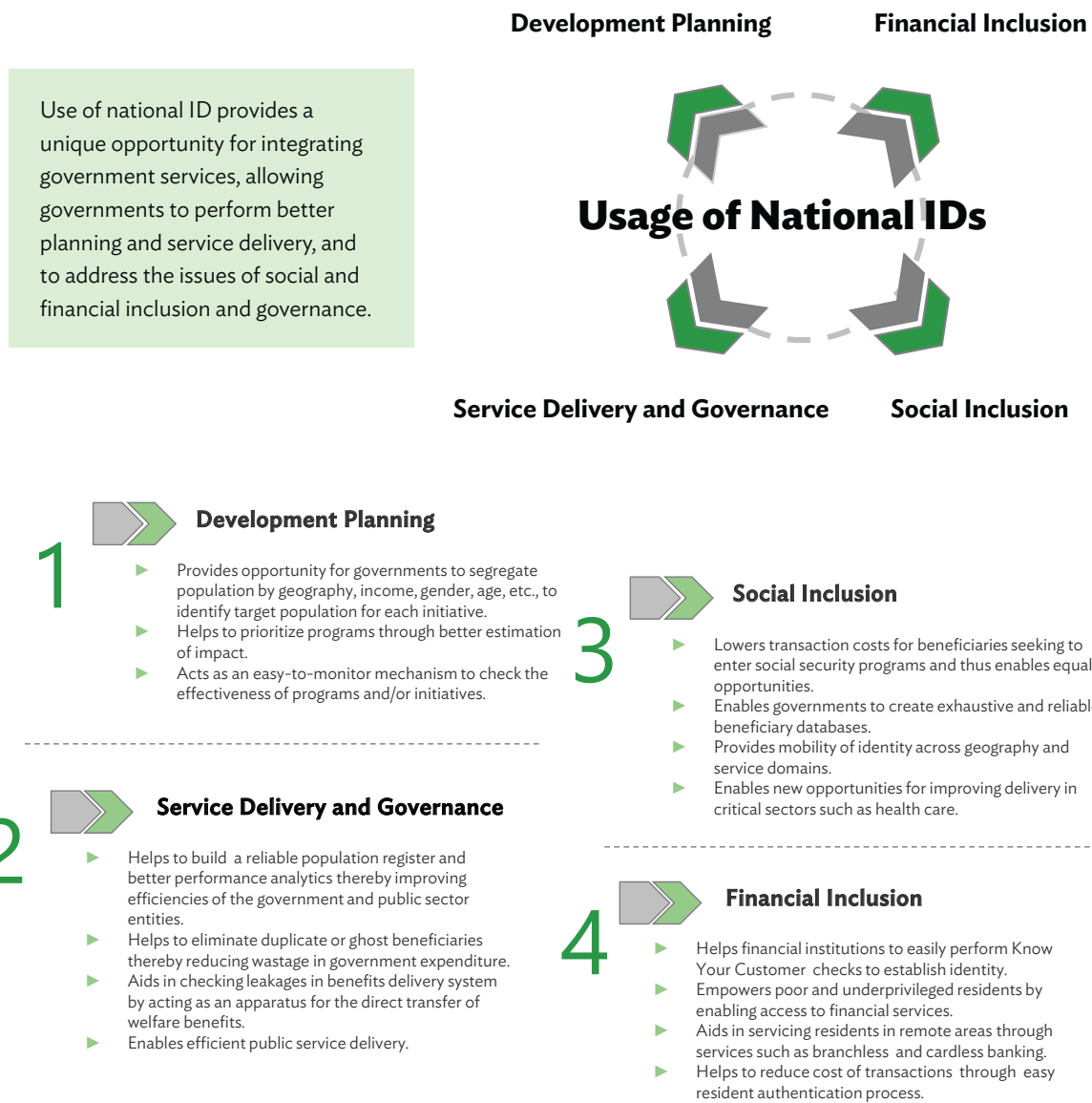
By authenticating citizen transactions, in both public and private sector transactions, ID systems create an unparalleled visibility into activities in the country. They provide transparency, can curb leakages, generate valuable insights to help the government plan policy better, and ensure that every citizen is counted in the governance process.

ID systems offer a means for developing nations to fast-track the process of development. By making service delivery efficient, enabling digital payments and a digital economy, and protecting citizens' rights and access to services, ID systems can accelerate economic and social development.

Developing countries have been planning and implementing various initiatives to uplift poor and marginalized sections of society and provide them with access to affordable health care, education, and employment opportunities. After years of implementing various government-to-person (G2P) schemes and incentivizing the private sector, governments have realized that macrolevel planning fails to provide desired outcomes. Therefore, the focus has now shifted to microlevel planning to address each section of society separately based on geography, gender, age, income, and others to increase the effectiveness of government programs.

ID systems offer both quantifiable and unquantifiable benefits to the development process. We shall explore these benefits and use cases in greater detail in the next chapter, where we develop a sector model and discuss case studies of proven ID effectiveness in every sector. As a brief illustration, Figure 1 shows a few areas where ID systems can have an impact.

Figure 1: Leveraging Identity for Development



ID = identification.

Source: Author.

1.2 Global Trends in Identity for Development

The experiences in large ID management programs across the globe have provided us with some lessons in designing a successful program.

Digital Identification

Digital ID is particularly important. The rapid growth of new technologies such as mobile phones, social media, and the internet allows for many services to be offered online, both by the government and the private sector. This enables governments to bring efficiency and transparency into their governance. However, developing countries, which require both service delivery and citizen protection, are behind in the ID for development process. More than 2 billion people lack formal identification in developing countries.¹ This affects women and children disproportionately.

A study conducted by the World Bank shows that of 198 countries assessed, the vast majority still have fragmented and single-purpose ID systems. Most developing countries have some form of digital ID scheme tied to specific functions and serving a subset of the population, but only a few have a multipurpose scheme that covers the entire population.

A total of 18% of developing countries have a scheme that is used for ID purposes only; 55% have digital IDs that are used for specific functions and services such as voting, cash transfers, or health; and only 3% have foundational ID schemes that can be used to access an array of online and offline services. Moreover, 24% of developing countries have no digital ID scheme.²

Ecosystem Approach

There is an emerging trend that recognizes ID systems as a platform that enables the government and/or the ID authority to provide core identification and regulation of its usage, and where various stakeholders in the public and private sectors can develop various applications and models for ID usage. Such a model allows for rapid uptake of ID-based services due to the ubiquity of IDs. It also makes the usage of IDs more viable in both the public and private sectors.

Pervasive Use of Identification

A successful ID program is well integrated in the ecosystem of government services. As a first step, it focuses on the development of core identification and it links to various e-government services and core private services, including banking and mobile commerce. At a more advanced level, the ID could be adopted in mobile applications and location-based services, with the ID becoming an “ubiquitous identity” adopted by governments as well as the private sector.

¹ M. Dahan and R. Sudan. 2015. Joining Forces to Make IDs Accessible to All. World Bank, Information and Communications for Development Blog. 22 September. <http://blogs.worldbank.org/ic4d/joining-forces-make-ids-accessible-all>

² World Bank. Identification for Development (ID4D) Global Dataset. <http://data.worldbank.org/data-catalog/id4d-dataset> (accessed 1 February 2016).

Preventing Technology Lock In

When working with evolving technologies such as biometrics, innovative procurement strategies are being used in designing ID programs. Specifically, it is important to have clear views on the architecture and technology standards. For example, India's national ID program was developed on commoditized technologies and open source—but proven—technologies. This allows significant control of the technologies and will allow easy transfer of the system's management from one vendor to another in the future. Even for solutions in areas that are highly sensitive and where only a few niche players exist, such as in biometrics, the feasibility of a multi-vendor arrangement as part of procurement and contracting must be evaluated.

Performance-Linked Procurement

Performance- or outcome-linked procurement brings greater accountability in delivering the right solutions as well as maximizing the use of resources from outside the organization. For instance, outsourcing the deduplication work and paying vendors for each successful deduplication was a successful procurement model adopted by India's national ID program.

Strategic Control on Intellectual Property

National ID programs generate specific knowledge in the process of developing a country's ID system. Such intellectual property is sensitive to the authority implementing the ID program and should be differentiated from the intellectual property that the private solution vendors bring. Thus, the ID authority should develop legal and/or contractual terms to distinguish the intellectual property generated during the program (e.g., biometric profiles, demographic patterns and analytics, service delivery and process innovations, etc.) from the preexisting intellectual property that the vendors bring on board as part of their solutions.

Some of the concerns that the countries are facing in the implementation of their ID management systems are discussed in the next section.

1.3 Issues in Identity Management

It is complex to develop the ID system's core features and to integrate these with other applications. These require significant attention not only to the technological features but also legal, institutional, and data privacy aspects. The following are some of the concerns in ID management:

Policy and Legal Framework

For an ID system to function well, both supply and demand factors should be balanced. It requires not only sufficient human and material resources but also a mandate for civil registration, and at some point, provide the citizens with incentives for voluntary registration. These are important factors when designing a policy and legal framework for an ID system to avoid unintended consequences, such as excessive costs, registration hassles, and increased rent-seeking occurrences.

Coordination and Institutional Arrangement

Institutional arrangements for ID systems differ by country; each country has to develop its own system. In the past, coordination among different ID systems was not an issue because

IDs provided by different institutions did not have many interface functions. However, coordination has now become of utmost importance because both public and private service providers are ever increasing and getting more interlinked. Building on the fast developing information technologies, service quality and administration efficiency can now be dramatically improved if these ID systems are integrated or interoperable. To this end, the role of the coordination agency and an institutional arrangement for this coordination become a critical issue for effective ID management.

Technological Issues

Another challenge is to ensure interoperability among the variety of technology solutions used in ID systems. Technologies are continuously changing and many technology solutions will be provided by different vendors in areas of data encryption, data exchange, use of biometrics, and others. Thus, from a security point of view, it becomes very critical to decide on how to capture, store, and exchange biometric information in ID systems because the biometric information is unique and permanent for each person during one's lifetime.

Privacy Concerns


Safeguarding the privacy of personal data remains one of the most critical challenges facing ID systems globally. Allowing the government to link unique ID numbers to a variety of services could enable large-scale data gathering on personal activities. Citizens would need to have a high level of trust in the government and in government systems before they would consent to this. In most countries, privacy remains one of the main reasons for abandoning ID programs all together, whereas in others, governments have eliminated such possibilities from the start by developing “do not profile” practices in their authentication services.

1.4 Identity Management Initiatives of Major Global Development Agencies

Many development agencies are partnering with government institutions and other development agencies toward a shared goal of providing a legal identity to all. A legal identity is an essential component of inclusive growth, supporting the shared vision of governments and multilateral institutions. A robust ID system will provide valuable demographic information and vital statistics to enhance evidence-based decision-making capacity.

The Sustainable Development Goals (SDGs) highlight the importance of ID systems and goal 16.9 makes this a global target for all signatories (Figure 2). Although there is no one model for providing a legal identity, the SDGs encourage states to provide people with free or low-cost access to widely accepted, robust ID credentials. The United Nations (UN) sees ID as an enabler to achieving other SDGs in areas relating to social protection, health, finance, energy, and governance, among others. In November 2014, the UN convened a Ministerial Conference on Civil Registration and Vital Statistics (CRVS) in Asia and the Pacific. One outcome of the conference was the development of a regional action framework for CRVS in Asia and the Pacific.

Figure 2: United Nations Sustainable Development Goal 16.9 Objectives

- 
- Make everyone count.
 - By 2030, provide legal identity for all, including birth registration.

