"Identification for Development: The Biometrics Revolution"

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Session 1: Identification for Social Protection

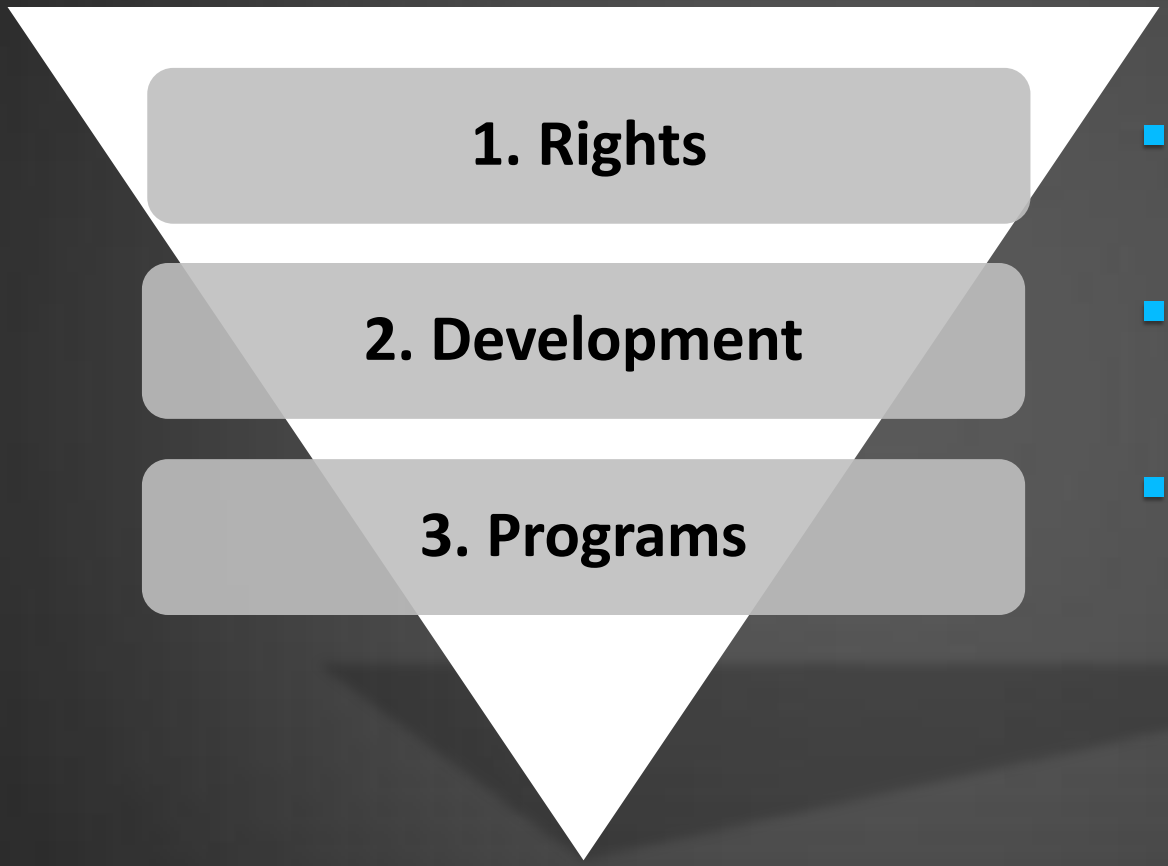
Overview

1. INTRO – identification, development, and social programs
2. TECHNOLOGY – the biometric revolution
3. CASES – biometric identification in developing countries: findings from a global survey
4. STRATEGIES – key lessons and pitfalls
5. DONORS – roles and priorities in the area of identification

Identification, development and social programs

1. INTRO

Perspectives on Identification



- necessary for exercising basic rights
- *instrument* and *goal* of development
- necessary for service delivery including social programs (cash transfers, pensions, healthcare)

"Identifiability" is necessary to access basic rights and development…

UN declaration on human rights:

- name
- nationality
- recognition before the law
- take part in government
- an identity with family ties
- equal access to public services…

More in convention on the rights of the child

… but lagging in poor countries

Under-documentation

(children → adults → children)

- 48 million unregistered births each year, 36% of total (UNICEF)
  - LDCs: 71%
  - South Asia: 63%
  - Sub-Saharan Africa: 55%
  - Rich countries: 2%
- 12 million stateless (UNHCR)

→ These people do not formally exist!