Source: United Nations. Sustainable Development Goals. Goal 16: Promote Just, Peaceful and Inclusive Societies. <http://www.un.org/sustainabledevelopment/peace-justice/>

Recognizing the transformational potential of 21st century ID systems for the delivery of basic services to the poor, the World Bank, in 2014, launched its Identification for Development (ID4D) agenda. ID4D is a cross-practice initiative with a vision to make everyone count, to ensure a unique legal identity, and to enable digital ID-based services for all. The ID4D initiative will support the strengthening of the civil and identification registries. ID4D brings together global knowledge and expertise across multiple sectors and countries to tackle fundamental development challenges. The group will support relevant projects in collaboration with other multilateral institutions and governments. ID4D is a joint initiative of many sectors including health, governance, social protection, finance, gender, and transport, among others. The World Bank sees two key benefits:

1. Robust civil registration and ID systems are a powerful platform for enhanced service delivery across all sectors, and a force multiplier in the fight against poverty.
2. Data on the spread and use of ID systems can advance gender equality and help design evidence-based policies.

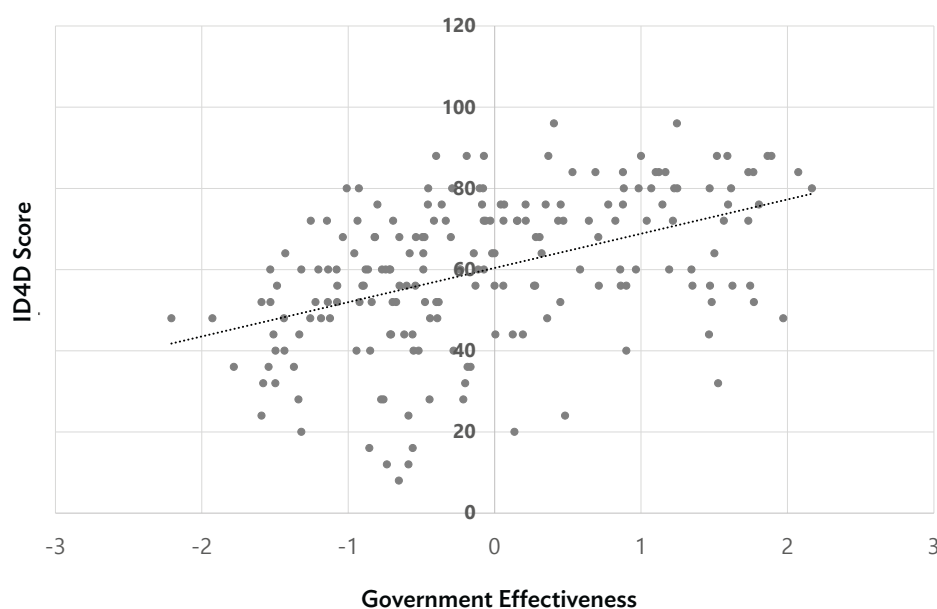
As part of the ID4D initiative, the World Bank conducted a study to show that a country's government effectiveness increases if the country has an integrated and electronic ID system. The World Bank describes government effectiveness as "perception of the quality of public services, civil service, policy formulation and implementation, and the credibility of the government commitment to such policies,"³ which is measured by a score that ranges from -2.5 to 2.5. The higher the score, the better the government effectiveness. The World Bank tabulates the ID4D score, which captures the maturity of an ID system in a country. It takes into account civil registration, ID policy, ID usage, ID system, automation, and data privacy laws. The trend line in Figure 3 shows that government effectiveness increases

³ D. Kaufmann, A. Kraay, and M. Mastruzzi. 2010. The Worldwide Governance Indicators: A Summary of Methodology, Data and Analytical Issues. *World Bank Policy Research Working Paper 430*. Washington, DC.

with the increase in the ID4D score of a country.⁴ The graph depicts the correlation between government effectiveness and the ID4D score. In order to understand the many applications of a national ID system to different sectors, an ID management model that links ID services to different stages of the policy process has been developed. This model serves as a tool to generate strategic insights on the use of ID for development.

Figure 3: Correlation between Government Effectiveness and Robust Identification System

Correlation between Government Effectiveness and Identification for Development Score



ID4D = Identification for Development.

Source: D. Kaufmann, A. Kraay, and M. Mastruzzi. 2010. The Worldwide Governance Indicators: A Summary of Methodology, Data and Analytical Issues. *World Bank Policy Research Working Paper 5430*. Washington, DC: The World Bank.

1.5 A Framework Linking Identification to the Development Process

ID systems include a unique number to identify a person and an authentication platform for various providers. These features allow ID systems to provide specific services that are all useful for the development process. These are characterized as authentication, automation, monitoring and evaluation, and data and insights.

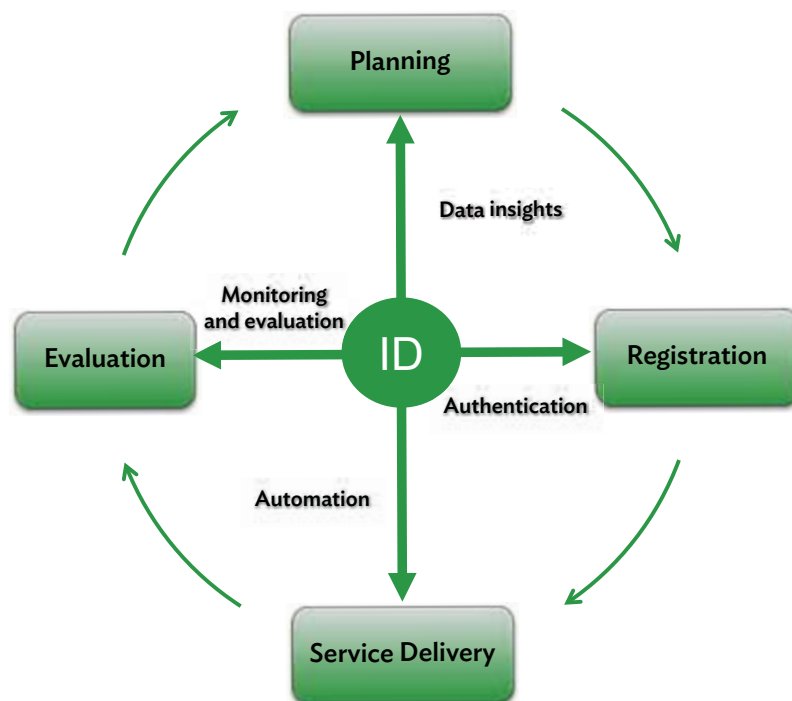
⁴ The World Bank. ID4D Global Dataset. <http://data.worldbank.org/data-catalog/id4d-dataset> (accessed 1 February 2016).

Authentication

Authentication is an essential function of ID systems. It enables the system to uniquely verify the identity of an individual. Authentication is the basis of most utility of ID systems, and several other functions build upon the foundation of a unique identity that can be authenticated. By itself, the authentication function is a valuable tool for the registration phase of the policy process, where it can validate whether the beneficiary being enrolled is in fact the intended beneficiary.

As a first step in the implementation of a policy, the intended beneficiaries of the policy have to be made ready to receive the benefits of a scheme. This is usually done through a registration process where beneficiaries are brought into the policy's database and given some form of authentication for the entitlement, such as an ID card or an ID number. Using this, a beneficiary can receive the benefits. In developing countries, this step is often prone to contraventions. Due to lack of transparency, ineligible persons are able to enroll ghost beneficiaries into or duplicate the beneficiaries in the schemes. The ID system can help eliminate ghost beneficiaries and duplicates, which would in turn eliminate some leakages, leading to greater efficiency in the policy process.

Figure 4: Use of Identification in a Policy Program



ID = identification.

Source: Author.

Automation

ID systems enable automation and transparency of service delivery. By verifying identity, the ID can be used as a basis to automate certain transactions. For example, direct benefits or cash subsidies are automatically transferred from the government to a beneficiary's bank account that is linked to the beneficiary's ID. Thus, the benefit transfer process bypasses the entire complex supply chain and links the benefit source directly to the target beneficiary. This process often involves a large and complex supply chain and is prone to leakages due to the many actors and steps involved, especially if regulators have weak visibility in the supply chain.

Monitoring and Evaluation

Strong ID systems assist in monitoring and evaluation. Once the benefit has been issued to the beneficiary from the government, there is a policy evaluation process that examines how successful the delivery process was and identifies bottlenecks and leakages in the delivery process. Reliable data from tracking and monitoring are essential to making this evaluation effective. By using the ID to track the movement of benefits along the entire supply chain, the government can have full visibility into the execution of any scheme. The ID can be used to validate whether the beneficiary received the benefits and also to identify bottlenecks and leakages along the supply chain.

Data Insights

Furthermore, ID systems can help generate data insights from the last mile, which are generally difficult to gather. A unique ID number can function as an indexing tool for a wide variety of transactions linked to an individual. These data could be analyzed to generate insights into how various government interventions are helping individuals progress socioeconomically. Such insights could feed the planning phase of the development process.

Figure 4 illustrates a framework of the use of the ID in a policy program. The ID can provide data for planning, authentication for registration, automation for service delivery, and help in monitoring and evaluation during a policy life cycle.

2. Use Cases of Identification in Selected Sectors

The life cycle of a development project in the ID management model remains largely the same across sectors, though specific use cases could vary. The model is applied to selected sectors, where a variety of use cases of the ID is examined at each phase of the project life cycle. In addition to applying the model to the project life cycle in a sector, case studies are introduced to illustrate specific use cases of the ID for respective sectors.

2.1 Use Cases for Policy Life Cycle

ID systems can provide strategic guidance for applying the ID to any policy area. Table 1 summarizes some use cases for public sector management.

Table 1: Use Cases for Public Sector Management

PLANNING	REGISTRATION	SERVICE DELIVERY	EVALUATION
<ul style="list-style-type: none"> Analyzing utilization of schemes Generating insight and/or analytical reports 	<ul style="list-style-type: none"> Easy registration for benefits Eliminating ghost beneficiaries Delivery to the right beneficiary 	<ul style="list-style-type: none"> Digital transfer of benefits Eliminating need for duplicate IDs Enabling mobility of beneficiaries 	<ul style="list-style-type: none"> Tracking service delivery for the unserved or underserved people to the last mile Tracking leakages and misreporting

ID = identification.

Source: Author.

At the planning stage, the ID can provide data-driven insights. ID-linked services can generate data on how the scheme's intended benefits are reaching the end beneficiaries. The ID system will gather data by location, gender, and target income group. ID-linked data can help assess whether the scheme is creating the intended change in financial behavior, spending patterns, and so forth. Data insights thus generated will help to improve the scheme and make expenditure more efficient.

At the service delivery stage, the ID could help to automate the benefit transfer. In many subsidy schemes, the benefit transfer process is complex requiring many levels

of authentication. By creating an ID-linked platform where bank accounts of both the beneficiary and the disbursing agency are authenticated, the entire service delivery process can be automated. The elimination of the physical transfer of benefits allows the beneficiaries to access the intended benefits anywhere and anytime.

At the evaluation stage, the ID can help track the service delivery to the last mile and help the government in the process of monitoring and evaluation of various welfare schemes (Box 1). This will help the government understand whether beneficiaries are unserved, underserved, or quasi-served through the benefit schemes. Leakages and misreporting can also be tracked in the ID-linked services.

Box 1: Various Pro-Poor Government Programs for Improving Governance and Public Management in India

Overview

The Government of India spends over Rs2.5 trillion annually in welfare benefits to Indian residents through multiple centrally sponsored schemes and programs. Such programs cost the exchequer 4.24% of gross domestic product in fiscal year 2015.

A lack of collaboration in implementing public welfare schemes leads to redundancies and duplication of effort. In the absence of a strong mechanism to establish the identity of a beneficiary, duplicate and fake beneficiaries are included in the system. The issue is compounded by the migration of the population from one place to another. The lack of a single unified database of residents containing key attributes of such socioeconomic parameters makes it difficult for any implementing agency to verify the eligibility of the beneficiaries. This creates a bottleneck for the government in delivering effective services.

The Aadhaar database, a unified database of around 940 million unique identification numbers covering 72% of the population in the country, is already the world's largest multimodal biometric database. Aadhaar enables the authentication of beneficiaries and hence helps mitigate the problem of duplicate and fake beneficiaries.

Intervention

The Unique Identification Authority of India worked in close collaboration with central ministries, state governments, and donor agencies across various sectors—pensions, banking, and petroleum, among others—to drive Aadhaar-enabled service delivery.

1. **Catalyzing Aadhaar-based direct benefit transfer.** The Ministry of Rural Development accelerated the rate at which Aadhaar numbers were seeded in the scheme database and bank accounts in order to expedite the direct benefit transfer for the National Rural Employment Guarantee Scheme (NREGS). By enabling electronic delivery of NREGS wage payments, millions of hitherto unbanked wage seekers have gained access to mainstream financial services.

continued on next page

Box 1: continued

2. **Reducing pilferages and leakages in liquid petroleum gas delivery.** Oil marketing companies designed a biometric-based system for the distribution of domestic liquid petroleum gas (LPG). The objective was to curtail pilferage by ensuring authenticated delivery of domestic LPG to a customer base of over 100 million.
3. **Driving financial inclusion in Jharkhand.** The Government of Jharkhand streamlined the rollout of G2P payments by directly transferring benefits into the Aadhaar-linked bank account of beneficiaries.

Impacts

- Aadhaar-led transformation has harmonized government sectors and functions and addressed issues of transparency, access to finance, and delivery of benefits.
- At the Ministry of Rural Development, Aadhaar seeding in the NREGS database increased more than 7 times to reach 45 million records in just 1 year.
- Oil marketing companies found around 30 million bogus LPG connections and weeded them out through the direct benefit transfer scheme in April 2015.
- The direct benefit transfer of G2P payments has been implemented for pension payments to almost 500,000 beneficiaries in Jharkhand and is expected to benefit 4 million more such beneficiaries.

Rs = rupees, G2P = government-to-person.

Sources: *The Times of India*. 2015. Union Budget: India to Spend Rs2.27 Lakh Crore on Major Subsidies. 28 February. <http://timesofindia.indiatimes.com/budget-2015/union-budget-2015/Budget-2015-India-to-spend-2-27-lakh-crore-rupees-on-major-subsidies/articleshow/46411433.cms> (accessed 16 Jan 2016); P. Sahu and S. P. Saikia. 2015. DBTL Weeds Out 3 Crore Bogus LPG Connections. *The Financial Express*. 27 April. <http://www.financialexpress.com/article/economy/dbtl-weeds-out-3-crore-bogus-lpg-connections/67103/>

2.2 Use Cases in Sector Programs

Finance Sector Program

Finance sector development programs cover the banking and nonbanking sectors, as well as financing programs for infrastructure, small and medium-sized enterprises, microfinance, and so on. A multipronged strategy is required to strengthen financial systems throughout the whole policy life cycle. At the planning stage, the ID can help generate data on the various financial transactions. It can also be used for electronic know your customer (eKYC) requirements for financial institutions, resulting in cost savings and faster turnaround. For service delivery—in cash transfer and subsidy schemes, for example—the ID can help authenticate customers and automate the payment process by linking the bank accounts of both the beneficiaries and the service providers. The data collected from the financial transactions can help create a credit history for customers (Box 2), which can be further used to validate the eligibility for loans and insurance.

Box 2: Secure Digital Banking Using Chip-Based Identity Cards to Promote Inclusive Finance in Nigeria

The Nigerian economy relies too heavily on cash, driving up management costs for the nation's banks. Cash withdrawals account for the majority of management costs, which are fueled by the government's no-fee policy for cash withdrawals under N150,000 (\$980). In order to cover these costs, banks pass on a significant proportion of the cost to all customers in the form of high service charges and high lending rates.

In 2005, the Central Bank of Nigeria took action to alleviate the economic impact of heavy cash use by issuing the Cashless Nigeria Policy. The Government of Nigeria established a central database of its citizens and distributed identification (ID) cards to them as part of a holistic vision for creating better accountability, preserving national security, and integrating a far more efficient way of managing payments across the economy.

The new Nigerian ID card was based on MasterCard M/Chip4 technology. The chip contains identity information and prepaid payment functionality secured through biometric identity authentication. A broader economic impact of the card is expected as the previously unbanked and underbanked are able to gain access to the mainstream economy, and the visibility of their assets allows them to build a financial history and establish creditworthiness with financial institutions.

N = naira.

Source: MasterCard. 2013. MasterCard® Government Services & Solutions Case Study: Nigeria National ID Card (NID). <http://smartcitiescouncil.com/resources/nigeria-national-id-card>

Social Protection Program

The ID can be used by social protection programs to understand the demands of vulnerable groups by analyzing ID-linked records. Thus, the benefit schemes can be designed more effectively for the target groups. The ID can also help with the registration of vulnerable groups including women, children, and the elderly with high accuracy as well as the automation of the disbursement of the benefits directly to the target groups (Box 3).

Box 3: Social Assistance through Direct Benefit Transfer to Disaster Victims in Pakistan

In July 2010, Pakistan experienced the worst flooding in its history following heavy monsoon rains in the Khyber Pakhtunkhwa, Sindh, Punjab, and Balochistan regions of Pakistan. According to data released by the Government of Pakistan, the floods directly affected 20 million people, destroying property, livelihoods, and infrastructure. The government estimated that nearly 2,000 people lost their lives and 1.7 million homes were either partially or totally destroyed. Respondents from the profiling exercise conducted by the United Nations High Commissioner for Refugees reported more than 10,000 deaths after the floods.

continued on next page

Box 3: continued

Having realized that humanitarian aid alone would not be sufficient to provide relief quickly enough to all those in need, the government decided to embark on a large-scale cash relief program for affected families in the flood areas. The government predicted that approximately 1.6 million families would be registered for the card scheme. According to the National Database and Registration Authority (NADRA), as of 28 May 2011, a total of 1,637,717 cards had been processed, 1,635,168 issued, and 1,580,954 activated; 32,690 cards were not verified by the authority and therefore not activated.

To facilitate payments, the government provided affected families with a card, popularly named the Watan card, with a magnetic strip that could be operated by using both point-of-sale terminals and ATMs. One immediate impact was the number of households introduced to branchless banking via the Watan program, and in record time using the branchless banking infrastructure.

Source: Office of the United Nations High Commissioner for Refugees (UNHCR). 2011. The WATAN Scheme for Flood Relief: Protection Highlights, 2010–2011. http://floods2010.pakresponse.info/LinkClick.aspx?fileticket=_SpKC9jJCiY%3D&tabid=206&mid=1604

Education Sector Program

The ID can be used in multiple ways to boost development in the education sector. It can be linked to a student record, which could be a collection of all the certificates and degrees of a student. Whenever information is required about a particular certificate and/or degree, it can be retrieved using the ID. The need for paper records could be eliminated. ID-linked scholarships and other student benefits could then be easily disbursed (Box 4). The ID can also be used to monitor the attendance of school teachers and address the problem of teacher absenteeism.

Box 4: Linking Identification to Benefit Disbursement to Students to Improve Inclusiveness and Quality of Education in India

The Central Board of Secondary Education (CBSE) has directed schools to submit the Aadhaar card information of students in classes 9–12 during the registration for board exams. The purpose is to get credible information about the students such as their address and date of birth. It became easier for the central board to issue scholarships to the students based on their Aadhaar card information. For example, the Education Department could transfer the funds for the winter school uniforms to the accounts of the students because the Aadhaar card details were registered with the student bank accounts.

Source: Aadhaar Card Number. 2015. Chandigarh Education Dept Collect Student Aadhaar Cards Details. 7 December. <http://www.aadhaarcarnumber.in/news/chandigarh-edu-cards-details.html>

Health Sector Program

The ID can help generate data at the planning stage using integrated patient records, which collate the medical history, prescriptions, and treatment information of a patient from various service providers. These records can help the government understand use patterns and enable it to design services more efficiently (Box 5). The ID can also help in the creation of unique, integrated patient records. These would not only enable the mobility of the patient across the country but also help the government in targeting the eligible beneficiaries for various health schemes. For example, during an epidemic outbreak, the government can transfer financial or medical assistance to the target beneficiaries and track treatment and containment of the disease using the integrated patient records.

Box 5: Linking Identification to Health Records to Strengthen Efficiencies in the Health Systems of Japan

Japan is considering providing its citizens mandatory personal identification (ID) numbers by 2021. The proposed ID will serve as a common link between an individual's bank account information and personal health records in the centralized government database. The Diet (Japan's legislature) has amended and expanded an act that establishes a personal ID number, known as the My Number system. The amendment act was promulgated on 9 September 2015.

The 12-digit tracking system will store all personal information such as date of birth, address, race, gender, and probably political affiliation. My Number will also double as a bank card that can be linked to a personal account where all transactions will be monitored. Health and vaccination records will also be stored on the card where compliance will be monitored and welfare benefits will be loaded onto the card to prevent fraud.

Sources: ThomasDishaw.com. 2015. Japan Issues National ID Card That Links Bank and Vaccine Records to Government Database. 15 September. <https://matrixbob.wordpress.com/2015/09/09/japan-issues-national-id-card-that-links-bank-and-vaccine-records-to-government-database/>; S. Umeda. 2015. Japan: ID Number Act Expanded Even Before Becoming Operative. Global Legal Monitor. 16 September. <http://www.loc.gov/law/foreign-news/article/japan-id-number-act-expanded-even-before-becoming-operative/>

Gender and Development Program

Welfare schemes for women can be designed more effectively by analyzing ID-linked records to better understand women's requirement using the ID for enrollment and authentication in welfare programs with great accuracy (Box 6). The ID can also help enroll the target women beneficiaries with ease and great accuracy and the benefits can be disbursed automatically and directly to the beneficiaries' bank accounts.

Box 6: Women's Empowerment by Cash Transfers for Gender Equity in Pakistan

The concept of women's empowerment is considered a crucial goal in development. However, women's empowerment remains weak in Pakistan due to social and cultural practices at the individual, family, and social levels. The effects of a patriarchal society influence all spheres of a woman's education, job, family planning, health care, and marriage. In Pakistan, an intervention of unconditional cash transfers under the Benazir Income Support Programme (BISP) to poor women was designed to provide women the opportunity to access and utilize financial resources without coercion.

Initially, BISP partnered with Pakistan Post to disburse the funds to the beneficiaries via money orders. To promote transparency, the payment details and status of delivery to each beneficiary were displayed on the BISP website. To further improve the payment mechanism, technology-based solutions were explored by BISP. Payment through Smart Cards has been initiated in some districts. These cards are issued by the National Database and Registration Authority and payments are arranged by a bank, through a network of franchises and a core banking application.

After receiving BISP cash transfers, the beneficiaries felt more empowered: 58% of the women said they could spend money as they wanted, 75% felt their importance in the family had increased, 62% were making more family decisions, and 72% reported having more confidence.