But ID is not enough, must have "functionality": *development purpose*

Identification for Development

Perspectives on identification

CITIZENS : required for basic rights and "equal access" [social, political, economic]

STATES : responsibility to citizens

[also efficiency and inclusion = goal (hopefully)]

DONORS : instrument for programs

"Robust" developmental ID must

- **Be inclusive:**
  - Avoid unnecessary cost barriers for the poor
  - Address failures-to-enroll (worn fingerprints)
  - Achieve financial sustainability
- **Have integrity:**
  - For both enrolment and authentication
- **Conform to social norms:**
  - Privacy concerns not yet prominent but will likely increase over time

The Program Perspective

- **Identify** and **authenticate** beneficiaries and enable them to **access services**:
  - Are you a unique individual? (I am unique!)
  - Are you eligible? (I am eligible!)
  - Are you who you claim to be (Yes! I can prove it)
- Provide an **integrated view** of the services received from different programs
- Facilitate an **audit** trail down to the recipient

Identity and Social Protection

	NEEDS		
	Registration	**Authentication**	**Monitoring**
Citizens	▪ Eligible individuals can enroll	▪ Eligible individuals can access service ▪ Others can't steal their benefits	▪ Access to personal records
States, Donors	▪ No ghosts, double-dippers ▪ Only eligible individuals are enrolled	▪ Only eligible individuals receive service ▪ No individual receives multiple benefits	▪ *Impersonal*: registration/service use tracked for statistics, audits, results-based financing, etc. ▪ *Personal:* individuals use service according to plan/requirement

The biometrics revolution

2. TECHNOLOGY

Why Biometric* Identification?

- (Almost) everyone has biometrics
- Unique → de-duplication
- Can't be lost, hard to steal
- Link to new technologies for delivery

Potential to leapfrog ID systems

*Distinguishing physical or behavioral feature (e.g., fingerprints, iris scans, face prints, voice, veins, tongues, ears, gait, DNA, signature, etc.)

Industry Growth

Development -related

Security & surveillance

Estimated growth rate of biometrics industry by region, USD millions

Region	Sales, 2005	Sales, 2010	% of Global Sales, 2005	% of Global Sales, 2010	Growth per Year
South America	137.0	515.8	9%	10%	30%
Middle East / India	160.0	715.9	10%	14%	35%
Africa	87.7	415.8	6%	8%	37%
Developing countries	*384.7*	*1647.5*	*25%*	*31%*	*34%*
Asia-Pacific Rim*	372.4	1158.0	24%	22%	25%
Europe / Australia	257.0	821.1	17%	16%	26%
North America	524.8	1637.0	34%	31%	26%
Industrialized countries	*1154.2*	*3616.1*	*75%*	*69%*	*26%*
World	**1538.9**	**5263.6**	***100%***	***100%***	**28%**

* Mixed grouping, both developed and industrialized

Uses and Limitations

Biometrics CAN…

1. **Identify** an individual against data to determine uniqueness (one-to-many, 1:N)
2. **Authenticate** an individual against a record (one-to-one or 1:1 matching)

…but CANNOT

Establish eligibility for a program or service. May need birth certificate or substitute, and poverty or asset data depending on program.

How Precise?

- Can measure failure-to-enroll, false acceptance, false rejection rates
- Error rate data not available for many cases
- UID has disclosed FTE, FAR and FRR with 84m enrollees
  - Achievements are impressive (even more so if applied in smaller countries!)
  - Lesson: need ample data and incentives for quality control
- We need more open data, but also a sense of realism
  - Often no clear alternative to biometrics given limitations of civil and population registries

Three concerns

1. **Exclusion:** basis of national or other credentials, ethnicity, also FTE
2. **Privacy:** linking data bases through a common identifier, surveillance
3. **Cost:** technology is too expensive, cost to beneficiaries can be prohibitive