Sources: I. Shehzad. 2011. Benazir Income Support Programme (BISP) and Its Impact on Women's Empowerment. *SAARC Journal of Human Resource Development* 7(1): 71–82. <https://hassanaliqureshi.files.wordpress.com/2016/02/survey-method-paper-2.pdf>; M. Dahan and L. Hanmer. 2015. The Identification for Development (ID4D) Agenda: Its Potential for Empowering Women and Girls. Background paper prepared for the World Bank. <http://documents.worldbank.org/curated/en/859071468190776482/The-identification-for-development-ID4D-agenda-its-potential-for-empowering-women-and-girls-background-paper>

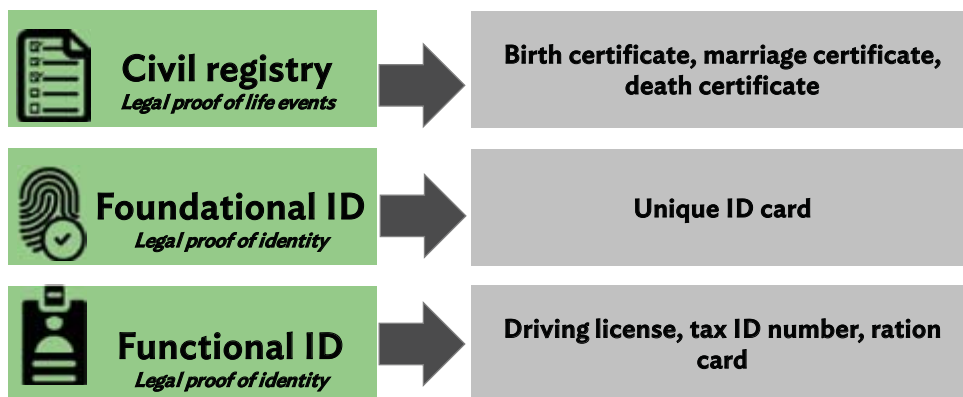
3. Understanding the Maturity of Identification Systems

For IDs to be successfully used in any sector, ID systems must have achieved a certain level of robustness. The health of an ID system depends on several parameters. When using ID systems for development, it would be useful to be able to assess the maturity of the system. A maturity model, built upon critical parameters of ID system design, has been developed to assess a country's readiness for a national ID system.

3.1 Types of Identification Systems and Their Uses

Multiple kinds of ID systems have been developed for different purposes (Figure 5). The oldest systems of identification are civil registries, which record important life events—birth, death, marriage, divorce, adoption, etc.—and issue forms of ID, such as birth certificates. A second kind of ID systems are functional IDs, which are ID cards, numbers, or other systems, created for specific government services. For example, driver's licenses and voter cards are examples of functional IDs. A third kind of ID systems are foundational IDs, which are not linked to specific services but serve as a legal proof of identity for multiple purposes, for example, unique ID cards.

Figure 5: Types of Identification Systems and Examples



ID = identification.

Source: Author.

The form of ID systems has also been evolving. ID systems that were paper-based are now mostly digital. As a result, data were initially gathered for demographic statistics, but individual biometric data have now become more important in building a strong ID system.

Similarly, ID systems have also been moving toward integration. Originating from civil registries that issued birth certificates, different ministries have started issuing functional IDs for their schemes. Foundational ID systems that authenticate identity using biometrics are fairly recent and are replacing functional IDs in many countries. The most advanced models are envisaged as integrated ID systems, where civil registries and foundational IDs are merged into one system that can provide authentication and vital statistics over the entire lifetime of a citizen.

Many developing countries are leapfrogging the evolution process in setting up a national ID management system. Building a strong foundational ID system is the crux of this effort.

3.2 A Maturity Model for Identification Systems

ID systems are complex and multidimensional, involving many systems and stakeholders. The ability of ID systems to provide reliable data and authentication services derives from multiple aspects of their design: the strength of the deduplication processes to ensure unique and reliable data sets, the proliferation of usage and coverage so that the ID captures enough information, and the legal backing of the ID system to protect data from misuse.

These aspects of ID systems are dependent on multiple parameters. The evolution of ID systems, in turn, reflects an evolution of these parameters as well.

In the proposed maturity model in Figure 6, a country is assessed on eight parameters—policy, coverage, services provided by the ID, ease of integration for third-party users, deduplication process, privacy, harmonization, form factor, and linkage with CRVS—to determine whether it is in a nascent, intermediate, or advanced state of ID system maturity.

Each of the eight parameters listed in Figure 6 will be explained in detail. An ID system could have all these parameters at the same level or at different levels. For example, the deduplication process of Indonesia might be advanced, but its coverage would be nascent. However, if most of the parameters are nascent, a country's system is ranked as a nascent ID system; if most parameters are intermediate, it is intermediate; and if most are advanced, it is advanced. There is some degree of subjectivity built into the rankings based on experience of working with many of these systems.

Policy

Birth certificates issued by civil registries served as the oldest forms of ID and all functional IDs were issued by other line ministries and agencies for their schemes. However, to have a robust national ID system, it is important that there be a legal backing for the existence

Figure 6: Identification System Maturity Model

		Nascent	Intermediate	Advanced
Parameters for the maturity model	Policy	No legal backing	Pending legislation	Legal backing
	Coverage	<50%	<80%	>80%
	ID services	Identity	Identity and authentication	Identity, authentication, and add-on services
	Ease of integration	Paper based and system is difficult to integrate	eID gives functionality but limited integration	Services are defined and support provided to third-party users
	Deduplication	Demographic	Biometric	Biometric and demographic
	Privacy	No law to ensure privacy	Law exists but no penal provision and do not profile	Penal provision and law supports do not profile
	Form factor	Paper-based	Chip-based	Form-factor agnostic
	Linkage with CRVS	Not linked	In the process of being linked	Linked

CRVS = civil registration and vital statistics, eID = electronic identification.

Source: Author.

and functioning of ID systems, such that governing institutions, regulatory mechanisms, partnership mechanisms, and the mandate are clear. Legislative backing, such as an act or constitutional amendment, serves as the highest form of policy support. In certain countries, the legislative process surrounding their ID system is ongoing. However, some ID systems exist on the basis of an ordinance, executive order, or other mechanism that does not secure as much stability and authority for the system as would a law.

Coverage

Achieving scale is an important gauge of the evolution of an ID system. An ID system becomes more usable the more people it covers. Without reaching a critical mass, the ID is neither able to sustain enrollment, nor promote adoption by third-party agencies. According to the experiences in many countries, ID systems covering 50% of the population or less have low utility, whereas those covering over 80% of the population manage to create a network effect where more and more people enroll and more agencies use it as a primary identity.

Utility of Identification

Foundational IDs have evolved from simply providing an identity to an individual to enabling secure digital transactions. Robust and scalable ID systems are able to support multiple services without compromising the performance of the system. Foundational ID systems are creating a vibrant ecosystem of ubiquitous utility—available anytime, anywhere, and easy to use. The simplest ID systems merely provide a paper-based identity. At the next level, they provide a means of biometric authentication of individuals. More advanced models provide an ID, authentication, and several add-on facilities such as debit, cash-out, medical insurance, and so forth through the same ID card or number.

Ease of Integration

ID systems should be simple to integrate with other systems. Uptake of IDs depends on an ID system's capability to integrate with other systems. ID systems have progressed from paper-based to computer-based with open interfaces, which make it easier for third-party agencies to use the ID services. This helps public and private parties use the ID services for doing eKYC. Open systems with secure transactions are adopted easily. Advanced ID systems also support online verification as it makes transactions more secure.

Another aspect in the ease of integration is the harmonization with other ID systems. If a country has multiple ID systems, it would be efficient for the government to streamline the national ID management process. Though ID programs go through similar processes to collect and identify data, ID systems are often not linked with each other. A coordinated approach can be undertaken, especially toward creating digital identities. Harmonization helps improve efficiency by preventing duplication of IDs and enabling standardization of the services based on a single platform. Consolidation of the various functional IDs over a period of time reflects the maturity of a country's ID system. The objective is to become a one-stop ID for most public and private services in a country.

Deduplication Technique

Uniqueness is the most basic feature of an ID system upon which most of its functionality hinges. The deduplication process has evolved significantly. In the past, deduplication for paper-based ID systems was only done by cross-checking demographic data but now biometric deduplication is becoming the norm. Several forms of biometric deduplication mechanisms exist—the matching of fingerprints, iris scans, or facial coordinates. Therefore, deduplication has evolved from demographic-based to biometric-based systems, with the most robust systems employing both techniques.

Privacy

Globally, privacy is a key concern with ID systems. Since these are the basis for authenticating the transactions and movement of individuals, ID numbers are valuable personal information, which can be prone to theft and abuse. Unless citizens are assured that their personal data and transaction information are kept confidential and secure, ID systems will remain underutilized. The maturity of ID systems can be gauged by the extent to which privacy is protected by legal and policy dimensions and is maintained by the design of the system itself—in terms of technologies for profiling and exchanging personal information. If a system is protected by strong penal provisions criminalizing the

breach of confidentiality, and if it does not profile its users while providing services, it can be considered the most advanced with respect to privacy.

Form Factor

The most tangible aspect of the maturity of an ID system is its form factor. Older forms of ID systems have been paper-based. More recently, many countries have issued chip-based ID cards as the primary ID.

There are two issues relating to form factor. First, if provided by the government, it raises the cost of ID programs, which are already expensive to build and administer. Second, with technology changing rapidly, the ID system can be limited by its form factor in terms of how it can be used. For example, chip-based cards might only allow an offline verification process. The number of agencies that can then use this ID card for services other than authentication will be limited by the amount of storage on the smart chip. Thus, the more advanced forms of ID systems are unlinked to a form factor. ID cards might be issued to give citizens physical proof of verification, but all authentication services are provided online, directly by the ID database.

Linkage with Civil Registration and Vital Statistics

The CRVS system is the oldest form of identification and records various life events—birth, death, marriage, divorce, adoption, and others. In most countries, the CRVS system is either paper-based or a silo system without linkages to other systems. The CRVS system is now evolving into a more integrated system, however, with CRVS as an essential part of it. An integrated ID system will help the government in better policy planning by providing the vital statistics of an individual.

Disclaimer:

The assessment of maturity of an ID system is only based on the methodology and parameters listed above. It is limited and constrained by data assimilated through public resources as a part of desktop research.

4. Regional Study: Asia and the Pacific

The Asia and Pacific region is interesting in terms of the evolution of ID systems. The region is home to both pioneers as well as laggards in ID evolution. This section examines the ID systems of seven countries—Cambodia, India, Indonesia, Malaysia, Pakistan, the Philippines, and Viet Nam—against the parameters outlined in Chapter 3. The seven countries discussed are not only in different stages of their ID system maturity level but also at different levels of development.

4.1 Cambodia

Cambodia has seen several phases of evolution in its ID systems. Civil registration existed in the country historically, but all records were completely destroyed under the Khmer Rouge between 1975 and 1979. After a phase of rebuilding in the early 1990s, Cambodia developed a foundational ID system called the Khmer ID. Deliberations are currently under way to transition to a newly proposed ID system called the Population Identification System.

The Khmer ID is considered the most extensive and accurate source of information related to identification in Cambodia. People in Cambodia who reach the legal age of 15 are eligible for the Khmer ID card (Figure 7).

The Khmer ID Code is generated exclusively by the Integrated Population Identification System (IPIS). The number comprises 10 digits, including one reserved digit, eight random digits, plus one check-sum digit that is based on a Modulus 11 algorithm. The reserved digit is used to distinguish temporary stay and working foreigners from citizens of Cambodia.

Currently, a huge nationwide campaign is under way to register all citizens who do not have a Khmer ID card. This is a preparatory step before general elections to be held in Cambodia in February 2018.

The government has made birth certificates mandatory for the issuance of the Khmer ID. Although birth certificates are uploaded to the Khmer ID system, these are not indexed. Hence, it is not possible to search for entries using birth registration number. The system does not communicate with any other identity system for data; for example, individuals registered in the passport system, but without birth certificates, would never be captured in the Khmer ID database.

Figure 7: Khmer Identity Card



Previously, ID management was part of the Ministry of Interior of the Royal Government of Cambodia. In 2014, a separate General Department of Identification was established within the ministry to strengthen and oversee ID systems in the country. In 2015, the General Department of Identification developed the National Strategic Plan for Identification to accelerate national efforts to increase the birth registration rate and the identification rate in Cambodia.

Apart from strengthening the CRVS system, building a new system, the IPIS, was proposed. This is an integration platform for other ID systems, which is envisioned to become the single primary data source on population information. The IPIS will only store select information about other databases and, thus, will neither be a new institution nor a completely consolidated database for all existing ID systems.

The IPIS is a mechanism for the continuous recording of selected information on each resident, thus, making it possible to determine up-to-date information about the size and characteristics of the population in selected time periods. To assist in locating a record for a particular person in the IPIS, a Khmer ID Code is provided for each record. The IPIS is continuously updated with information on individuals through the use of supplementary systems—CRVS, Residential Statistics, Khmer ID Card Management System, Passport System, and Nationality System.

4.2 India

India's Aadhaar ID program is one of the largest ID programs in the world. The Government of India had long recognized that weak ID systems were limiting the power of the country's residents to claim basic political and economic rights. Agencies in both the public and private sector in India usually require a clear proof of identity in their provision of services. Since the poor often lack such documentation, they face enormous barriers in accessing benefits and subsidies.⁵

⁵ Unique Identification Authority of India (UIDAI). 2010. *UIDAI Strategy Overview: Creating a Unique Identity Number for Every Resident in India*. New Delhi: UIDAI. https://uidai.gov.in/UID_PDF/Front_Page_Articles/Documents/Strategy_Overview-001.pdf

To address the urgent need to create a universal ID program, the Unique Identification Authority of India (UIDAI) was constituted and notified by the Planning Commission of India on 28 January 2009 as an attached office under the aegis of the Planning Commission. Through this notification, UIDAI was given the authority to start the biometric enrollment of residents and issue unique ID numbers (UID or Aadhaar number).⁶ The vision behind UIDAI is to empower every resident of India by allocating them a unique identity and by providing a digital platform that allows authentication anywhere and anytime. Another mandate for UIDAI was to deploy Aadhaar-based services and promote usage of Aadhaar in service delivery through harmonization with other government agencies. The government drafted the National Identification Authority of India Bill, 2010, to provide legal backing to UIDAI.⁷ The bill authorizes UIDAI to collect information from residents, establish the Central Identities Data Repository, and provide ID authentication and know your customer (KYC) services. The act also defines provisions for data privacy and confidentiality to protect the residents' information in the repository, and contains a list of offences and penal provisions. However, the bill has not yet been passed.

UIDAI adopted an innovative approach to achieve the scale of enrollment required to cover 1.25 billion residents under the ID program. As the apex body, UIDAI was responsible for maintaining the core ID infrastructure and systems, while the task of conducting enrollment was managed through a network of registrars (a government agency authorized by UIDAI for the purpose of enrolling individuals) and enrollment agencies (government or private agencies that captured demographic and biometric data from residents at enrollment stations). UIDAI also created a training and operator certification ecosystem to support the registrars and enrollment agencies. Registrars are provided an incentive of approximately \$1 for each successful enrollment. This acts as a catalyst for scaling up the enrollment infrastructure and conducting genuine enrollment. Using this approach, in a span of 5.5 years, UIDAI has thus been able to provide unique IDs to more than 940 million residents in India.

While UIDAI has the largest repository of ID data, it was restrained in its approach and did not add all resident attributes to its database in order to fulfill the mandate to ease citizen service delivery. Instead, UIDAI took the approach of providing “identity as a platform.” The Aadhaar system only collects minimal data—just enough to provide a unique ID, issue the Aadhaar number after biometric deduplication, manage life cycle changes, and provide an application programming interface for providing ID details (eKYC) and verifying the ID (online authentication) for various applications requiring verification.

The Aadhaar card (Figure 8) is not a core component of the Aadhaar system, which is actually unlinked to a form factor. The Aadhaar number is the core of the Aadhaar ID program. It comprises a 12-digit number: the first 11 digits are random and the final one is a check-sum digit. A paper card is issued as a soft copy by UIDAI for the citizen's records. It contains the ID number, photo, and address of the individual. The card is not chip-based and does not perform any function other than providing physical proof of the number. All services are carried out online directly via the Aadhaar number.

⁶ Government of India, Planning Commission. 2009. Notification. 28 January. New Delhi.

⁷ Government of India. 2010. Draft of the National Identification Authority of India Bill. <http://www.prsindia.org/uploads/media/NIA%20Draft%20Bill.pdf>

Figure 8: Sample Aadhaar Card



Designing the Aadhaar system as a pure ID platform allows clear separation of duties and leaves usage of identity to other partners and their various applications, which may be built on top of the Aadhaar platform (Figure 9). Apart from this, UIDAI has created a platform for payments in coordination with National Payments Corporation of India, where Aadhaar is used as a financial address for transactions with a bank account linked with Aadhaar in the background.

Figure 9: Aadhaar-Based Technology Platforms

Authentication	eKYC	Payments (APBS and/or AEPS)	SRDH
Online, anytime, anywhere authentication of Aadhaar ID	Simple and paperless KYC using Aadhaar ID	Aadhaar-enabled transfer of benefits and transaction services	Universal KYR database for all residents of the state

AEPS = Aadhaar Enabled Payment System, APBS = Aadhaar Payment Bridge System, ID = identification, eKYC = electronic know your customer, SRDH = State Resident Data Hub.

Source: Author.

4.3 Indonesia

Indonesia is considered one of world's most advanced adopters of biometric technology. In 2011, Indonesia launched a highly ambitious e-KTP program, called the *Electronic Kartu Tanda Penduduk* (Electronic Identity Card) (e-KTP). Under the program, an electronic ID card with a unique number and encrypted fingerprint, photo, and demographic data was issued to the residents. The Indonesian National Card Program is one of the world's largest civil identity deployments based on multimodal biometrics—face, finger, and iris.

Separate versions of the ID exist for residents of Indonesia (Figure 10) and nonresidents of Indonesia. The card is issued upon reaching the age of 17 or upon marriage. In the case of citizens of Indonesia, the card must be renewed every 5 years. For nonresidents, the card's expiry date is the same as their residency expiry date.

The structure of the e-KTP card consists of nine layers, which exceeds the security of conventional ID cards. A chip is implanted between the white and transparent plastic on the top two layers. This chip has an internal antenna that, using wave technology when swiped, enables the detector to recognize whether the e-KTP card is in the hands of the right owner or not. Data storage on the chip is in accordance with international standards and the card is the size of a credit card.

The e-KTP has a 16-digit number used as a unique number for each citizen and known as *Nomor Induk Kependudukan* (Identity Number). The format is PPRRSSDDMMYYXXXX, whereby PP is a two-digit province code, RR is a two-digit regency or city code, SS is a two-digit subdistrict code, DDMMYY is the date of birth, and XXXX is a four-digit computerized number.



The e-KTP card provides a robust dual method of authentication. The unique number is used for online verification, whereas the fingerprints are used for offline authentication.

The e-KTP program was started as a security measure not only to counter problems that arose in the past around issues of voter fraud, but also to combat terrorism. With the new cards, the Government of Indonesia

intends to reduce the risk of terror attacks. In the past, terrorists operating in the country had been found holding falsified KTP documents. With the new smart-card technology, the government claims that e-KTP credentials are virtually impossible to forge. As a result, they should not be subject to the misuse by criminals and terrorists, who have been known to evade capture by using counterfeit or multiple KTPs.

The government is also keen to use biometrics for authenticating service delivery and attendance. In August, the House of Representatives in Jakarta spent \$29,295 on the installation of biometric fingerprint scanners to track the attendance of lawmakers. The purpose of implementing the biometric system at the legislature was to minimize truancy. The absence of lawmakers during hearings had been a major issue for Indonesia's House of Representatives. Despite not attending, the names of many legislators were still recorded on attendance lists.

The reason for using biometrics in this way is to correct the issue by placing greater scrutiny on elected officials, just as its use with the civil service ensures that employment benefits are not abused. The number in the e-KTP card will be used as basis for the issuance of passports, driver's licenses, taxpayer identification numbers, insurance policies, certificates of land rights, and the issuance of identity documents. The e-KTP card is intended to be more than just proof of identity in voting but also the foundation for validating local transactions by financial institutions in the future.

With these multiple initiatives, Indonesia has been assessed to be the world's most advanced adopter of electronic ID credentials and technologies because of the depth of deployment throughout multiple sectors of its society and economy.

The country has been able to rapidly scale up enrollment in its ID program, reaching 100 million during the program's first year in 2011 and 140 million by 2012.⁸ The government trained over 72,000 operators in 497 regionals (counties), spread across more than 17,000 islands. Each enrollment location supported two stations with an average enrollment of 550 people per day, or around 600,000 per day across the country. At peak capacity, the system handled the enrollment of 1 million people in a day.

4.4 Malaysia

The National Registration Department (NRD) of Malaysia introduced the identity document, Kad Pengenalan Malaysia (Malaysian Identity Card), commonly known as MyKad. The identity document is mandatory for every Malaysian citizen aged 12 and above. It was introduced in September 2001. With it, Malaysia was the first country to store both the biometric data and photo of an individual on the chip embedded in the plastic ID card. The NRD is the country's sole authority in charge of issuing the National Registration Identity Card Number.

MyKad is not only used as proof of citizenship for a citizen of Malaysia, but the ID card also serves as a valid birth certificate, driver's license, electronic wallet, debit card, and a public key that can be used in many government applications. The card bearer may choose to activate the functions provided as part of the Malaysian Government Multipurpose Card initiative.

⁸ Planet Biometrics. 2012. Indonesia ID Project Makes Stunning Progress. 19 September. <http://www.planetbiometrics.com/article-details/i/1261/>

Children are issued with a MyKid after birth. Regulation 3 of the National Registration Regulations 1990 (Amendment 2007) states that a Malaysian child who has reached the age of 12 must “upgrade” to a MyKad. This card must be replaced when a person reaches 18 years of age, as it is a requirement to make the photograph current.

MyKad stores the following information: name, address, race, citizenship status, religion, and fingerprint minutiae (Figure 11). The current version of MyKad is a hybrid card containing two chips for both contact and contactless interfaces. Currently, this hybrid-type MyKad is only issued in Malaysian states that employ the Touch ‘n Go application.⁹ The MyKad chip has data retention up to 20 years, while the card itself has a life span of 10 years and has been tested according to the International Organization for Standardization (ISO) 10373 standard. In December 2015, the MyKad program was awarded by the Asia Pacific Smart Card Association with Radiant eID Awards, which recognizes a national electronic ID program that has delivered exemplary services to citizens and residents for at least 5 years.

The MyKad card has a 12-digit number (format: YYMMDD-SS-###G, since 1991) known as the National Registration Identity Card Number and is issued to citizens and permanent residents. Prior to 1 January 2004, a separate social security number was used for social security-related affairs. The first group of numbers (YYMMDD) are for the date of birth. The second group of numbers (SS) represents the place of birth of the holder—the states (01–13), the federal territories (14–16), or the country of origin (60–85). The last group of numbers (###G) is a serial number in an unidentified pattern that is randomly generated. The last digit (G) is an odd number for a male or an even number for a female.



MyKad stores fingerprint minutiae in the chip, and by using a MyKad reader, fingerprint verification can be done accurately. MyKad incorporates nine applications (on chip) with speedy and secure access in carrying out a variety of electronic transactions such as identity verification, health information, payment, access, business, and retail service. A number of off-card applications use MyKad as an identity verification platform.

MyKad incorporates two types of biometric technology for identification purposes: color photograph of the cardholder and the digital certificate.