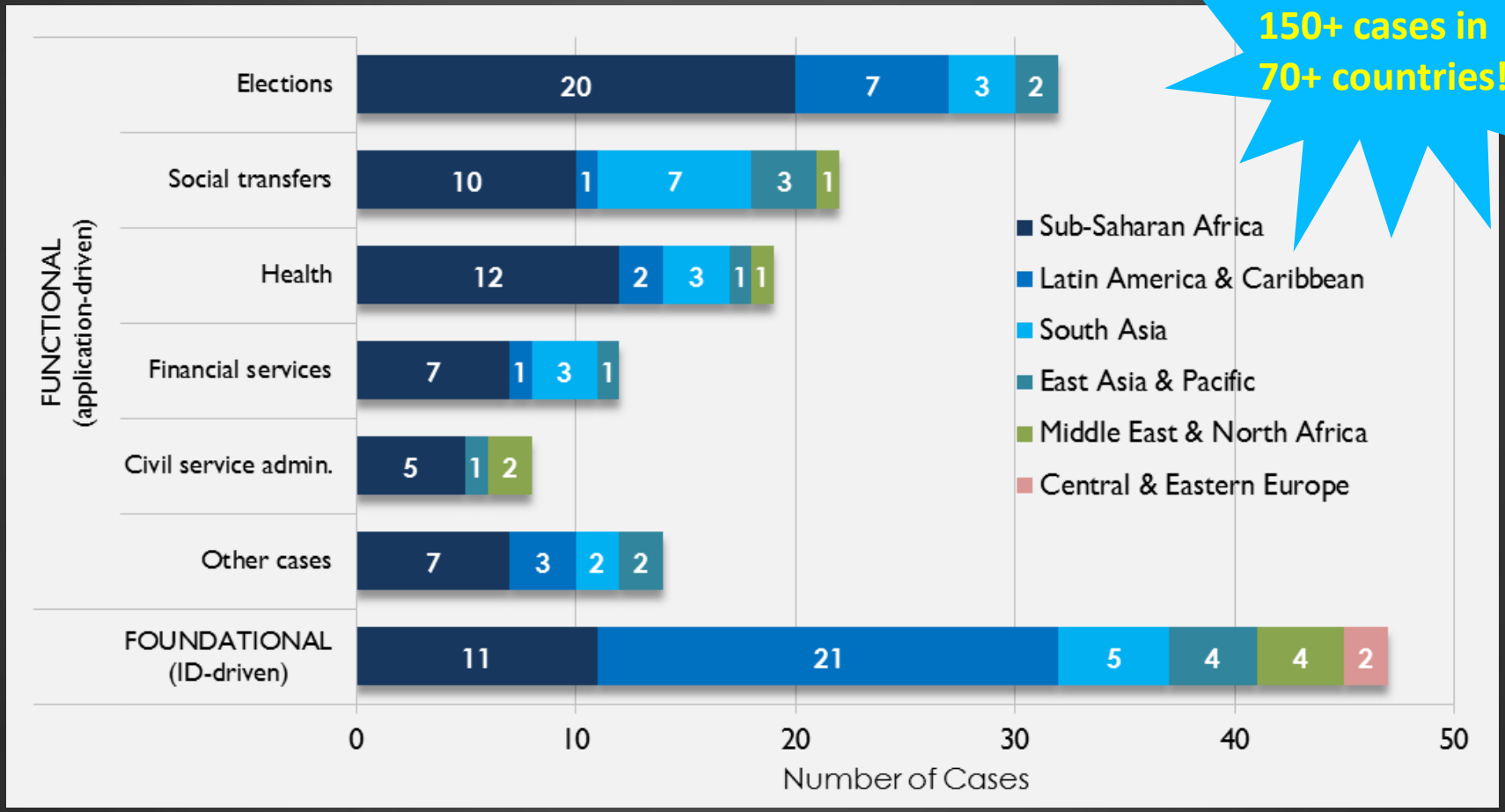
- Many concerns relate to identification in general, not specifically to biometrics
- But face recognition raises specific issues
- Technology costs are falling, to less than logistics costs