The NRD has the responsibility to collect, integrate, and register vital personal information and to issue registration documents, including birth and death certificates and ID cards. It also maintains permanent registers and enforces registration acts, ordinances, and

⁹ The Touch ‘n Go (or TnG) smart card is used by Malaysia’s toll express and highway operators as the sole electronic payment system.

regulations. The role of the NRD has expanded from collecting information for its own purposes to sharing information with government agencies throughout the country. ID cards are not issued if individuals do not present proof of birth registration, so the same record is transferred into the chip of the ID card.¹⁰

Malaysia has a number of outreach programs to encourage everyone to register. The NRD goes to villages, towns, and major urban centers to help people register or apply for their ID card. It has mobile facilities and satellite connectivity, which allows direct access to the central system to ensure that the person is not being registered twice.

The government encourages data sharing among government agencies for improving services delivery. The Personal Data Protection Act does not prevent the NRD from sharing information. To facilitate data sharing, the NRD established a data-sharing system, consisting of a centralized repository of individuals' personal information for government agencies to access individuals' information online.

Not only government agencies but private institutions use the information stored in the multipurpose smart card. For example, banks, most of which have a MyKad reader, can read the ID card and authenticate the information. They can get real-time authentication to prevent bribery and fraud.

4.5 Pakistan

In Pakistan, efforts toward the creation of a national ID system started in 1973, with the promulgation of Article 30 of the Second Amendment of the Constitution of Pakistan to perform identification and maintain the statistical database of the citizens of Pakistan.¹¹ Registration under this program required citizens to provide demographic data, address, photograph, and thumb impressions, which were stored in physical files before issuing a national ID card. Thus, the ability of the government to provide a unique ID to each citizen was limited and could not be used as a reliable document for ID verification. The Directorate General of Registration also failed to adopt emerging technologies in the process of registration and service delivery.¹²

In 1999, the Pakistan Army, charged with conducting a door-to-door census in the country, started contemplating a merger of two institutions—the Directorate General of Registration, responsible for providing national ID cards to citizens, and the National Database Organization, created in 1998 to conduct the census—to computerize census data collection and use the data to issue computerized cards. The National Database and Registration Authority (NADRA) Ordinance, 2000 came into effect on 10 March 2000 by merging the Directorate General of Registration and the National Database Organization,

¹⁰ Inter-American Development Bank. 2015. International Identity Management Conference Proceedings. Seoul, Republic of Korea. 23–25 September. Washington, DC. https://publications.iadb.org/bitstream/handle/11319/7125/International_Identity_Management_Conference_Proceedings.pdf?sequence=4

¹¹ Pakistan Press Foundation. 2012. From an Idea to Reality: Pakistan's Smart Card. 11 November. <http://www.pakistanpressfoundation.org/2012/11/from-idea-to-reality-pakistans-smart-card/>

¹² A. A. Hakeem. 2009. Smart National Identity Cards in Pakistan. Presentation slides. <http://siteresources.worldbank.org/EXTSAFETYNETSANDTRANSFERS/Resources/Smart-National-ID-cards-in-Pakistan.pdf>

with the aim of reducing government interference in the process of registering people and providing national ID cards.¹³ The ordinance laid out a blueprint on how to register individuals.

In 2007, NADRA started using fingerprint deduplication for the issuance of national ID cards, and in 2008 the data architecture was improved to include the full set of 10 fingerprints and a digital photograph. This technology was powerful enough to enable full deduplication of the national database and greatly reduced the prevalence of dual IDs and identity theft.

Since its inception in 2000, NADRA has issued a Computerized National Identity Card (CNIC) for Pakistani citizens and its equivalent to the Pakistani diaspora (Figure 12). The CNIC is issued first at the age of 18, after the resident's biometrics have been captured.¹⁴ The CNIC contains the following information: legal name, gender (male, female, or transgender), father's name (husband's name for married women), identification mark, date of birth, national ID card number, family tree ID number, current address, permanent address, date of issue, date of expiry, signature, photo, and fingerprint (thumbprint).

Figure 12: Types of Identity Cards Issued by the National Database and Registration Authority



ID = identification.

¹³ T. Malik. 2014. *Technology in the Service of Development: The NADRA Story*. Center for Global Development. <http://www.cgdev.org/publication/ft/technology-service-development-nadra-story>

¹⁴ National Database and Registration Authority (NADRA). CNIC. <https://www.nadra.gov.pk/index.php/products/cards/cnic>

In 2012, with the aim to enhance security features on the card to make it difficult to forge as well as to expand usage in government service delivery, NADRA introduced the Smart National ID Card complying with International Civil Aviation Organization standard 9303 and ISO standard 7816-4. This contains a data chip, 36 security features, and a match-on-card applet that improves the security of smart card authentication by storing ID data on the card.

The CNIC has a 13-digit number. The first five digits are based on the applicant's locality, the next seven are serial numbers, and the last digit is a check digit. The last digit also indicates the gender of the applicant: an even number indicates a female and an odd number indicates a male.

NADRA has set up and run enrollment centers throughout the country. Due to the limited technical capabilities of the organization, NADRA experienced serious problems with the issuance of ID cards from 2001 to 2005.¹⁵ The enrollment rate of IDs was not high enough to cover genuine Pakistani citizens and there were many counterfeit IDs during this period. To accelerate the issuance of IDs, NADRA tried to establish its office in every district and set up the mobile infrastructure to reach out to remote areas and to enroll people through satellite communications. Using this organization and technology, NADRA rapidly increased registration from 54 million in 2008 to 98 million in 2014, comprising roughly 55 million men and 43 million women.¹⁶

Under Pakistani law, it is not compulsory to carry the CNIC. However, for Pakistani citizens, the CNIC is mandatory for conducting a vast range of transactions with the government as well as the private sector, such as voting; opening and operating bank accounts; obtaining a passport; purchasing vehicles and land; obtaining a driver's license; purchasing a plane or train ticket; obtaining a mobile phone SIM card; obtaining electricity, gas, and water; securing admission to college and other postgraduate institutes; and conducting major financial transactions.

4.6 Philippines

The Philippines currently has a Unified Multi-Purpose ID (UMID) system in place but is undergoing a transition to a new ID system, the Filipino ID (FID).

For nearly 2 decades, the Government of the Philippines has attempted to establish a national ID system. However, these attempts have faced opposition on constitutional and privacy grounds. In 1996, Administrative Order No. 308 was issued, adopting a National Computerized Identification System. Unfortunately, the order was declared unconstitutional by the Supreme Court on the ground that legislative approval was required for the scheme. In 2005, Executive Order No. 420 was issued, requiring all government agencies and government-owned and -controlled corporations to harmonize their ID systems. The order was also challenged on grounds of privacy but was upheld by the courts

¹⁵ Arshad Hakeem, Ali. 2009. "Smart National Identity Card in Pakistan." Poverty Reduction and Economic Management Knowledge and Learning Forum, World Bank, Washington, DC.

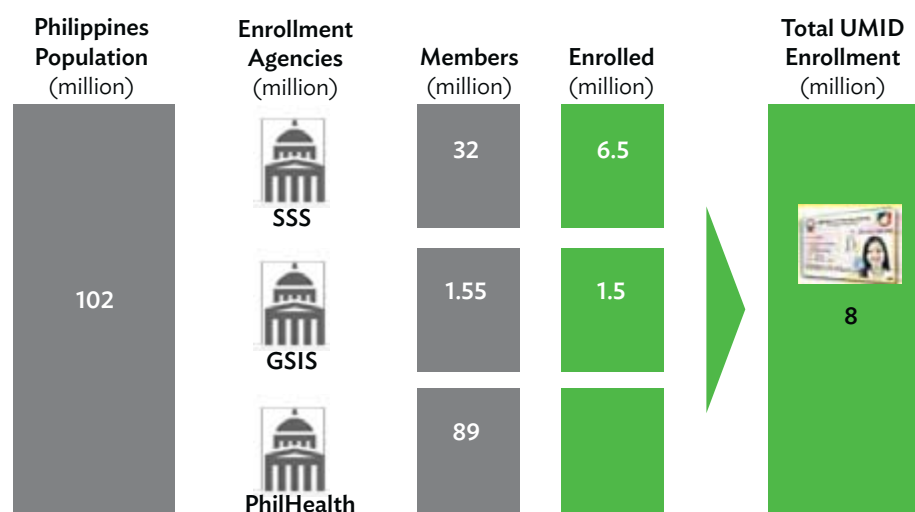
¹⁶ Tariq Malik, 2014. *Technology in the Service of Development: The NADRA Story* at <http://www.cgdev.org/publication/ft/technology-service-development-nadra-story>

as it applied only to government agencies that issue ID cards as part of their functions and their issuance was within the power of the President to promulgate. The order gave rise to the UMID.

The UMID is presently issued to the members of the Social Security System (SSS), Government Service Insurance System (GSIS), Philippine Health Insurance Corporation (PhilHealth), and the Home Development Mutual Fund (Pag-IBIG Fund). In the current UMID system, groups such as the self-employed, the unemployed, minors, and those working abroad have not been enrolled. The coverage of the UMID system by the various enrollment agencies is shown in Figure 13.¹⁷ The UMID system started its enrollment process in 2010 but by 2016 had been able to cover less than 8% of the population of the Philippines.¹⁸

Currently, identification in public and commercial transactions in the Philippines requires the presentation of at least two government-issued ID cards that bear the photo of the cardholder.¹⁹ Until the UMID card was introduced, a person's government-issued ID card could be any, or all, of the following cards: SSS, GSIS, PhilHealth, driver's license, voter's ID, senior citizen, or Professional Regulation Commission. Filipinos who did not qualify for any of the cards could apply for an expensive postal ID card issued by the Philippine Postal Corporation.

Figure 13: Unified Multi-Purpose Identification Enrollment



GSIS = Government Service Insurance System, PhilHealth = Philippine Health Insurance Corporation, SSS = Social Security System, UMID = Unified Multi-Purpose Identification.

Source: Details provided by government officials during a consultation meeting in October 2015.

¹⁷ Data for each member agency were taken during a Consultation Workshop held on 5–7 October 2015.

¹⁸ The World Bank. World Development Indicators Database. <http://data.worldbank.org/data-catalog/world-development-indicators> (accessed 1 December 2015).

¹⁹ R. J. Palabrica. 2015. National ID System. *Philippine Daily Inquirer*. 31 May. <http://business.inquirer.net/192804/national-id-system>

The Philippine Statistics Authority (PSA) is the implementing agency for the UMID system. It serves as the central managing agency that deduplicates and verifies users, issues unique identifiers based on which smart cards are issued, and maintains the overall registry of UMID users. The process of deduplication does a 1:N matching, identifies the duplicates, and removes them from the system. The data captured by the enrollment agencies are sent on a CD-ROM to the centralized server, which is managed by the PSA. The PSA generates a unique number called a Common Reference Number (CRN) for every unique record and shares it with the relevant agencies. The CRN is a 12-digit number. The process for generating the CRN is not made public.

The UMID system provides both types of verification—offline and online. The offline verification is done using the match-on-card where network connectivity is an issue and the online verification is done from the central registry. The verification does a 1:1 match by reading the biometrics from the fingerprint scanner and checks it either against the card or the central database.

After receiving the CRN from the PSA, the respective agencies issue a chip-based UMID card to its members (Figure 14). The distribution of the card is the responsibility of the enrollment agencies. The chip storage is divided into two sections—one stores the common biographic and biometric information of the citizens and the second section stores the agency-specific information of the SSS, GSIS, PhilHealth, or Pag-IBIG. The agency-specific storage in the card is limited to the usage by the four agencies. Agency-specific information can be accessed only by the respective agency. The front of the UMID card has a common look for all the enrollment agencies but the agencies can choose their own layout on the back which is called “Agency side.”²⁰

Figure 14: Interface of the Unified Multi-Purpose Identification Card



ID = identification, UMID = Unified Multi-Purpose ID.
Note: Not an actual ID, just a close copy of UMID card.

²⁰ Government of the Philippines, National Economic and Development Authority. 2006. Unified Multi-Purpose ID System: An Overview. Presentation slides. 10 May. <http://w3.neda.gov.ph/references/EOs/EO420-UMID-Quick-Overview-DEVCOMNET-10May2006.pdf>

In 2014, the lower house of Parliament, the House of Representatives, passed Bill No. 5020 – An Act Establishing the Filipino National Identification System. According to this bill, the proposed FID system “shall gradually concert and consolidate all existing government-initiated identification system into one integrated and efficient identification system.” With the bill now cleared by the House of Representatives, it will be debated and passed by the upper house, the Senate. This could lead to the establishment of a foundational ID system for the Philippines.

The proposed FID system involves four agencies—the PSA, the Department of Foreign Affairs, the SSS, and the GSIS. The latter two institutions will play a support function. The PSA will be the lead implementing agency, in charge of planning, management, and administration of the FID. The Department of Foreign Affairs, working in coordination with the PSA, will handle the enrollment and registration of Filipino citizens residing abroad.

A nationwide network of FID enrollment centers will be created. However, this network will build upon the existing infrastructure of the SSS and GSIS enrollment centers and will thus involve them in a supporting role. In the FID operating model, common enrollment centers will collect biometric and demographic data, which will be sent to the PSA for deduplication and generation of a CRN. The PSA will then issue the FID card and send it to the applicant.

The FID card is expected to become the single ID for use in all government transactions, and will also be used by the private sector. It will also be used as proof of identity, status, age, and address; for admission to all learning institutions; for employment purposes; for transactions in banking and financial institutions; for accessing benefits or privileges afforded by law to senior citizens; and for voting ID purposes.

4.7 Viet Nam

Viet Nam has been facing a challenge to identify residents and authenticate them for delivering services. The Government of Viet Nam recognizes this challenge and is proactively piloting its new National Identity system.

The government has expressed interest in exploring the deployment of a fully fledged electronic ID-based service delivery framework. Such an electronic system could be based on the new National Identity system being piloted. In response to the government’s request, the World Bank conducted a technical assistance activity.²¹ The study paid close attention to innovative eID systems to enhance the accountability and efficiency of service delivery.

The Ministry of Public Security issues the People’s Identity Card and an ID number to all the residents of Viet Nam. Service providers use it as the proof of identity document to establish the identity of a resident. The ID card is issued to all residents above the age of

²¹ The World Bank. 2015. *Vietnam - Study on e-ID Infrastructure to Improve Public Services Delivery*. Electronic Identification Technical Report. Washington, DC. <http://documents.worldbank.org/curated/en/2015/06/24655155/vietnam-study-e%280%90id-infrastructure-improve-public-services-delivery-electronic-identification-technical-report>

14 by the provincial office of the Ministry of Public Security. The card, which is valid for 10 years, bears the resident's name, address, age, height, weight, date of issue, and one fingerprint. Roughly 98% of the population of Viet Nam owns such an ID card. The ID card has a 12-digit number. The first three digits are for categorizing the Provincial Police Department. For example, an ID number starting with 012-885-652 is issued to citizens residing in Ha Noi, whose city code is 012, three digits that were only recently added.

Establishing identity is usually a two-stage process—identity creation and identity authentication. Identity creation is the mechanism of defining an individual's identity by providing identity token(s) to the person in some form (physical and/or electronic). This is typically a one-time activity. Identity authentication is a process of verifying “who an individual claims to be” by checking the identity tokens assigned to the individual. This can be manual, electronic, or a combination of both.

The ID card currently in use is issued to the residents at the province level with a locally generated ID number scheme (Figure 15). There is an issue of synchronization of the resident ID number between the national and provincial levels. Hence, the same ID number could be issued to more than one resident across provinces and it could be difficult to uniquely identify a resident using the ID card alone. The government recognizes this issue and is seeking legislative changes to address the issue. With a paper-based ID card that is issued at the creation process, there is a higher risk of identity theft. It is easy to forge physical documents and difficult to discern counterfeits from genuine ones. Also, such documents cannot be used to verify that the person carrying the token is indeed the person it identifies, except when it also contains a photo. Furthermore, the current ID card is subject to misuse since there is no authentic audit trail; cross-checking, instead, relies on an exhaustive manual audit mechanism.

In Viet Nam, as in other countries, both public and private service agencies across the country typically require proof of identity before providing services to individual residents. For any agency, establishing the resident's identity and level of entitlement is necessary before offering any service, be it opening a bank account, withdrawing or depositing money, getting a tax code, receiving a pension, or traveling. Individual identity may be unique and independent of the services accessed, but entitlement is very specific to the service desired; therefore, they have to be established separately. For instance, the issuance of a health insurance card involves individual identity (name and address) verification and health insurance entitlement identification.

The service providers in both the public and private sectors typically follow their own process of identity creation, in addition to the service entitlement identification. To illustrate, Vietnam Social Security maintains a separate database of beneficiaries and their service entitlement identification for each of the welfare programs such as social and health insurance. A separate identity token for each of the programs is provided to the resident for identity authentication and entitlement verification.

Vietnam Social Security is in the process of centralizing its beneficiary databases from different programs—social and health insurance—which are available at present at the

local level. Currently, the unique identification of a citizen across the program databases is a challenge as the information technology (IT) systems and the databases are distributed with no common data standards for storing citizens' basic information. Moreover, each database has a separate ID system for the identification of the beneficiaries. The ID numbers on social and health insurance books are not consistent. There is a need for a unique ID number to be assigned to the citizens that they can use throughout their life. Vietnam Social Security is waiting for the government to issue the national identity number to citizens so that it may be better able to manage the social and health insurance programs.

Figure 15: Viet Nam Identity Card



The current ID system of Viet Nam is costly, inconsistent, and uses service-provider-specific ID creation and authentication process. The service providers in both the public and private sectors typically follow their own process for ID management. This is in addition to service entitlement identification at the time of service delivery as per their needs, with limited or no interoperability as most of the identity tokens are accepted

for specific purposes and at specific locations only. The current ID system can work only in assisted mode since most of the identity tokens provided by the service agencies are physical tokens based on “what you have.” This results in a higher setup cost for the authentication mechanism of each service provider. Moreover, this process gives limited scalability and causes extreme inconvenience to the residents. In order to eliminate the issues currently facing service providers with regard to unique identification and identity authentication, there may be a need for a more robust and effective national identity system.

4.8 Assessment of Identification Readiness

ID systems are in varying degrees of development all over Asia and the Pacific. Based on the ID maturity model, country-level assessments of the ID systems are described for a number of countries in Asia.

Cambodia

Cambodia is in the middle of a transition in its ID system from the Khmer ID to the proposed IPIS system. The existing Khmer ID is assessed as being at an intermediate stage. It is a foundational ID system with a strong biometric-based deduplication process

and a chip-based smart card. It also has a link to the CRVS system and has policy backing. However, only 40% of the population is currently enrolled and aspects such as privacy and third-party integration are not thoroughly considered. However, a strategic plan is currently being developed for a new ID system, which addresses all parameters.

India

UIDAI's Aadhaar program in India is assessed as being at an advanced stage. The deduplication process is strong, involving both biometric and demographic data. Both technical and operational processes are robust, with the capacity to process enrollments of 1 million people per day. The ease of integration for third parties is high, and use cases are many and expanding every day. Harmonization is also high, with the Aadhaar replacing many functional IDs as the primary form of ID. One challenge faced by UIDAI is on the policy front, as the Aadhaar has not been given the legal sanction to be a mandatory ID for all Indians. Despite this, the Aadhaar program has near universal coverage and has reached 940 million of the 1.2 billion population through voluntary enrollment.

Indonesia

The ID system of Indonesia is assessed as being at an intermediate stage. The deduplication process of this system is very strong and uses multiple biometrics. Third-party integration is easy and every citizen receives a smart card, which enables both online and offline verification. The system also has legal backing. While the technical aspects and design of the system are very strong, the implementation of the project has stalled due to some procurement issues and as a result both coverage and usage were lower than expected. The system has been scaled up covering 140 million of the 252 million population.

Malaysia

Malaysia's ID system is progressive in every aspect and is, therefore, rated an advanced system. The deduplication process is robust, coverage is universal, and the ID system has legal backing. Third-party integration is easy, and there are many use cases. In fact, Malaysia's MyKad system is the first to have a multipurpose smart card (instead of an ID card), which can function as a debit card or an insurance card, among others.

Pakistan

Pakistan's ID system is assessed as being at an advanced stage. It uses cutting-edge processes and is near universal in its coverage. The deduplication process uses biometrics and is robust. Third-party integration is easy and profuse, with many use cases for the ID, even beyond authentication, such as serving as a prepaid or debit card, and so on. NADRA is also a financially self-sustaining system, with a good business model in place. Pakistan's NADRA system is considered one of the world's leading ID systems, and has provided technical assistance to the development of many ID systems in the developing world.

Philippines

The ID system of the Philippines is in transition, and the current UMID system is assessed as being at an intermediate stage. The UMID has a strong biometric-based deduplication process and maintains the uniqueness of the records. There is also a degree of harmonization of IDs as the UMID card replaces some of the existing agency IDs. There are also use cases beyond identity and authentication, such as use as a debit card. However, the system is weak in multiple aspects: it has extremely low coverage (less than 8% of the population), which severely diminishes its utility; it is not easy to integrate, since it only offers a chip-based offline authentication process; and it is not backed by complete legal protections as it is based on an executive order.

Viet Nam

Viet Nam's ID system is assessed as being at a nascent stage. It is still a paper-based ID system, which can provide identity but not authentication services. As the system is not digital, it has no linkage to the CRVS system either. The harmonization of ID systems is also low and many ID systems are used in parallel.