And data security always an issue…

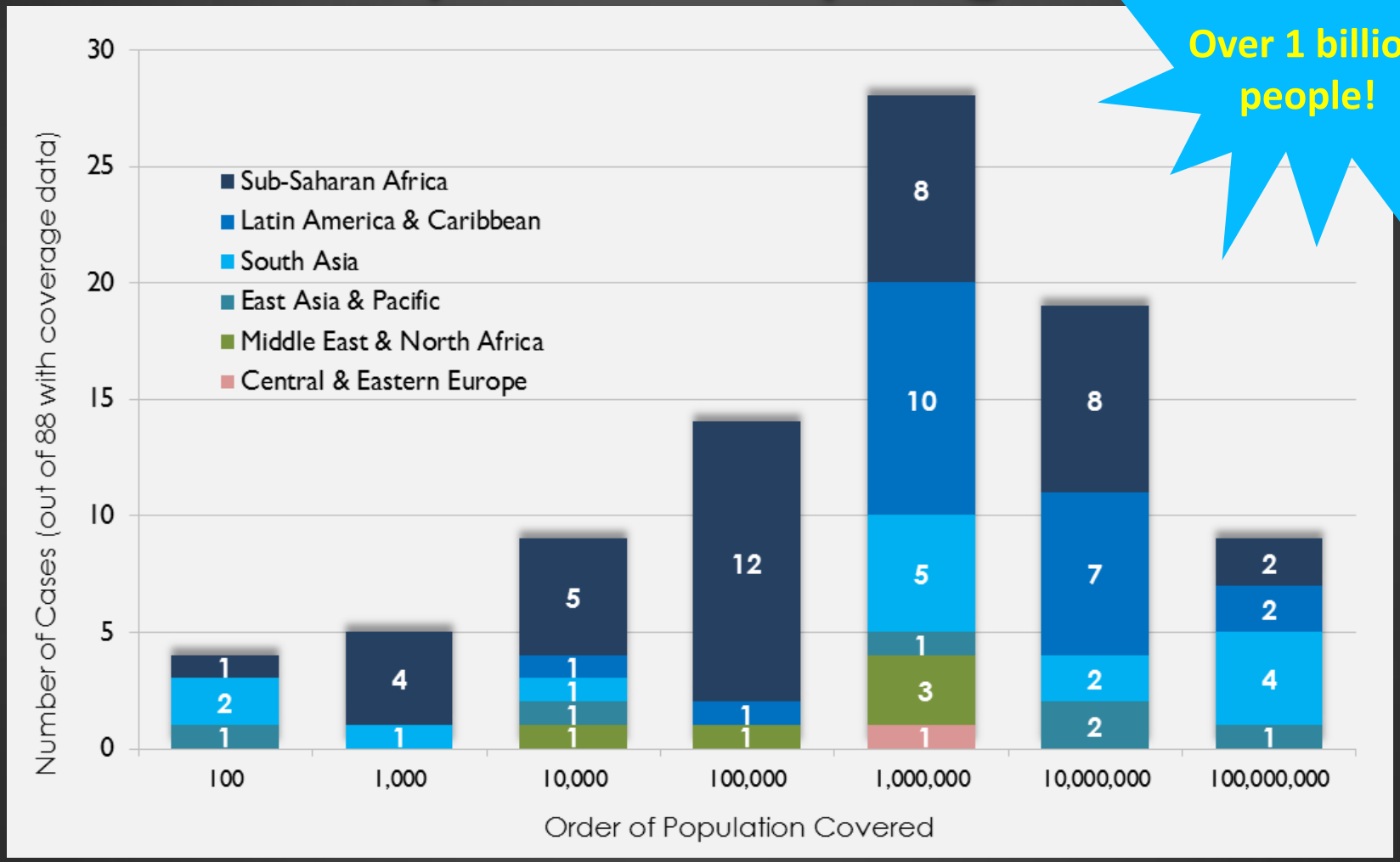
Findings from a global survey

3. CASES

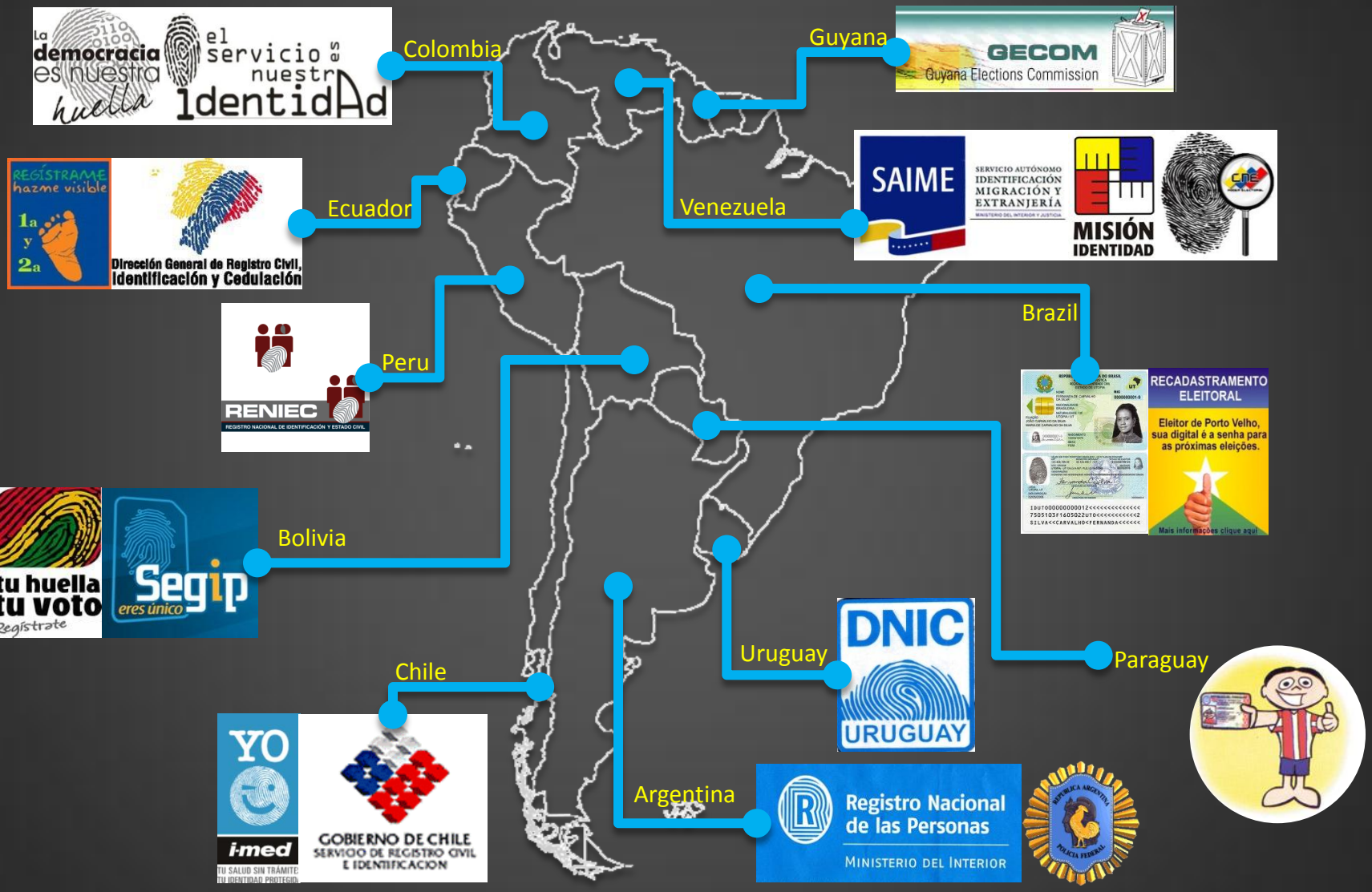
Sample of developmental biometric cases by type and region



Estimated population covered in sample cases by region



LAC regional focus on identification for inclusion, services …

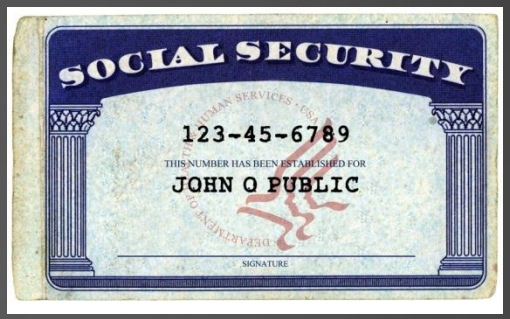


… almost all LAC countries now have biometric ID; required for most services

Functional ID ⟷ Foundational ID

Single-purpose to broader use

DRC
Voter ID



USA
SSN

General-purpose to specific functions

Pakistan
NADRA

India
UID

Country Trajectories

Primary	Secondary	Tertiary	Examples
Security	national ID	social applications	Pakistan
Admin. (HR)	transfer (payroll)	national ID	Liberia
Voter roll	national ID	social applications	Bangladesh
Unique ID number	(links pre-existing applications)	-	India
Multipurpose ID card	everything	-	Malaysia

No unique model, depends on history, infrastructure, needs, politics

Some Successes of Stronger Identification

- **Social inclusion** through recognition of disadvantaged groups (identification)
- **Beneficiary empowerment** (inclusion, authentication)
- **Improved financial access** via ATMs etc. (authentication)
- **Reduced leakage** in payments via smartcards, etc. (authentication)
- **Rationalizing:**
  - Public payrolls and pensions to eliminate duplicates and ghosts and save resources (uniqueness)
  - Social program beneficiaries (uniqueness)

Successes contd.