5. The Way Forward

5.1 Evolution in Identification Maturity

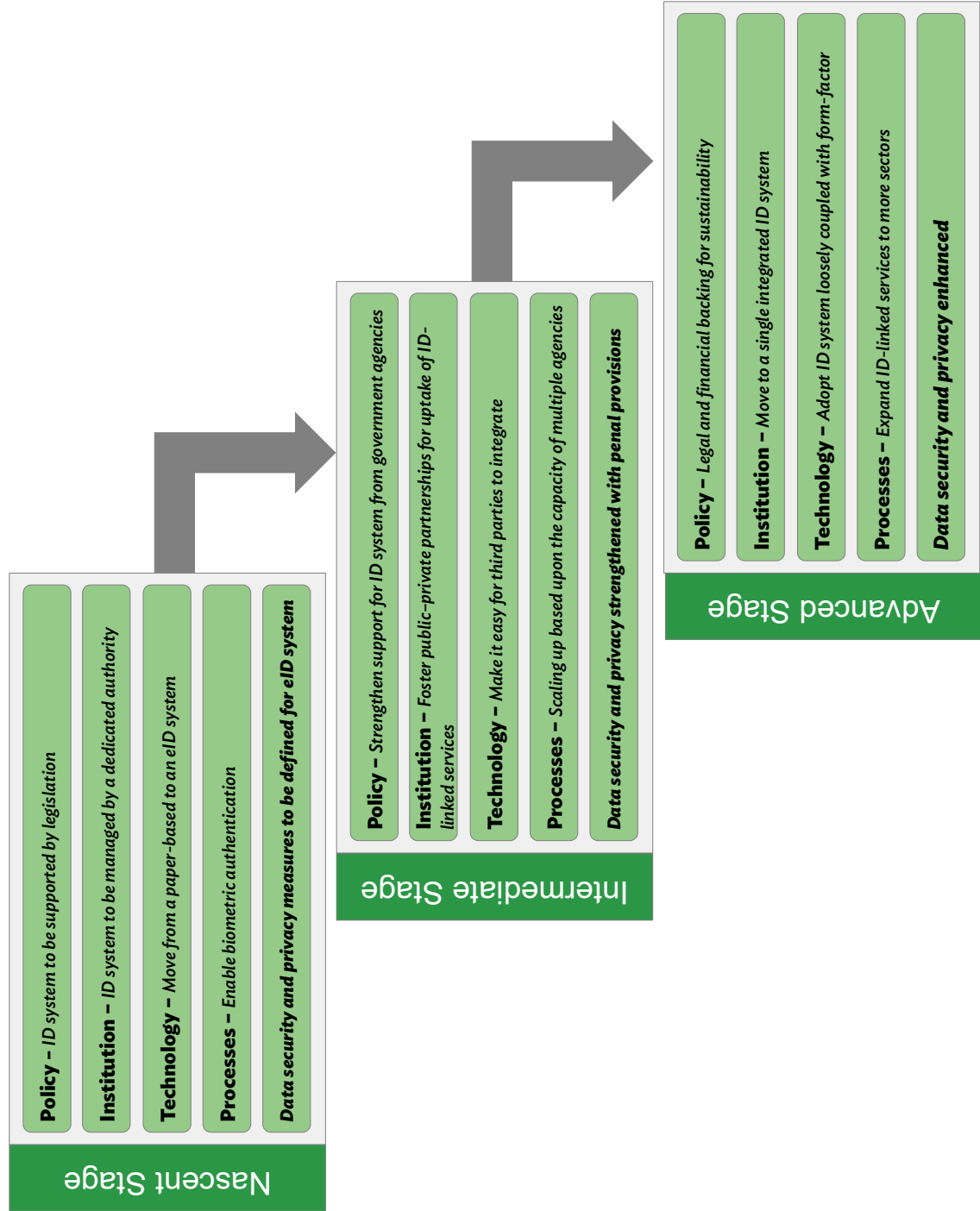
The evolution of ID systems into a useful instrument for development is a multifaceted process. This report provides a tool to gauge the maturity of an ID system in a country. Once the ID maturity and use cases have been determined, the following suggestions could help move the ID system to the next level of evolution. Road maps are depicted for ID systems at each of the three levels of maturity (Figure 16).

A country at the nascent stage should look at moving from paper-based systems to digital systems to increase effectiveness. The ID system should be robust enough to provide biometric deduplication and authentication services in order to be widely used throughout the project life cycle. Additionally, the country should have a formal, dedicated department or authority to manage the ID program. The cost of building ID systems is significant. Leveraging the existing ID infrastructure and having a legal mandate can help lower and justify these costs.

A country at the intermediate stage has a technically strong ID system design and thus must focus on scaling up enrollment and adoption. To achieve this, the ID system should be easy to use by the end users, service providers, and consumers and simple to integrate with other systems. The government should foster links through public–private partnership for uptake of ID-linked services. The process of scaling up the enrollment and adoption of an ID system should leverage the capacity of multiple agencies. Apart from technical and operational efficiency, another concern in enrollment and adoption is privacy. It is, therefore, important for the government to safeguard the individuals' privacy and data protection.

A country at the advanced stage has a technically strong ID system that has attained significant coverage and adoption. These ID systems should, thus, be able to provide all services identified by the strategic framework—authentication, automation, monitoring and evaluation, and data insights. A strong legal backing, if not attained from the very beginning, becomes more important at this stage. Once the ID system is strong enough, it must attain legal and policy backing and financial self-sustainability to ensure continuity. The government should also look into moving to a single integrated ID system, which links the CRVS system as well as foundational and functional IDs into a single ID system. The ID system should allow the easy adoption of newer form factors and channels that may emerge in the future and, hence, should keep the ID system loosely coupled with the form factor.

Figure 16: Transition Steps for Identification Systems at Different Levels of Maturity



eID = electronic identification, ID = identification.
Source: Author.

Countries at different stages of development can strengthen their ID programs in a systematic manner to maximize the benefits from a strong and robust ID system in development. Based on the assessment in the report, government and multilateral institutions can review their current efforts and plan to potentially link identification to their development programs to improve effectiveness. While many countries have already commenced their national-level ID management programs in one way or another, the efforts should move away from costly one-off exercises to better supported, permanent, and foundational registries and ID programs. A robust universal ID system will help the government and institutions to increase the efficiency and effectiveness of development programs.

5.2 Integrating Identification into ADB Operations

The Asian Development Bank (ADB) adopted its corporate framework Strategy 2020 in April 2008. At its midterm review in April 2014, several priority areas emerged that would help sharpen and rebalance ADB operations, and strengthen ADB's responsiveness to the changing business environment. ID for development can either directly or indirectly impact all these priority areas. ADB can undertake actions to utilize the benefits of ID for development in aligning ADB operations with the evolution of ID systems. The following three areas should be considered.

Sustaining Inclusive Growth

Inclusive economic growth is one of ADB's key strategic agenda in achieving its overarching objective of poverty reduction. Economic growth alone cannot address the issues of pervasive poverty, but it often generates the negative impact of a high level of inequality for income as well as access to opportunities. ID systems can play a significant role in enabling better access to public and social services, such as education and health care services and for well-targeted social protection programs, all of which would increase inclusiveness.

Private Sector Development

Private sector development is critical for sustainable economic development. During the course of various development programs, the national ID management program itself offers an opportunity to develop the private sector through participation in the programs, where several nationwide ID operations can be contracted out to the private sector. It would generate the new businesses related to the program and increase the efficiency for such a large-scale program. In addition, enhanced ID systems would help private sector players develop sustainable and innovative solutions in delivering ID-related services to citizens.

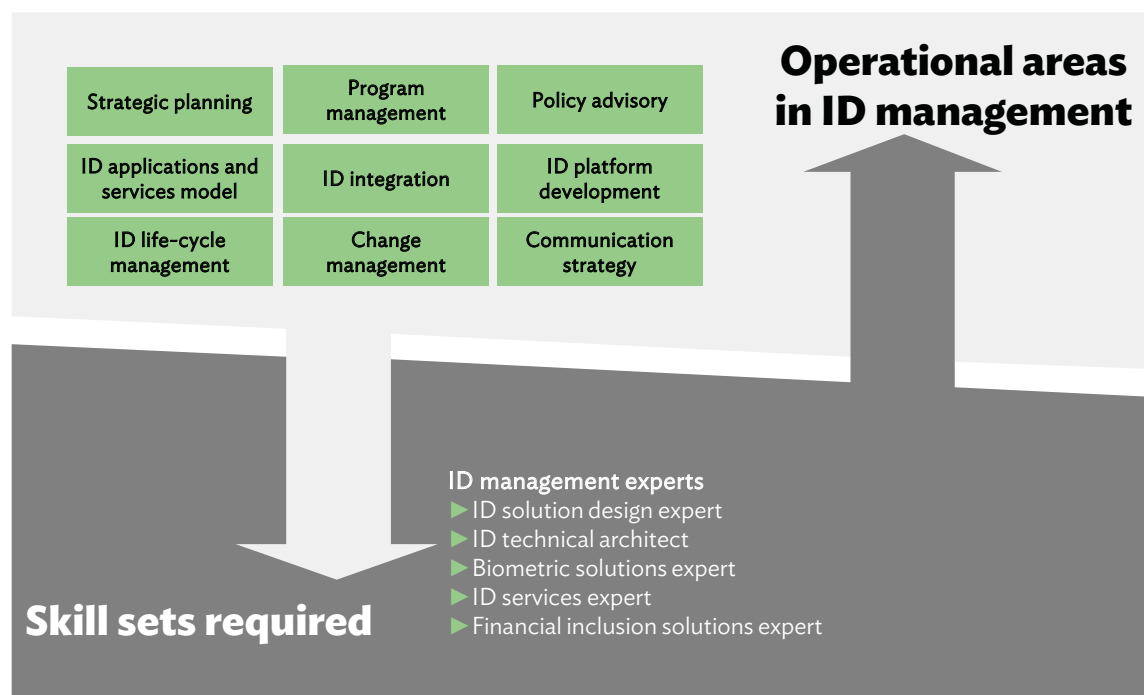
New Demands from Middle-Income Countries

Asia and the Pacific region has been growing rapidly, and many countries in the region are now transitioning from the lower-middle-income to the middle-income category. This transition will be accompanied by an increased demand for better public services and social programs. As such, ID systems will be more important in meeting the escalated demands,

ensuring that everyone is counted. ID systems, especially when integrated with the civil registry system, can help in tracking emerging issues across sectors as countries transition to new levels of development.

ADB can play a vital role in providing financial and technical assistance to developing countries for their ID management programs. Developing countries frequently invest in ID systems that are disconnected and lack interoperability. ADB could help developing countries prepare a strategic framework and implement road maps for an integrated ID system that is reliable, cost-effective, and futuristic. ADB could also help developing member countries by providing operational support to improve and integrate civil registration and identification, including legal and institutional frameworks.

Figure 17: Operational Areas in Identity Management and Skill Set Required



ID = identification.

Source: Author.

ADB could assist countries to build a robust integrated ID system by

- advising on policy and regulatory changes required for the rollout of a national ID program;
- building a policy and regulatory framework that enables data quality, inclusiveness, customer satisfaction, and data privacy;

- planning and visioning the national ID program, formulating the overall program management strategy, identifying components, and preparing a road map and implementation plan for the national ID program;
- studying the service landscape for adoption and usage of national ID systems by public and private sector agencies, and building a framework and guidelines that incentivize usage of IDs;
- identifying and developing business models and business cases for potential revenue streams from ID adoption to support program sustainability;
- promoting usage of ID systems as a key mechanism for KYC processes in sectors such as banking, telecommunications, and education;
- building enabling applications and interfaces for ID-linked government service delivery, especially for the digitization of G2P payments;
- creating and disseminating relevant global knowledge products and data sets; and
- promoting awareness and launching a communication strategy for the rapid adoption of the national ID system.

The following is the required skill sets for capable ID management (Figure 17):

- **ID solution design expert**—to formulate the program strategy, business model, and implementation road map for ID programs, and to lead the ID program management team;
- **ID technical architect**—to carry out analysis of the IT architecture requirements and detailed design and defined functional and technical requirements for ID data repositories and IT infrastructure, and to lead the design team during a complete end-to-end life cycle of the ID processes;
- **Biometric solutions expert**—to design and implement the core technology solution for biometrics-based deduplication of identity for the ID programs;
- **Financial inclusion solutions expert**—to design processes for the adoption of ID services in the delivery of direct benefit transfers working with the private and public sector for the deployment of the ID solutions; and
- **ID services expert**—to design and implement solutions for the integration of an ID platform with third-party agencies and functional ID systems implementing cross-domain services integration.

Identity for Development in Asia and the Pacific

An integrated national identification (ID) system offers a means to fast-track the development process by providing the most efficient way to identify people in developing countries. This report seeks to help governments assess the maturity of a country's ID system and integrate it with development activities. A maturity model for a country's ID management is developed and applied to seven countries in Asia to assess the maturity of their ID systems. This report also provides a way forward for multilateral institutions—including ADB—to make the best use of ID systems in their operations.

About the Asian Development Bank

ADB's vision is an Asia and Pacific region free of poverty. Its mission is to help its developing member countries reduce poverty and improve the quality of life of their people. Despite the region's many successes, it remains home to half of the world's extreme poor. ADB is committed to reducing poverty through inclusive economic growth, environmentally sustainable growth, and regional integration.

Based in Manila, ADB is owned by 67 members, including 48 from the region. Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance.



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