- **Increasing tax collection**, reducing evasion, fraud (single identifier)
- **Enabling markets** in health insurance (authentication, de-duplication)
- **Tracking health treatment** (post-natal care, TB, HIV/AIDS) (authentication)
- Sometimes useful beyond immediate application (voter card → ID)

Some Problems from the Cases

- **Planning:** trying to do too much too quickly, leading to failure e.g. some electoral registrations
- **Fragmentation:** loses economies of scale and scope, and inconveniences citizens by multiple registrations
- **Exclusion:** for example due to restrictive criteria for citizenship
- **Procurement:** corruption, lock-in to proprietary systems

Not always used to full potential

- **Sometimes no de-duplication** (or only local)
  - Data quality and logistics inadequate for 2-stage process especially under time deadline (electoral rolls Bolivia, Somaliland, initial AP…)
  - Allows operator collusion (e.g. mixing hand and eye data)
  - Prevents results-based incentives to register
  - Can cause system failure or abandonment
- **Sometimes no authentication** at point of service
  - Although there are other ways to authenticate once have strong registration

Implications

- Large potential benefits in program efficiency, inclusion and accountability
- Also possible risks and waste
- Identification should be part of development strategy (Pakistan, LAC…) not just a cost for each individual program

Social identification pathways

- **Fragmented:** one system for each project: no common identifier, frequent re-registration

  e.g. Sub-Saharan African cases

- **Foundational → social:** link national to social

  e.g. NADRA, LAC

- **Integrated social ID:** one social ID or database for many services

  e.g. South Africa, Brazil

Key lessons and pitfalls

4. STRATEGIES

ID Strategy?

1. ASSETS
2. NEEDS
3. CHOICES

I. ASSETS

- **Type:** databases, numbers, cards
- **Levels:** national, provincial program
- **Scale:** population, % coverage
- **Purpose:** national ID, elections, social programs, civil servants, taxes, land registries…
- **Data:** citizenship, age, gender, address, family, income, disability, etc.
- **Robustness:** accuracy, scale

2. NEEDS

Immediate Program or Function?

- **Who:** government, citizens, donor
- **Use:** ensure uniqueness, authenticate identity, verify eligibility/obligation, collect data, link systems
- **What:** database, number, card
- **Scale/scope:** size and type of population
- **Data:** citizenship, age, gender, address, family, income, disability, etc.

Future Purposes?

3. CHOICES

- **Strategy**: match needs and assets:
  - Can an existing system be used/scaled?
  - Do others have similar needs?
- **Technology**:
  - Biometric?
  - Offline or online?
  - (Smart)card?
- **Implementation:**
  - Logistics?
  - How to address bureaucratic infighting? (this has stymied some cases)

Technology is *not a substitute* for poor procedure!

Roles and priorities

5. DONORS

Donor Involvement

- Many of the cases are donor-supported
- Donors play multiple roles:
  - Demand: consumer of identity services through programs,
  - Supply: funder of identity services
- BUT can also foster overlap, with multiple, ill-fitted, projects

Donor Value Added in Context of Strategic Approach

- **Financing:**
  - ID systems can have steep initial costs
  - Can use Results-Based mechanisms
- **Technical assistance:**
  - Best practices and standards
  - Legal reform
  - Procurement
- **Coordination:**
  - Overcoming collective action problems within government
  - De-politicization of identification

Requires taking a wider view than project-by-project.


Thank you!

For more, see:

Gelb, A. and Clark, J. (2012) “Identification for Development: The Biometrics Revolution”, *CGD Policy Paper*, forthcoming

Zelazny, F. (2012) “The Evolution of India’s UID Program: Lessons Learned and Implications for Other Developing Countries.” *CGD Policy Paper 008*. Washington, DC: Center for Global Development.

Gelb, A., & Decker, C. (2011). “Cash at Your Fingertips: Biometric Technology for Transfers in Resource-Rich Countries.” CGD *Working Paper 253*. Washington, DC: Center for Global Development.

Available at www.cgdev.org/publications